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GRADUATE COLLEGE

DECENTRALIZATION AT THE GENERAL ELECTRIC COMPANY, FROM WORLD WAR II TO 1971

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DECENTRALIZATION AT THE GENERAL ELECTRIC COMPANY,

WORLD WAR II TO 1971

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PREFACE

Writing is a form of working out one's confusion. To that aim these seven chapters in this investigation are dedicated. The challenge has been to offer a better understanding of the complex organism that General Electric was and still remains. Complexity, according to Webster, "suggests the unavoidable result of a necessary combining or folding and does not imply a fault or failure." To aid in the understanding of a complicated structure, such as this extremely large and diversified company, it is necessary to simplify the subject for research purposes and then to convey an analysis which, if factual, will retain the complex substance of the study.

In Chapter I "decentralization" is defined. The term itself is truly an elusive one, having a multitude of meanings. In a strict definition, as Dale and Koontz point out, all organizations with more than one person are decentralized.[1] Decentralization represents organizational structures with a variety of patterns. The succeeding chapters define "decentralization" as it is found in only one organization--General Electric. The limited purpose is to discuss what decentralization has been and is at General Electric and not to make any claims that their decentralization is the best, the most traditional, or the most progressive.

One of the goals of this investigation is to show that the reorganization and decentralization structure

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[1]See Chapter I.

developed at General Electric, especially during the period 1950-1970, is based on a great deal of thought, and that it is built upon a well-conceived philosophical foundation. The decentralization structure within the company was not an accident; it was developed through the course of hundreds of man-years of planning. On the other hand, this dissertation will not attempt either to prove or disprove that General Electric developed the best in-depth managerial and organizational philosophy found in American business, a belief held by many academicians and practitioners.

The paper will try to show that General Electric was well organized, in both an academic and a practical sense. That is, it developed a plan for decentralization which was, perhaps, as detailed as any plan for corporate reorganization and, because of its place in time, it is more comprehensive than the Sloan plan for General Motors developed three decades before.[2] No attempt will be made to claim that the organization structure at General Electric made the company the success it is. The company certainly is larger than it was before decentralization, but the dynamics of the environment prevent any realistic laboratory study to show the effects of organization change upon size. Certainly, the structure affected the financial, physical, and emotional situation of the company, but one cannot determine whether the overall effect was positive or negative. It should be noted that Theodore Quinn, retired Vice President, General Electric Company, believed that with the enormous capital and market power which the company possesses, General Electric could be the poorest managed company in the country and still be a high financial success, so great is its base.[3]

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[2]Interview with Peter F. Drucker, New York, November 2, 1970.

[3]Theodore K. Quinn, *Unconscious Public Enemies* (New York: The Citadel Press, 1962), pp. 112-113.

This paper will not attempt to investigate and examine the validity of the particular type of decentralization which General Electric chose, as opposed to other possible types of structure. Such a concern is highly academic and would require examination of alternative decentralized structures. That topic is held for other investigations of the company. A return to centralization would be unthinkable, from the standpoint of size and complexity found within the firm. The company cannot go back twenty years. It is almost a completely different organization, mentally and physically.

Chapter II of this paper presents a short history of the General Electric Company. For the most part, the company's growth has been a logical and organic process. Since 1892, General Electric has been basically in the business of generation, distribution, and application of electric power. Drucker says that today the firm is the most conglomerate of all companies, yet it is still within the basic scope of the electric power industry.[4] In 1950, GE was a highly centralized conglomerate company; by 1960, it was highly decentralized. The decade of the 1950's was an extremely turbulent period for the company because of the organizational changes, yet the firm doubled in size, growing from a $2.2 billion firm in 1950 to a $4.4 billion firm in 1960. The decade of the 1960's again saw the company double, growing to $8.8 billion in sales in 1970.[5]

Alfred Chandler, who has done extensive work in studying the history and the organization structures of American big business, explains that General Electric, before 1939, was basically a functional organization with some

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[4]Interview with Peter F. Drucker, New York, November 2, 1970.

[5]*General Electric Company Annual Reports*, 1950, 1960, 1970.

autonomous divisions, such as X-Ray, Carboloy, and so forth, attached to the structure. The Home Appliance area, being a profitable business, had a Merchandise Department which was distinct from the Sales Department of the company. The latter was used by the non-appliance departments of the firm. At first, the company developed home appliances only to increase the demand for electricity, and hence to increase the demand for the company's major products for the generation and conducting of electricity. Even though home appliances had a marketing organization, all designing, manufacturing, and assembling was supervised by the older functional departments. Thus, it can be said formally that the firm was highly centralized. Chandler says, "Until 1939, however, General Electric executives did little to relate the work of the Merchandise Department and the other more autonomous new product divisions with the older functional departments or the company's central office."[6] The major organizational changes did not begin until after the first retirement of Swope and Young in 1940. Charles Wilson began to reshape the company but World War II delayed his plans. In a recent letter, Wilson commented, "My own design and desire, as early as 1930, was decentralization, but by the time I became President in 1940 we were on the verge of a world war."[7] Such a statement is not idle boasting by Charles Wilson, for in 1929 at the company's Association Island executive meeting he made a speech listing the advantages of and the need to decentralize. He advocated "a more complete decentralization of those departments which are now partly decentralized...(and) the adoption of vertical

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[6]Alfred Chandler, Jr., *Strategy and Structure: Chapters in the History of the Industrial Enterprise* (Cambridge, Massachusetts: The M.I.T. Press, 1962), p. 365.

[7]Letter from Charles E. Wilson, April 14, 1970.

or decentralized type to the extent that it is practicable by other departments. . . ."[8]

The great reorganization of 1951 and its consequences as developed by Ralph Cordiner is the central point of this dissertation. Chandler says, "Cordiner's reorganization went further than those in any other company studied here (a list including most of the largest companies in America), both in the erection of a large number of relatively small administrative units, and in the methods developed to administer these units."[9]

Most of this dissertation concentrates on the theory, knowledge, concepts, and planning at General Electric. Only Chapters IV and V make any real attempt to go beyond this to discuss the actual practice of management--the experience and expediency--which help to make the real world somewhat different from the philosophy developed at GE.

The investigation is offered in partial fulfillment of the requirement for the Doctor's degree at the University of Oklahoma. Sincere acknowledgment is made to the faculty of the College of Business Administration at the University of Oklahoma and especially to members of this author's doctorate committee whose substantial assistance made this work possible. This study was initially under the direction of Dr. L. Doyle Bishop who greatly assisted in planning the scope of the investigation. Because of reassignment, Dr. Bishop was replaced by Dr. Ronald B. Shuman whose guidance cannot be overstated. Other members of the doctorate committee, Drs. James Hibdon, William H. Keown, Marion C. Phillips, and Donald A. Woolf, should be cited as persons who have read and contributed greatly to the manuscript.

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[8]*Professional Management in General Electric Book One: General Electric's Growth* (New York: General Electric Company, 1953), p. 3.

[9]Chandler, *op. cit.*, p. 369.

Appreciation is expressed for the help received from the General Electric Company and its employees, both past and present, and especially Harold F. Smiddy, who spent many hours with this author; Phillip Reed; Lemuel Boulware; Jack S. Parker; Paul Mills; and Hugh Estes each contributed much in the way of helpful suggestions. Dr. Peter F. Drucker assisted in no small manner. Most of the manuscript was typed by Mrs. William J. Greenwood and June C. Starck of the General Electric Company. The final copy was typed by Patsy Stephens of the University of Oklahoma.

Finally, this author is indebted to William J. Greenwood, past General Electric employee and currently Vice President of Chase Manhattan Bank, N.A. who gave lavishly of his time, advice, criticism, and suggestions without which this work could never have been completed.

The opinions and any errors are strictly the author's.

DECENTRALIZATION AT THE GENERAL ELECTRIC COMPANY, WORLD WAR II TO 1971

CHAPTER I

DECENTRALIZATION AND CONTROL

The objective of this investigation is to discuss the philosophy of decentralization at the General Electric Company. This opening chapter will concentrate on definitions of decentralization and control. It will emphasize the academic approach in hope of laying a foundation on which to build a better understanding of General Electric's organizational structure and philosophy.

Defining decentralization is no easy task. Each company which claims to be decentralized defines it differently. Although General Electric, Westinghouse, General Motors, du Pont, and Standard Oil of New Jersey are perhaps the best well known firms connected with a decentralized managerial philosophy, they constitute only a few of the decentralized companies. Alfred D. Chandler, Jr., whose outstanding and in-depth article, "Managerial Decentralization: A Historical Analysis," published in 1956, claims that almost all of the fifty largest firms in the nation (size based on 1948 assets) were decentralized.[1] He goes

[1]Alfred D. Chandler, Jr., "Management Decentralization: A Historical Analysis," *The History of American Management Selections from the Business History Review*, ed. by James P. Baughman (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1969). (First appeared Vol. XXX, June, 1956).

on to write about the few centralized giant firms as follows, "In 1955 a number of the most highly centralized organizations among the top fifty industrial firms were those still dominated by men well beyond the normal compulsory retirement age."[2] Chandler's long article studies decentralization by looking at ten different industries (chemical, electrical, automotive, steel, food, and so forth). He studies decentralization by tracing its history starting with du Pont's concentration on decentralization near the turn of the century and how du Pont influenced General Motor's organizational arrangement in the 1920's.[3] Yet, Chandler does not define what he means by decentralization. In order to establish a definition of decentralization, the leading writers in the field should be consulted. They include Donaldson Brown[4] of du Pont and General Motors; Ralph Cordiner[5] of General Electric; Ernest Dale,[6] Consultant and Educator; John Dearden,[7] Educator concentrating on the financial control side of decentralization; and Alfred P. Sloan, Jr.,[8]

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[2] *Ibid.*, p. 241.

[3] Decentralization in American Industry can be traced before 1900 in the transporation, utility, and financial industries.

[4] Donaldson Brown's most well known work is "Decentralized Operations and Responsibilities with Coordinated Control," *Annual Convention Series*, No. 57 (New York: American Management Association, 1927).

[5] See especially, *New Frontiers for Professional Managers* (New York: McGraw-Hill Company, Inc., 1956) and his two articles in the *General Management Series*, American Management Association, No. 134, "The Implications of Industrial Decentralization," (1945); and No. 159, "Problems of Management in a Large Decentralized Organization," (1952).

[6] Ernest Dale's three leading works on organizational structure are: *Planning and Developing the Company Organization Structure*, Research Report No. 20 (New York: American Management Association, 1952). (This book is outstanding for its research.) *Organizations* (New York: American

also of General Motors. From these and various other contributors, this author will try to develop one usable definition for "decentralization" in terms of big business.

First, it must be noted that "decentralization" is not a precise or absolute term. Any attempt to make it an absolute term definitely would negate its value as a descriptive device. If the term is defined strictly in terms of General Electric philosophy, then it will not necessarily describe General Motors or Westinghouse. Yet more precision in definition should be offered than is currently found in the hodgepodge offered in the literature. The term does mean different things to different people. Starting from a pure definition and working towards a usable definition, we can begin by noting that decentralization has at least two common meanings. One is geographic decentralization which refers to the location of factories, offices, the spreading out of the companies' physical plant facilities. The other generally held meaning is decentralization of authority and this refers to the spreading out of the authority, responsibility, and decision making to members

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Management Association, 1967), Chapter 6. *The Great Organizers* (New York: McGraw-Hill Company, Inc., 1960). His short but comprehensive article published in numerous books of management readings, "Centralization Versus Decentralization," *Advanced Management*, Vol. XX (June, 1955), pp. 11-16 (Published under a different title in Europe in 1954).

[7]John Dearden, see "Problem In Decentralized Profit Responsibility," *Harvard Business Review*, Vol. 38, No. 3 (May-June, 1960), pp. 79-86; "Problem in Decentralized Financial Control," *Harvard Business Review*, Vol. 39, No. 3 (May-June, 1961), pp. 72-80; "Mirage of Profit Decentralization," *Harvard Business Review*, Vol. 40, No. 6 (November-December, 1962), pp. 140-154; "Limits on Decentralized Profit Responsibility," *Harvard Business Review*, Vol. 40, No. 4 (July-August, 1962), pp. 81-89.

[8]Alfred P. Sloan, Jr., see *My Years with General Motors* (New York: Doubleday and Company, 1964).

of the organization other than the dominant executive. The definition for this paper will exclude geographic decentralization and concentrate on decentralization of decision-making authority, what some authors term managerial decentralization as opposed to geographic decentralization.[9] Ernest Dale claims that, "The term decentralization itself means the delegation of business decisions by the owners to their immediate representatives (the board of directors and the chief executive), and then to others further down in the management hierarchy."[10] For practical purposes this is an unusable definition as all large organizations would be considered decentralized under this definition. Even those large business organizations which most managerial experts consider as having centralized management would be considered decentralized under the above definition. Perhaps this definition was used by Alfred D. Chandler, Jr., which allowed him to claim most of America's fifty largest firms are decentralized. In some sense all organizations are decentralized. Harold Koontz and Cyril O'Donnell are in full agreement with Dale when they point out:[11]

> Decentralization of authority is a fundamental phase of delegation; to the extent that authority is not delegated, it is centralized. Absolute centralization in one person is conceivable, but

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[9]See Dale, *Planning and Developing the Company Organization Structure*, *op. cit.*, Stage VI; H. J. Kruisinga, *The Balance Between Centralization and Decentralization in Managerial Control* (Leiden: H.E. Stenfest Kroese N.V., 1954), p. 3; Dearden, "Mirage of Profit Decentralization," *op. cit.*, p. 141; *Decentralization in Industry: Studies in Business Policy*, No. 30 (New York: National Industrial Conference Board, 1948), p. 3.

[10]Dale, "Centralization Versus Decentralization," *op. cit.*, p. 11.

[11]Harold Koontz and Cyril O'Donnell, *Principles of Management: An Analysis of Managerial Functions*, Fourth Edition (New York: McGraw-Hill Company, Inc., 1968), p. 349.

> it implies no subordinate managers and therefore no structured organization. Consequently, it can be said that some decentralization characterizes all organizations. On the other hand, there cannot be absolute decentralization, for if a manager should delegate *all* his authority, his status as a manager would cease; his position would be eliminated; there would, again, be no organization.

Henri Fayol in 1916 stated that "centralization belongs to the natural order,"[12] but he was not using "centralization" in the pure sense for he continued, "The question of centralization or decentralization, is a simple question of proportion, it is a matter of finding the optimum degree for the particular concern."[13] Fayol ends with his definition of decentralization:[14]

> Everything which goes to increase the importance of the subordinate's role is decentralization; everything which goes to reduce it is centralization.

Some managers have not read Fayol's definition well for they have assumed that the number of decisions made at lower levels determines the degree of decentralization. It is not the number of decisions allowed to be made by subordinates, as so many executives incorrectly believe, but the importance of the decisions made at lower levels which matters. Delegating numerous little unimportant decisions and keeping one, highly influential decision at the top is not decentralization. Ernest Dale conducted a limited survey for the American Management Association and found that delegation

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[12]Henri Fayol, *General and Industrial Management*, trans. by Constance Storrs (London: Sir Isaac Pitman and Sons, Ltd., 1949), p. 33.

[13]*Ibid.*

[14]*Ibid.*, p. 34.

of decision making was more widespread in 1952 than in 1942, and that decentralization was believed to be widespread in 1952.[15] But he was able to comment:[16]

> Despite all the talk we hear about decentralization and the delegation of decision making, an examination of the actual activities of chief executives discloses that they continue to make most or all major decisions, either directly or through a formal framework of strict rules, checks and balances, informal instructions, and through mental compulsion on the part of subordinates to act as the boss would act. Chief executives also make final decisions on matters which are relatively or absolutely unimportant.

Decentralization is not only the delegation of the unimportant decisions to the lowest possible level, upholding the principle of management by exception, but it means delegation of many major decisions to lower levels, again upholding the principle of management by exception.[17]

The difference between what is advocated and what is practiced may vary widely as Dale, Henry Albers,[18] Helen Baker and Robert R. France, [19] and Mayer N. Zald,[20] among others, have found.

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[15]Dale, *Planning and Developing the Company Organization Structure, op. cit.*, p. 118.

[16]*Ibid.*

[17]The principle of management by exception is the belief that all decisions should be made at the lowest possible level and that only decisions can be moved up a level if the lowest level did not have the ability (authority, knowledge, and so forth) to make the decisions. It ultimately means that decisions made by the president could not have been made at a lower level.

[18]Henry H. Albers, *Principles of Organization and Management*, Second Edition (New York: John Wiley and Sons, 1965).

[19]Helen Baker and Robert R. France, *Centralization and Decentralization in Industrial Relations* (Princeton, N.J.: Industrial Relations Section, Department of Economics and Sociology, Princeton University, 1954).

[20]Meyer N. Zald, "Decentralization--Myth vs. Reality," *Personnel*, Vol. 41, No. 4 (July-August, 1964).

Peter F. Drucker, in his landmark book, *The Practice of Management*, spurns the use of centralization altogether, in agreement with Dale's belief that all large organizations are decentralized. Drucker used the terms "federal decentralization"--the organizing of activities into autonomous product businesses each having its own market and product and own profit-and-loss center--as the common meaning of decentralization; and the other term he uses is "functional decentralization" which is the setting up of integrated units handling a major and distinct stage of the business.[21] This last term is not the same as the traditional organization by functions--Marketing, Production, Finance, and so forth--or by related skills. "Functional decentralization" is organization by stage of process. Drucker says, "Some of the large companies are today engaged in thinking through engineering organization and in putting the engineering jobs where they belong according to the logic of the work to be done rather than according to the tools needed."[22]

The weaknesses found for "functional decentralization" are the same as weaknesses found for any functional organization. Every functional manager tends to know his area well but not other areas. Each functional manager considers his area the most important--tries to build it up and may subordinate the welfare of other functions. Functionalism makes men specialists, and therefore a narrowing of vision may occur, making the specialist unfit for general management.

Both "federal decentralization" and "functional decentralization" are found in most businesses. Drucker points out that they are not competitive but can be complementary.[23] Yet, because of the weaknesses in the use of

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[21]Peter F. Drucker, *The Practice of Management* (New York: Harper and Brothers, 1954), pp. 205-207.

[22]*Ibid.*, p. 208.

[23]*Ibid.*, p. 205.

solely functional organizational structure, the trend today is for the larger company to decentralize federally--organization by autonomous product lines. Of the two, federal and functional decentralization, federal is the more effective and more productive, according to Drucker.[24] Small firms do not need "federal decentralization" for they are an autonomous product business. The organizational problem for big firms was clearly defined by Donaldson Brown when, in 1927, he wrote, "That problem is to combine the economical advantages of modern business, with as little sacrifice as possible of that intimate control and development of managerial ability that is the character of the well managed small business."[25]

Since World War II managerial decentralization, or federal decentralization, for those who prefer Drucker's terminology, has been adopted or developed by Ford and Chrysler, General Electric, and Westinghouse, all the major chemical companies, most of the oil companies, the largest insurance companies, and many of the larger banks (General Motors had it by 1923 and du Pont developed it by 1920).[26]

What is this managerial decentralization? Basically, it is the method of combining the advantages of large-scale operation with the advantages of a well managed small business. It is the development of a number of independent profit-and-loss centers within a larger organization. The profit-and-loss center allows top management to measure the ability of the managers of each section or division. It allows top management to control each section (a definition

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[24] *Ibid.*

[25] Donaldson Brown, *op. cit.*, p. 14.

[26] See Chandler, *op. cit.*; Dale, *The Great Organizers*, *op. cit.*; Drucker, *The Practice of Management*, *op. cit.*; and Drucker, *Concept of the Corporation* (New York: John Day, 1946).

of control will follow shortly). Profit-and-loss centers allow each manager in the center to measure himself. The major decision which affects the profit and loss must be made by the manager who is being measured by the profit or loss. In other words, if profit and loss is one aspect of measuring a manager's value, then he must have the power to make as many decisions as possible which affect his grade. Thus, decentralization must push down not only minor decisions, but major decisions as well; all decisions which affect the evaluation of a manager must be made by the manager being measured.

Although decentralization differs from firm to firm, three organizational principles have emerged for most of the decentralized organizations. They are, as Alfred D. Chandler, Jr., found:[27]

1. A number of autonomous operating units whose managers handle the day-to-day operating decisions are responsible for the financial performance of their unit, and have the line authority and staff assistance commensurate with this responsibility.

2. The organization has built up a central advisory staff of specialists which provide services to the operating divisions and help top executives carry out their functions, particularly that of coordinating the activities of the division.

3. The organization includes a top management group which not only coordinates but also supervises the divisions (by reviewing and analyzing divisional operating and financial performances and by taking executive action on the basis of these analyses).

Decentralization relates to the authority to make decisions. Decentralization is a process as Bernard

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[27]Chandler, *op. cit.*, pp. 188-189, is quoted as found, changing only from past tense to present tense.

Baum in his dissertation on *Decentralization in a Bureaucracy* notes, and "delegation is the technique for implementing this process."[28] Therefore, a major principle of decentralization, as widely stated, is "Authority to take or initiate action should be delegated as close to the scene of action as possible."

Delegation is defined by Harold Stieglitz as "the act of entrusting to someone else (a subordinate) part of the job the person (superior) is expected to carry out."[29] Equally adequate definition is offered by Mooney and Riley: "Delegation means the conferring of a certain specified authority by a higher authority."[30]

Decentralization relates to how authority is delegated rather than to the grouping of activities. Decisions are delegated to the lowest level where authority, competency, and prestige can be found, to the level and manager who is responsible for the actual performance. This is what R. C. Davis terms the "Principle of Decentralized Decisions."[31] This must be done "without relaxing" as Stieglitz puts it, "necessary control over the policy or the standardization of procedure."[32]

In discussing the nature of decentralization Dale stated that the degree of decentralization of authority in a company is increased by:[33]

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[28]Bernard H. Baum, *Decentralization of Authority in a Bureaucracy* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1961), p. 22.

[29]Harold Stieglitz, *Organization Planning Basic Concepts Emerging Trend* (New York: National Industrial Conference Board, 1968), p. 5.

[30]James D. Mooney and Alan C. Riley, *Onward Industry!* (1931), pp. 35-43, cited by Bernard H. Baum, *op. cit.*, p. 23.

[31]Ralph Currier Davis, *The Fundamentals of Top Management* (New York: Harper and Row, 1951), p. 307.

[32]Stieglitz, *op. cit.*, p. 20.

[33]Dale, *Planning and Developing the Company Organization Structure*, *op. cit.*, p. 107.

1. The greater the number of decisions made lower down the management hierarchy.
2. The more important the decisions made lower down the management hierarchy. For example, the greater the sum of capital expenditure that can be approved by the plant manager without consulting anyone else, the greater the degree of decentralization in this field.
3. The more functions affected by decisions made at lower levels. Thus, companies which permit only operational decisions to be made at separate branch plants are less decentralized than those which also permit financial and personnel decisions at branch plants.
4. The less checking required on the decisions. Decentralization is greatest when no check at all must be made; less when superiors have to be informed of the decision after it has been made; still less if superiors have to be consulted before the decision is made. The fewer people to be consulted, and the lower they are on the management hierarchy, the greater the degree of decentralization.

At this time it is advantageous to take a look at the advantages and disadvantages of decentralization. It should be noted that an advantage of decentralization would be a disadvantage for centralization and vice versa. The virtues of decentralization have been heralded by numerous authors. A compilation of their views follows, and since most are self-explanatory, little added description is offered.

Advantages of Decentralization

A. Increases Flexibility in Organization

1. The more people are allowed to make decisions about their own work, the more flexible the organization is in adapting to local conditions, and the quicker decision making becomes.

2. It often means speedier and more locally appropriate decisions[34] and allows adjusting to rapid environmental changes because decisions are made at the area affected by the manager's effort. This is known as "natural decision making by management-on-the-spot."[35] Sayles and Strauss claim otherwise in saying, "Decentralized organizations may not be as effective in making quick decisions or in adjusting to rapid environmental changes."[36]

3. The decisions can be made based upon daily observations and experiences by those who are on the spot and should be more valuable than decisions made at a distance from the problems and issues, claims Howard T. Ludlow in his widely studied *Monarch Notes on Business Management.*[37]

B. Illuminates Weaknesses

1. "The danger," claims Drucker, ". . .of allowing unprofitable lines to be carried on the backs of the profitable ones, is much lessened."[38] Or, as he stated in 1946, "Decentralization means that weak divisions and weak managers cannot ride for any length of time on the coattails of successful divisions. . . ."[39]

C. Allows Top Management to Work on Broader Problems

1. A decentralized organization structure stresses

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[34]William R. Dill, *Handbook of Organizations* (Chicago: Rand McNally, 1965), p. 1097.

[35]Lounsbury S. Fish, "Decentralization Reappraised," *A Management Sourcebook*, ed. by Franklin G. Moore (New York: Harper and Row, 1964), p. 254.

[36]Leonard R. Sayles and George Strauss, *Human Behavior in Organizations* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1966), p. 461.

[37]Howard T. Ludlow, *Business Management, Monarch Notes and Study Guides College Level* (New York: Monarch Press, 1965), p. 24.

[38]Drucker, *The Practice of Management, op. cit.*, p. 209.

[39]Drucker, *Concept of the Corporation, op. cit.*, p. 48.

delegation of authority closer to the scene of action and relieves top manager's load.

2. It allows management by exception--thus freeing top management.

3. "Decentralization multiplies management effectiveness and firepower," to use Lounsbury Fish's phraseology. "Instead of a single center of management, decentralization stimulates and multiples management initiative, resourcefulness, and the sense of profit-making responsibility throughout the organization."[40]

4. Dale believes that, "The quality of decisions is likely to improve as their magnitude and complexity is reduced, and as major executives are relieved of possible overwork."[41] As President Dwight Eisenhower noted when he was General, "Full concentration on the chief problem at hand makes it possible to solve it; the details should be handled lower down the line. I never fired a man for delegating responsibility, but I did fire men who held the reins too tight and irritated others by their preoccupation with minutia."[42]

5. Decentralization should develop a more manageable scope of operations.[43]

D. Develops Managers

1. The development of "generalists" rather than specialists is encouraged, thereby facilitating succession into positions of general manager.

2. Develops strong, self-reliant managers because it multiplies the opportunity for development by forcing low level managers to make decisions. That is, decentralization tests men in independent command early and at a reasonably low level so that his mistakes are not so costly. The more decentralization

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[40]Fish, *op. cit.*, p. 254.

[41]Dale, *Planning and Developing the Company Organization Structure*, *op. cit.*, p. 112.

[42]*Ibid.*

[43]Auren Uris, "Centralization vs. Decentralization," *A Management Sourcebook*, ed. by Franklin G. Moore (New York: Harper and Row, 1964), p. 265.

there is, the more the development of self reliant leaders. Fish comments, "It (decentralization) tends to produce leaders rather than learners."[44]

3. "Because of the great quantity of managers used in the total organization there is always a supply of good and experienced leaders able to take top responsibility." (Drucker)[45]

4. Decentralization creates more chains of promotions, believes Auren Uris.[46]

5. Management by objectives becomes fully effective because the manager of the unit knows much better than anyone else how he is doing.

6. Howard T. Ludlow says, "More advantage can be taken of the principle of specialization."[47] Ludlow does not expand upon this and without further information, argument could arise that he is implying the development of specialists which could conflict with point 1 under this heading.

7. "Decentralization means the absence of 'edict management' in which nobody quite knows why he does what he is ordered to do." (Drucker)[48]

E. Aids Developing Positive Morale

1. The more people are allowed to participate in decisions about themselves, about their own work, the more satisfied they are.

2. Intimate personal ties and relationships are promoted, resulting in greater employee enthusiasm and coordination.

3. The morale of the organization, both operative and executive, may be greatly improved as the result of broader executive "freedom to make decisions, freedom to use judgment, freedom to act."[49]

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[44]Fish, *op. cit.*, p. 254.

[45]Drucker, *Concept of the Corporation*, as quoted in "Decentralization" by Drucker, *Organizations: Structure and Behavior*, ed. by Joseph A. Litterer (New York: John Wiley and Sons, 1963), p. 68.

[46]Uris, *op. cit.*, p. 265.

[47]Howard T. Ludlow, *op. cit.*, p. 24.

[48]Drucker, *Concept of the Corporation*, *op. cit.*, p. 48.

[49]Davis, *op. cit.*, p. 306.

4. ". . .permits the large company to enjoy the human-relations advantage of the small company," claims Leonard Sayler and George Strauss, noted human relations experts.[50]

5. Decentralization gives added challenge, stimulus and importance to managers because managers are dealing with work for which they have full responsibility and are accountable for the results.

F. Increases Efficiency

1. The degree of decentralization that is necessary and desirable tends to vary inversely with the degree of standardization of the situation that can be achieved and maintained.

2. Small decentralized plants can be run more efficiently than the large centralized unit, according to a survey taken by the National Industrial Conference Board in the middle 1940's.[51]

3. "The amount and expense of paperwork by headquarters staff may be considerably reduced by delegating decision-making," Dale found in his AMA study.[52]

4. "The expense of coordinating may be reduced because of the greater autonomy of decision-making," again quoting Dale.[53]

5. Efficiency may be increased because there may be a better utilization of the time and ability of executives,[54] claims Dale.

6. Communications should improve within the organization as larger firms may find it too big a task to maintain a proper flow of information throughout all levels of a large centralized firm. Lines of authority and communications should shorten under decentralization.[55]

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[50]Leonard R. Sayles and George Strauss, *Human Behavior in Organization, op. cit.*, p. 460.

[51]*Decentralization in Industry: Studies in Business Policy*, No. 30 (New York: National Industrial Conference Board, 1948).

[52]Dale, *Planning and Developing the Company Organization Structure, op. cit.*, p. 112.

[53]*Ibid.*

[54]*Ibid.*

[55]Uris, *op. cit.*, p. 265.

7. "Divisionalization (and its narrower subdivision decentralization) helps in fixing accountability. Since the division manager is responsible for both production and sales, he cannot explain away a lack of profit by blaming another group as functional managers of production and sales may do, sometimes with justification." (Dale)[56]

8. "Efficiency is increased since the structure can be viewed 'as a whole' so that troublespots can be located and remedied easily." (Terry)[57]

Disadvantages of Decentralization

A. Increases Diseconomies

1. Duplication of facilities is likely to occur in decentralization which may not be offset in cost by the other economies found in decentralization.

2. Extra costs or hidden costs are sometimes associated with decentralization. Particularly the increasing number of financial specialists that must be maintained and their costly battles with line officials over the "true" profit figures for each decentralized unit as has been detailed by John Dearden.[58]

3. Similar to the above problem is the difficulty found in intracompany pricing of decentralized organizations. Joel Dean and Paul W. Cook, Jr., have written on what Dean calls the "Economically indefensible methods of intracompany pricing" as used in many decentralized companies. Although, they believe, the "losses" sustained from bad transfer prices may not show upon the company books, there could be a misevaluation of each profit center and its true value to the total company.[59]

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[56]Ernest Dale, *Organization, op. cit.*, p. 114.

[57]George T. Terry, *Principles of Management* (Homewood, Ill.: Richard D. Irwin, 1968), p. 352.

[58]John Dearden, "Mirage of Profit Decentralization," *op. cit.*

[59]Joel Dean, "Decentralization and Intracompany Pricing," *Harvard Business Review*, Vol. 33, No. 4 (July-August, 1955), pp. 65-74, and Paul W. Cook, Jr., "Decentralization and the Transfer-Price Problem," *The Journal of Business*, Vol. XXVIII, No. 2 (April, 1955), pp. 87-94.

4. Inadequate utilization of specialist advice may occur in decentralization. Theo Haimann feels that under decentralization some executives of autonomous divisions may feel they no longer need to utilize the special staffs found at the headquarters, thus not getting the best available knowledge from the specialists and underutilizing the center staffs.[60]

B. Increases Personnel Problems

1. Decentralization requires more top-grade executive talent than does centralization.
2. Decentralization may be ineffective and uneconomical if it is attempted without adequate personnel and if personnel have not been properly indoctrinated and trained. R. C. Davis comments, "Managerial decentralization may be halted until the present subordinates can be developed to handle their increased responsibilities, or new subordinate leadership brought in."[61]
3. A move to decentralization is usually associated with major changes in job design, especially in the top echelons of the organization.
4. Decentralization cannot be instituted overnight in firms which have been highly centralized, and during the changeover much friction among the personnel may result.

C. Emphasizes Short-Run Gains

1. Short-run gains may be maximized at the expense of corporate long-run goals to satisfy a need to make the division "look good." John Dearden puts it in terms of motivation when he says, "It is difficult, if not impossible, to set up a system that will motivate the divisional manager always to act in the best interest of the company."[62]

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[60]Theo Haimann, *Professional Management Theory and Practice* (Boston: Houghton Mifflin, 1962), p. 232.

[61]Davis, *op. cit.*, p. 312.

[62]John Dearden, "Mirage of Profit Decentralization," *op. cit.*, p. 142.

D. Delegates Responsibilities Improperly

1. Improper decentralization may result in too much delegation causing abdication, whereby the manager relieves himself of some of his responsibility. R. C. Davis notes that the "Principle of the Fiction of Responsibility and Authority," which can be stated as "the process of delegation relieves the responsible executive of none of his responsibility, authority, or accountability," may be broken if too much is delegated.[63]

2. Once authority has been gained by men, many, if not most, hesitate to give any of it up.[64] For decentralization to work top executives must delegate authority--in reality not only in theory. Edgar G. Williams found in a study of some decentralized companies that: "There appears to be marked inconsistencies between executive intent and everyday practice in pushing decision making downward toward lower organizational units and getting really effective participation by subordinate personnel."[65]

E. Decreases Control

1. Increased delegation of authority is the potential loss of control.

2. "Decentralization demands that all managers in the company share a common understanding of the methods and objectives of the organization; otherwise autonomy may lead to anarchy." (Sayles and Strauss)[66]

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[63]Davis, *op. cit.*, p. 300.

[64]Keith Davis, *Human Relations In Business* (New York: McGraw-Hill Company, Inc., 1957), p. 348.

[65]Edgar G. Williams, "The Influence of Managerial Decentralization on Personnel Relations," *Advanced Management*, Vol. 24, No. 10 (October, 1959), p. 24.

[66]Sayles and Strauss, *op. cit.*, p. 461.

3. Many companies, as found by Dale, discovered after decentralizing that decentralization can move faster than controls could be established.[67] More will be said about this below.

4. The autonomous divisions may actually begin to work against the interests of the company as a whole, such as was the case where the price fixing violation practices by some of the semi-autonomous divisions of General Electric, Westinghouse, and so forth, in the early 1960's, adversely affected the "image" of the total corporation.

F. Increases Poor Decisions

1. "Decentralized organizations may not be as effective in making quick decisions or in adjusting to rapid environmental changes,"[68] as noted by Sayles and Strauss, and a point which is in direct disagreement with an often cited advantage, perhaps caused by situational variances.

2. The more decentralized the organization, the fewer innovations are adopted. This claim was made by James Q. Wilson, a Harvard political scientist, although he believes the more decentralized the organization, the more innovations are conceived and proposed.[69]

3. Increased politicking and bargaining may take the place of rational decision making. (Zald)[70]

G. Decreases Coordination

1. Lack of uniformity in policy and procedures and decisions are often found in decentralized organizations.

2. Poor integration between decentralized units is known in decentralized organizations.

3. Inter-unit rivalry interfering with operations is found in decentralized organizations.

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[67] Dale, *Organization*, *op. cit.*, p. 122.

[68] Sayles and Strauss, *op. cit.*, p. 461.

[69] Zald, *op. cit.*, p. 24.

[70] *Ibid.*, p. 26.

Decentralization is not usefully applicable to all organizations nor will it in itself insure good management. The extent to which authority can be delegated, the extent to which profit centers can be organized, the extent to which operations can be coordinated, are determined by a number of factors. The most frequently mentioned determining factor by the writers is size. The larger an organization the more likelihood that decentralization is needed and will be found. There is a direct relationship between the size of an organization, in terms of numbers of peoples, and the numbers of decisions which must be made. Largeness of size and centralization of structure will raise the cost and lower the effectiveness of decisions. Decisions in centralized organizations are pushed toward the top where they accumulate, which means higher cost personnel will work on them and the decision will be made farther away from the point of the problem. Dale's research report No. 20 points out, "The cost of making decisions generally tends to be higher the farther away they are made from the point at which the problem arises. . .the decision itself may be less satisfactory."[71] Dale,[72] Sisk,[73] and Koontz and O'Donnell[74] all note that with largeness is found complexity, which may result in overburdening top management and multiply the difficulties in the communications process.

The difficulties caused by size can be somewhat overcome by breaking the whole into sections which are of

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[71]Dale, *Planning and Developing the Company Organization Structure, op. cit.*, p. 110.

[72]*Ibid.*, p. 111.

[73]Henry L. Sisk, *Principles of Management: A Systems Approach to the Management Process* (Cincinnati: Southwestern, 1969), pp. 328-329.

[74]Koontz and O'Donnell, *op. cit.*, pp. 352-353.

a manageable size. Exact optimum size cannot be arbitrarily stated although some observers believe it to be 1,000 persons; others go 2,500 or more; some claim 100 or so as being the best economic size for decentralized units.[75]

A second factor in determining how much decentralization is desirable is the philosophy of management, especially top management. It is not only a matter of their philosophy, but their real actions. As George A. Smith, Jr., points out, "Many executives pay at least lip service to the ideal of a 'democratic' organization (decentralization); fewer are willing to foot the bill that they fear may be involved if they give subordinates more authority."[76] Decentralization must be a way of life. It has been said that "decentralization is 95 percent an attitude of mind."[77] Decentralization, that is, cannot be a reality, no matter what the organization charts and manuals claim, unless top management and even middle management truly believe and practice delegation.

Management philosophy is closely tied with management personalities. The organizational arrangement is modified by personalities[78] found in each particular organization. As Lt. Col. Urwick has put it so well, the problem is one of personality--in part it is *personal*, in part it is *personnel*.[79] If any of the top management feels insecure

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[75]*Ibid.*, p. 353.

[76]George A. Smith, Jr., "Centralization and Decentralization," *A Management Sourcebook*, ed. by Franklin G. Moore (New York: Harper and Row, 1964), p. 257. Also noted by Keith Davis, *op. cit.*, p. 348.

[77]Fish, *op. cit.*, p. 252.

[78]Defining personality as the sum total of the skills, abilities, interests, and personal characteristics.

[79]Dale, *Planning and Developing the Company Organization Structure*, *op. cit.*, p. 38.

and cannot delegate, then decentralization stops at the top no matter what is considered corporate policy. On the other hand, willingness to delegate by the top may run into difficulties by unwillingness from the middle managers to accept delegation and to accept responsibility. The personalities of most of the managers and all of the key managers must be such that decentralization is not only a theory but a reality. It means that the supervisor must have confidence in the competence of the subordinate receiving the delegation and the subordinate must actually have the competence to make the proper decisions with his delegated authority.[80]

A major factor in determining the degree of decentralization is cost. There are at least two types of cost affected by decentralization.[81] One is the added cost, in dollars and cents, caused by the added number of management personnel and the duplication of jobs found in decentralized organizations. The other type of cost may be intangible, such as a company's reputation, competitive position, and morale of employees which may be upset by a mistake made by a lower level employee's decision. The reputation effects on a firm can be seen by what happened to General Electric's and Westinghouse's total company image in the early 1960's just by the price-fixing practices of a few of its divisions out of the well over one hundred divisions which make up these two giant corporations. Delegation of decisions, therefore, is limited by the ability of subordinates to make them, and by the image which incorrect

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[80]No attempt will be made to evaluate this in terms of The Peter Principle: "In a hierachy every employee tends to rise to his level of incompetence," Laurence F. Peter and Raymond Hull, *The Peter Principle* (New York: William Morrow and Company, 1969), p. 25.

[81]The possible increased costs of communications is not to be overlooked as it too creates cost. This will be discussed in Chapter III.

decisions will inflict upon the organization. This is why decisions involving hundreds of thousands of dollars can be delegated to such surprisingly low levels in many firms, and why other companies allow only decisions involving less than five hundred dollars to be made at the same level.

A similar problem and often part of the cost factor is the need for uniformity of policy for the organization. Uniform policies have many advantages, such as standardized accounting, statistics, and financial records, which make it easier to compare departments, file for taxes, deal with unions, and staff personnel to "suggest" policy. Yet, many firms go to great lengths to make sure that some policies will not be completely uniform. Koontz and O'Donnell believe that:[82]

> When a company decentralizes authority to encourage individual initiative, certain business policies may be as varied as the individual managers make them. Many companies encourage this variety in all except major matters hoping that out of such nonuniformity may come managerial innovation, progress, competition between organizational units, improved morale and efficiency, and a supply of promotable managerial manpower.

Information is a key to decision making. The person making a decision requires adequate information pertaining to that decision. Therefore, delegation of decision making cannot be pushed below the level at which all information pertinent to the decision is available.

The degree of the dynamics of the business situation has great impact on the amount of decentralization. Old and well established or status businesses have a tendency to centralize or recentralize. In these situations uniformity in policy is desired as fewer major decisions

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[82]Koontz and O'Donnell, *op. cit.*, p. 353.

are made than are found in the more dynamic situations.[83] In contrast, Dale has found that when a firm hits hard times competition may well foster centralization as top management feels that the organization cannot afford mistakes and they greatly centralize the decision-making process.[84]

John G. Staiger, Vice President--Administration, North American Operations, Massey-Ferguson Limited, in his article, "What Cannot Be Decentralized,"[85] was able to draw up a list of those responsibilities that cannot be decentralized at Massey-Ferguson. Although the list is custom tailored, many of the items may hold true for most other firms. The list is:[86]

1. The responsibility for determining the overall objectives of the enterprise.
2. The responsibility for formulating the policies (ground rules) that guide the enterprise.
3. The final responsibility for the control of the business within the total range of the objectives and policies, including control over any changes in the nature of the business.
4. The responsibility for product design, where a product decision affects more than one area of responsibility.
5. The responsibility for planning for the achievement of overall objectives and for measuring actual performance against those plans.
6. The final approval of corporate plans or budgets.
7. The decisions pertaining to the availability and the application of general company funds.
8. The responsibility for capital investment plans.

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[83] *Ibid.*, p. 357.

[84] Dale, "Centralization vs. Decentralization," *op. cit.*, p. 13.

[85] John G. Staiger, "What Cannot Be Decentralized," *Management: A Book of Readings*, First Edition, eds. Harold Koontz and Cyril O'Donnell (New York: McGraw-Hill Company, Inc., 1964), pp. 209-211.

[86] *Ibid.*, p. 211.

Professor Mayer N. Zald mentions two other points affecting the degree of decentralization. One is that the more disparate the production lines and technologies of the organization, the greater probability of granting more autonomy to the divisions. He also notes that the greater the profitability of a division, in terms of the other divisions, the more independence it will be given. It would then follow that if a major division suffers a reversal, the crackdown of top management would be more likely than would be found in the lesser satellite.[87]

Peter F. Drucker, with his astute perception, has discovered five basic rules which are essential for the structure of a successful decentralized organization. His first rule is that both the parts and the center must be strong. Although some people may believe that decentralization means weakening the center by strengthening the decentralized units, such a belief is a mistake. Drucker points out, "Federal (managerial) decentralization requires strong guidance from the center through the setting of clear, meaningful, and high objectives for the whole."[88] The center, therefore, must demand a high degree of business performance and control by measurements. Control by measurements shall be discussed shortly. The second rule is that each autonomous unit must be large enough to support the needed management, and at the same time "small enough," to use the words of Lounsbury Fish, "for that team to 'get its arms around' and do a first-class job."[89] The third Drucker rule is that each decentralized unit must have potential for growth. Fourth, the jobs of the managers

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[87]Zald, *op. cit.*, p. 22.

[88]Drucker, *Practice of Management*, *op. cit.*, p. 214.

[89]Fish, *op. cit.*, p. 250.

must present enough scope and challenge to each individual contributor. This point is valid for all jobs in centralized or decentralized firms. In decentralized firms it should be carefully watched to prevent breaking jobs and units down so far that the scope and challenge of the jobs are not large enough to allow the managers and units to grow. Drucker's fifth rule is that each decentralized unit should exist with its own job, own market and/or product, and where decentralized units come in touch it should be in competition with one another--as is found in General Motors' Chevrolet and Pontiac divisions. When the units work together--and Drucker says they should never be required to do anything jointly--their relations must be based strictly on business dealings and not on their inability to stand alone.[90]

Trends. The decade of the 1950's saw a general trend of the larger American firms to decentralize. In 1962 Theo Haimann was able to say "a decentralization program has become something of a fad."[91] He cites an American Management Association[92] survey of one hundred large companies which showed more than a third of the companies reporting that they had recentralized after decentralizing.[93] Of the fifty-five companies who claimed they had not recently recentralized some had never decentralized in the first place.[94] Dale points out that "decentralization" and "recentralization" do not have the same meanings to all companies and that recentralization does not necessarily mean a return to a functional structure and away from

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[90]Drucker, *The Practice of Management, op. cit.*, p. 216.

[91]Haimann, *op. cit.*, p. 246, also see Gerry E. Morse, "The Swinging Pendulum of Management Control" *Emerging Concepts In Management*, ed. by Max S. Wortman (New York: Macmillan Company, 1969).

[92]Dale, *Planning and Developing the Company Organization Structure, op. cit.*

[93]*Ibid.*, p. 119.

[94]*Ibid.*

divisionalization. He says, "It may have meant (recentralization) simply some curtailment of the powers of the division heads."[95]

One reason for recentralization appears to be economy. During profit squeezes and recessions companies begin to worry about duplication of effort within the organization. Another stated reason for recent recentralization, as found by Dale, is that decentralization entailed too much loss of control. A third reason offered by firms was changes in circumstances, such as market situations, as one firm noted its recentralization was caused by "changes consonant with changing market and product requirement."[96] Lastly, a few firms claimed recentralization was attributed in part to the impact of electronic data processing equipment (EDP).[97]

Many authors for a number of years have been predicting that EDP will bring about a trend toward recentralization. One article of particular note on this theme is the 1958 *Harvard Business Review*, Harold J. Leavitt and Thomas L. Whisler, article entitled "Management in the 1980's." The article presents a strong case for the proposition that the new information technology will reverse the trend toward decentralization and participative management. Leavitt and Whisler said:[98]

> One important reason for expecting fast changes in current practices is that information technology will make centralization much easier.
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> If centralization becomes easier to implement, managers will probably revert to it. Decentralization has, after all, been largely negatively

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[95] *Ibid.*, p. 122.

[96] *Ibid.*

[97] *Ibid.*

[98] Harold J. Leavitt and Thomas L. Whisler, "Management in the 1980's," *Harvard Business Review*, Vol. 36, No. 6 (November-December, 1958), p. 43.

> motivated. Top managers have backed into it because they have been unable to keep up with size and technology. They could not design and maintain the huge and complex communication systems that their large, centralized organizations needed. Information technology should make recentralization possible. It may also obviate other major reasons for decentralization. For example, speed and flexibility will be possible despite larger size, and top executives will be less dependent on subordinates because there will be fewer 'experience' and 'judgment' areas in which the junior men have more working knowledge.

In 1964 Gilbert Burck[99] agreed that computers would reverse the trend toward decentralization. Disagreeing with this premise, Max Ways[100] in his *Fortune* article of July, 1966, "Tomorrow's Management," and H. Igor Ansoff[101] in *Harvard Business Review* as early as 1965 took issue with the idea of recentralization being caused by the computers. John Dearden, considered by many as one of the top experts in this area, has stated, "I seriously doubt that the increasing use of computers and related information technology will affect top management's ability to control divisional operations, and in particular that it will bring about a trend to recentralization."[102] Dale found in the AMA survey

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[99]Gilbert Burck, "Management Will Never Be The Same Again," *Fortune*, Vol. LXX, No. 2 (August, 1964), pp. 124-126ff.

[100]Max Ways, "Tomorrow's Management: A More Adventurous Life in a Free-Form Corporation," *Fortune*, Vol. LXXIV, No. 1 (July 1, 1966), pp. 84-87.

[101]H. Igor Ansoff, "The Firm of the Future," *Harvard Business Review*, Vol. 43, No. 5 (September-October, 1965). Also see John P. Burlingame, "Information Technology and Decentralization," *Decision Theory and Information Systems*, ed. by William T. Greenwood (Cincinnati: South-western Publishing, 1969), pp. 630-640.

[102]John Dearden, "Computers: No Impact on Divisional Control," *Harvard Business Review*, Vol. 45, No. 1 (January-February, 1967), pp. 99-104.

that some companies did mention EDP as one of many reasons for their recentralization, but, he said, "So far it does not appear that EDP has sparked any general trend toward centralization. . . ."[103]

Although we have been discussing some recentralization, it should be stressed that the majority of larger companies have never recentralized after decentralizing, and the AMA study shows the current trend is still toward decentralization. The study, based on one hundred firms, as developed by Dale, found that large companies were:[104]

Moving toward decentralization of decisions. . .	.54
Moving toward centralization of decisions. . . .	.36
Others	.10
	100

For medium sized companies:

Moving toward decentralization of decisions. . .	.32
Moving toward centralization of decisions. . . .	.26
Others	.42
	100

This survey does not purport to be very scientific, but it does give an indication of what is happening. Although when executives were asked what they thought was the general trend, it is interesting to note that 33 percent of the large companies or executives surveyed believe that the general trend is toward decentralization, and 32 percent reported that they believe the trend is toward centralization or recentralization.[105]

Control. Control is another term which needs some discussion. The term is frequently defined, in management, as a three-step process of setting standards, checking performance against the predetermined standards, and, thirdly, correcting any deviations. The word "controls" is not plural for the word "control" in managerial terminology. "Controls" are the methods used to get control. "Controls" pertain to means and "control" to an end. This

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[103]Dale, *Organizations, op. cit.*, p. 122.

[104]*Ibid.*, pp. 122-124. [105]*Ibid.*

may be better understood by looking at the achievement of the overall goals of the organization and how sub-goals for individual parts are related. Two problems arise. One is setting the sub-goals and the other is seeing that they are achieved. The setting of sub-goals is the setting of controls. Information coming from the individual sub-goals develops data which is used for two purposes. First, information is developed to make sure that people are following out the sub-goals set for them, and second, information is developed to detect if the sub-goals are really right to attain the overall organizational goal.

Control, along with planning and organizing, is considered a basic function of management. Most authors take their basic managerial functions from the five offered in 1916 by Henri Fayol, either adding to or subtracting from this basic list. Yet, a number of learned authorities do not accept the term "control" to represent a basic managerial function. Luther Gulick in the 1930's, Peter F. Drucker and Earl Brooks in the 1950's, and General Electric, IBM, and Chase Manhattan Bank all agree that the term "control" does not represent a managerial function. Gulick uses the term "Budgeting and Reporting" to cover the area. Drucker, Brooks, GE, IBM, and Chase all use the term "Measuring" to identify the work which the others term "Controlling."[106]

"Measuring" as used by these authorities, is a concept, or an element, in the manager's work of leading and motivating which encompasses a fundamental method to satisfy every manager's growing needs to obtain, analyze, and understand more and deeper information. This information is also directly available to, and used by, the man whose work is being measured.

Here is the difference from "Control." Under

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[106]Ronald Greenwood, "Managerial Functions: A Classification of Major Contributions," *Arkansas Business and Economic Review*, Vol. 2, No. 2 (May, 1969), pp. 14-17.

Measuring philosophy the information is usually not given to some "higher" authority, either to second guess the man doing the work, or to take the real responsibility of the man's own work upstairs and away from him.

Measuring is a basic industrial, sociological, and managerial working environment concept fitted to the immediate present and the future, and not the past. All people, including managers and non-managers at all levels are more and more seeing themselves as: (1) acting with initiative, self-development, self-discipline, and competence as to both their personal work and voluntary teamwork, and as to two-way communication; and (2) needing an opportunity for seeing their individual job whole in its relationship to the work of others in their own area, in their company, and imaginatively and in true perspective, in the whole social, economic, and political world in which they exist.

Measuring effectively relates these natural individual motivation forces to the accomplishment of division and company objectives, as well as to the planning, organizing, and coordinating elements of the manager's work of leading and motivating.

Harry W. Moberg, Vice President--Treasurer of the decentralized operations and centralized controlled firm of American Hoist and Derrick Company, offers the following seven principles of central control of decentralized operations:[107]

1. Centralize the control but decentralize the operational detail, placing authority and responsibility for performance on the managers of the decentralized units.
2. Draw the line of authority and responsibility and assign to the proper individuals.

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[107]Harry W. Moberg, "Principles of Control for Decentralized Operations," *N.A.A. Bulletin*, Vol. XLIII, No. II (July, 1962), p. 56.

3. Make sure the assigned individuals participate in planning and make them feel they are part of a great team--not merely cogs in a wheel.
4. Develop controls stringent enough to flag danger signals of failure to perform, yet not so tight as to discourage the legitimate aspirations of the individual in charge of the operation.
5. Recognize that well administered centralized control and satisfied personnel go hand in hand.
6. Retain authority and responsibility but also make positive delegations of authority and use sound methods of measurement.
7. Be aware that it takes a vigilant management, accurately informed by its audit group, to control decentralized operations. Complacency and 'blind faith' will force centralization later.

The control process must be built into the organization structure and be part of the responsibility and authority design. Unfortunately, most control systems are designed separately from the organizational design. There is an attempt to "fit" the control process to the organization. "Control and organization have generally been treated independently of each other," says Arnold F. Emich, "thus missing the point of how the organization is to work in practice. . . ."[108] In designing the organization one has to understand and analyze the actual control of the business especially with respect to personnel decisions in promotion. "Otherwise one designs a system of 'controls' which does not lead to 'control.'" Drucker says, "One. . . has to think through the actual 'control' system, the personnel decisions, to see whether it really is in agreement with the true needs of the business. Otherwise there is no economic performance."[109]

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[108]Arnold F. Emich, "Control Means Action," *Harvard Business Review*, Vol. 32, No. 4 (July-August, 1954), pp. 92-98.

[109]Peter F. Drucker, "Controls, Control and Management," *Management Controls*, eds. Charles P. Bonin, Robert K. Jaedicke, and Harvey M. Wagner (New York: McGraw-Hill Company, Inc., 1964), p. 295.

Centralized Control. To keep a decentralized organization from fragmentation, some central control must develop as a unifying agent. Without some control complete decentralization might permit one division to bankrupt or greatly harm the total firm. Henry Albers aptly puts it, "Organizations cannot survive without coordination and a unity of purpose."[110] Successful decentralization depends upon the development of a system of controls that will permit the extension of the widest practical delegation of authority to lowest level management as possible. This is to say, delegation of decision making should be made to the lowest level without impeding the overall position of the organization. The centralized control allows the top of the organization to hold onto its parts without making all of the decisions. "Unfortunately," Rensis Likert claims, "decentralization usually stops at the plant or divisional level. In companies using decentralization, there is often more centralized control within the decentralized division than existed prior to the occurrence of decentralization."[111] This, of course, might cause a morale problem when the stated philosophy of management is violated.

Management performs two types of control. The first is to set policy, although it is possible for policy to come from outside the organization; i.e., government rules and regulations, or customer specifications. The second type of control, and often a part of the policy making, is the setting of measurements and standards. Managers have the obligation to determine the modes of measurement, such as return on investment, competitive standing, cost versus output, and so forth. Once the mode of measurement is determined and more than one mode is normally used, then

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[110]Albers, *op. cit.*, p. 174.

[111]Rensis Likert, *New Patterns of Management* (New York: McGraw-Hill Company, Inc., 1961), p. 85.

management must set standards of achievement by which to evaluate effectiveness of division, section, manager, or individual contributor. If management decides on return on investment as the measurement, it might then decide on 15 percent as the standard.

There are a number of types of policy under the general heading of control. The coordination of activities within each operating division and the areas of inter-divisional relations is another major area for centralized control. As Donaldson Brown said in 1927, "There must be no undue conflict, competitively, between the product of one division and that of another. There are certain general policies which, if good for one division, are good for all divisions."[112] Then there is policy as a whole, rather than from the viewpoint of one division. Purchases may be more economical if conducted so as to combine the needs of all divisions. Engineering might also be more economical and useful if it reports to the company in general rather than to particular divisions. The organization might decide that advertising as one institution, rather than having each division advertise, is better. General Electric, Westinghouse, du Pont and General Motors, to a more limited extent, advertise as an institution.

This setting of centralized control through corporate policy does not seem to fit our original definition of control--setting standards, measuring results, and correcting deviations. The reason is that this is a different type of control. Policy making and measuring are two types of controls. Policy making, of which setting standards is one type, deals with the future and comes under the managerial planning function. Measuring is a current and

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[112]Brown, *op. cit.*, pp. 14-15.

continuous function, even to the point of establishing new measurements as it becomes evident that more information is worthwhile. Measuring covers all types of functions of managers, planning, coordinating, and communicating. Measuring decisions come within the broad framework of policy controls. The purpose of policy is to free up the time of managers and to establish common decisions across a broad spectrum. Policy frees the time of managers because they no longer have to search for answers and can spend time on other kinds of planning and decisions. Policy should be determined long before decisions are required for common purposes. Measuring should be determined as a judgment against predetermined standards.

CHAPTER II

HISTORY OF THE GENERAL ELECTRIC COMPANY

Introduction

General Electric is the leading company in the electrical industry. Before tracing the history of this firm, a general discussion of the industry itself appears in order. What is the electrical industry? According to the United States Bureau of Census, the industry "includes establishments engaged in manufacturing machinery, apparatus, and supplies for the generation, storage, transmission, transformation, and utilization of electrical energy."[1] The products of the industry have been divided by Jules Backman into four groups which are: (1) domestic appliances: radios, televisions; (2) general electrical industrial equipment: motors; (3) military electronic equipment: data processing; (4) heavy electrical generating and distribution apparatus: turbines and large transformers.[2]

Electrical manufacturing accounts for nearly one-twelfth of the total manufacturing activity in the United

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[1]U. S. Department of Commerce, Bureau of the Census, *Census of Manufacturer: 1947*, Vol. II, p. 714.

[2]Jules Backman, *The Economics of the Electrical Machinery Industry* (New York: New York University Press, 1962), p. 4. The "military electronic equipment" groups include all data processing, military and non-military, so perhaps this category is improperly named.

States and perhaps three percent of all economic activity.[3] The use of electricity has doubled every decade since the 1880's and has grown three times as fast as the nation's economy.[4] The industry is dominated by two firms, each having sales in excess of three billion dollars in 1969--General Electric, $8,448,000,000[5] and Westinghouse, $3,590,153,000.[6] At the other end of the spectrum are hundreds of firms specializing in the manufacture of one or two products. The importance of the large firms can be testified to by the mere fact of size itself. In terms of sales, General Electric was ranked fourth in the nation for 1969 and Westinghouse was ranked seventeenth, rising from eighteenth in 1967.[7] Jules Backman notes that in 1960, "among the one hundred largest industrial companies there were twelve in this industry. An additional nine companies were among the second hundred largest. Forty-five electrical machinery companies were included among the five hundred largest industrial companies."[8] The industry as a whole contributed 2.8 percent of the private national income in 1960.[9]

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[3] *Ibid.*, p.23.

[4] Raymond J. Ziegler, *Business Policies and Decision Making* (New York: Appleton-Century-Crofts, 1966), p. 25.

[5] *General Electric Company Annual Report 1969*, p. 24.

[6] *Westinghouse Electric Corporation Annual Report 1969*, p. 24.

[7] "The Fortune Directory 1969," *Fortune*, Supplement (May 15, 1969), p. 4.

[8] Backman, *op. cit.*, p. 19.

[9] *Ibid.*, p. 21.

The industry's growth is spectacular, to say the least. Andrew W. Robertson, past Chairman of the Finance Committee at Westinghouse, remarked, "The electrical manufacturers (have) synchronized their efforts perfectly. I know of no other way to account for the unparalleled growth of the use of electricity, a service which has doubled its output every ten years since 1910. . . ."[10] Factory sales have grown from $9,000,000 in 1919 to $15,125,000,000 by 1963.[11] Innovation means progress and that has been the key to the industrial expansion. Standing still technologically could send a substantially sound company to the brink of bankruptcy. Carlisle is so correct in his reminder, "Woe, woe to him who stops to tie his shoestrings."

The electric industry has branched out into all corners of science. In medicine, electronics has facilitated many advances in surgical operations, the x-ray machine being only one of its developments. In the military, the electrical industry has perfected radar, missiles, and so forth. There seems to be a never-ending line of innovation and invention for household products, from television, radio, electric stoves, and refrigerators to

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[10] *The Industrial Council A Symposium: The Electrical Manufacturing Industry, Industrial Equipment-Appliances-Radio-Electronics-Television,* Vol. I (Troy, N. Y.: Rensselaer Polytechnic Institute, 1953), pp. 40-41. The meaning of this remark should become very clear when Cordiner's "benign circle of electric power" is discussed later as they both have the same meaning, which is: The development and sale of electric appliances create the need for more generators. That is, end use equipment creates need for electric production equipment.

[11] *Electronic Industries Yearbook 1964* (Washington: Electronic Industries Association, 1964), p. 2. These figures must be for a much narrower designed industry than the one in which GE and Westinghouse operate as later figures will indicate.

electric blankets and can openers. The leading products of the industry are many and have changed with the times. In 1904 its largest category of products was insulated wire and cable; by 1929 radio apparatus and tubes led its industry product.[12] Today it is control apparatus and household appliances that lead the way. The industry has come a long way in its relatively short history.

The court physician of Queen Elizabeth, Dr. William Gilbert, coined the word "electric," and perhaps from his works we may trace the founding of the science of electricity,[13] a science which was developed from the work of such geniuses as DuFay, Faraday, Galvani, Volta, Watt, Ampere, Ohm--men whose names have become part of the nomenclature of the science. In the 1870's-1880's, interest mushroomed and from the minds of Edison, Stanley, Westinghouse, Thomson, and so forth, came the greatest developments to that date which for all practical purposes gave birth to the electrical industry.

Companies reaped great profits from this new science. The transportation industry traces its public electrification to 1884 when in Cleveland, Ohio, Bentley and Knight ran their first electric cars on Gordon Street.[14] Not long afterward came the electrified railway when a section of the Baltimore and Ohio was successfully completed. The city of Cleveland led the way in electric street lighting when it arc-lighted Public Square in 1879, the same year Edison at Menlo Park developed the incandescent lamp--the basic development which vaulted the industry into national prominence.

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[12] Backman, *op. cit.*, pp. 26-27.

[13] *The Industrial Council a Symposium. . .*, *op. cit.*, p. 9.

[14] *Ibid.*, p. 12.

History Leading to Merger

The history of General Electric cannot be accurately described without tracing a history of the two parent firms, the Thomson-Houston Company and the Edison General Electric Company, which merged in 1892 to form the General Electric Company. Leaving the more famous Edison firm for the time being we shall concentrate on the Thomson-Houston Company. For the most part, the information on the Thomson-Houston Company was obtained from Harold Passer's most enlightening work, *The Electrical Manufacturers 1875-1900*.[15]

Elihu Thomson and Edwin T. Houston were high school teachers in Philadelphia in the 1870's. They conducted experiments in 1875 "which disproved Edison's theory of etheric forces."[16] From this, lectures and other experiments, the fame of the two men grew and by 1880 they were asked to form a corporation by financial promoters. On July sixteenth of that year they helped to form The American Electrical Company to produce both arc lamps and also the dynamos to run them. The new firm had "capital stock of $125,000. Seventy percent of this stock was sold for cash ($87,500), and the remaining thirty percent was paid to Thomson and Houston for the use of their patents. In addition, Thomson and Houston together received $6,000 in cash."[17] Furthermore, Thomson and Houston kept the right to withdraw their patents at will.

By the fall of 1880 The American Electrical Company was manufacturing in a two-story wooden building located

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[15]Harold C. Passer, *The Electrical Manufacturers 1875-1900* (Cambridge, Mass.: Harvard University Press, 1953).

[16]*Ibid.*, p. 21.

[17]*Ibid.*, p. 24.

in Connecticut. Productivity was poor, and output in this early period showed only about three dynamos and fifty arc-lamps per week.[18] Thomson, as well as most others, was sure that the arc-lighting system was superior to any other system, especially over that incandescent lamp developed by Edison a few years earlier. But the firm soon ran into trouble. No sales force developed and one of the firm's most enthusiastic backers, Frederick H. Churchill, committed suicide. At this point a discouraged Thomson threatened to withdraw his patent. Houston had already gone back to teaching. In April of 1882 A. W. Stockley bought controlling interest but did not know, until after the purchase, that Thomson had the right to take back his patents. "As a result, a group of Lynn (Massachusetts) businessmen, including C. A. Coffin, formed a syndicate to buy American Electric. Stockley was willing to sell because Thomson threatened to withdraw his patents and himself, leaving American Electric with little value. The sale to the Lynn group was completed about the middle of 1882."[19]

On April 17, 1883, the Connecticut legislature passed a new incorporation statute and this action may have contributed in some small way to the decision to advance the date to move the plant to Lynn, Massachusetts, soon after, changing its name from American Electric to the Thomson-Houston Company. C. A. Coffin took charge of the company and Thomson stayed on to form a sound team of salesman-organizer (Coffin) and keen scientist (Thomson).

The Thomson-Houston Company grew in leaps and bounds from 1883 to 1892. Coffin developed a marketing

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[18] *Ibid.*, p. 25.

[19] *Ibid.*, p. 26.

system for the arc-lighting apparatus by promoting local arc-lighting companies in the same manner that Edison had organized for his incandescent lighting--a contract clause that the licensee company would use only supplies and equipment from the licensor, in that case Thomson-Houston. "The policy of requiring licensee companies to use only Thomson-Houston accessories and supplies in connection with its equipment was still in effect in 1891."[20]

In 1883 Thomson-Houston won the top award at the Cincinnati annual industrial exposition, beating out both Edison and U. S. Electric Lighting Company. In 1885 it won the only gold medal awarded at the London (England) Inventors Exhibition. It was in 1884 that the company began to make incandescent lamps for the arc-light circuits and the next year made a complete incandescent system. It "had developed a new filament-treating process which made the Thomson-Houston incandescent lamps superior to the Edison."[21]

Thomson-Houston grew not only by building from within, but also by buying. In 1888 it bought out the Van Depoele Electric Manufacturing Company. In 1889 it acquired the Brush Electric Company and the Bentley and Knight Electric Railway Company. In 1890 it bought the Excelsior Electric Company. From 1884 to 1888 it controlled the Consolidated Electric Light Company which it sold in 1888 to Westinghouse.[22] "Thus, by 1890, Thomson-Houston was producing every important item of the electrical industry."[23]

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[20] *Ibid.*, p. 29.

[21] *Ibid.*, pp. 27, 29.

[22] Arthur A. Bright, Jr., *The Electric-Lamp Industry* (New York: The Macmillan Company, 1949), p. 82.

[23] Passer, *op. cit.*, p. 31.

It can be rightly claimed that General Electric was given birth by the incandescent lamp and that came from the fertile mind of Thomas Alva Edison. Edison had not yet invented his lamp when the Edison Electric Light Company was formed in 1878 (October fifteenth, to be specific). Actually, it was formed with the expressed purpose of financing the experiments on incandescent lighting, with which Edison had toyed from time to time since 1873. Edison was not satisfied with the arc-lamp of his day and desired a system for the home, not streets. Therefore, he needed a lighting system using less voltage than the arc required. In 1879, Edison succeeded in inventing a workable incandescent lamp and, more importantly, "he developed a complete lighting system with generators, cabling, fuses, sockets. . .and all the other necessary items."[24] The others had not gone this far. Edison brought electricity into the home. He did this by imitating the gaslight system of illumination as closely as possible.

This Edison Company not only had the wizard of Menlo Park but a host of other influential members. Grosvenor P. Lowery "can be correctly considered the founder of the Edison Electric Light Company,"[25] claims Passer. He was "chiefly responsible for securing. . .the support of the Morgan partner, Egisto P. Fabbri. . . . The importance of Morgan support of Edison Electric Lighting project can hardly be overemphasized. . . .Drexel Morgan and Company (was) the unquestioned leader among the New York investment-banking firms. The participation of Morgan firms in projects financing was a stamp of approval that gave it a privileged position in the New York capital market."[26] Another great name in the financial

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[24]Bright, *op. cit.*, p. 76.

[25]Passer, *op. cit.*, p. 85.

[26]*Ibid.*

world was also connected with the firm. He was Henry Villard, and by 1880 he was on the Board of Directors and on the Executive Committee of the Edison firm.

This initial Edison Electric Light Company, with its $300,000[27] beginning capital, was first of a long line of Edison Electric lighting firms. By 1886 there were five separate companies under the Edison name with interlocking arrangements. In 1883 the Edison Machine Works was formed by absorbing the Edison Shafting Company and Edison Tube Company. In 1886 the Edison Electric Light Company absorbed the Edison Company for isolated lighting, and also in 1886 a new Edison firm was incorporated, The Edison United Manufacturing Company, replacing Edison Lamp Company and Edison Machine Works.[28] The Edison Lamp Company had already been formed (in 1880) to produce the lamps for the parent firm.[29]

After the incandescent lamp was in the home, it opened up the flood gates of electrical apparatus for the home. Edison wasn't always right, and in the great debate between Westinghouse and Edison over AC or DC current, it was fortunate that Westinghouse with his AC won out, as transmission of power over greater distance was made possible.

It was Edison who installed the first commercial incandescent lighting system in 1880 in the steamship Columbia which was owned by Henry Villard.[30] It might be of some interest that the standard 16-candlepower lamp was priced for several years at one dollar before a reduction occurred in 1886.[31]

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[27]Bright, *op. cit.*, p. 60.

[28]*Ibid.*, p. 80.

[29]*Ibid.*, p. 71.

[30]*Ibid.*, p. 70.

[31]*Ibid.*, p. 76.

Edison companies were plagued throughout their existence with patent fights and patent infringements. The original Edison patent was finally tested in a suit vs. United States Electric Lighting Company. The case was initiated in 1885, came to a hearing in 1889, and judgment for Edison was handed down on July 14, 1891.[32] But other patent suits were fought and patent infringement became commonplace.

Not only did Edison have problems with competitors, but he slowly lost control of his firms.

> Domination by financiers took place in 1889 with the merger of all the remaining separate Edison development and manufacturing companies into the Edison General Electric Company. Besides the Edison Electric Light Company and the Edison Manufacturing Company, the Sprague Electric Railway and Motor Company and Leonard and Izard Company were brought into the consolidation.[33]

Henry Villard and Werner Siemens controlled over half of the new company. Therefore, Villard was made President and Edison withdrew, although he still was listed as a Director.

Forrest MacDonald says that as soon as Villard became President of Edison General Electric he started to talk merger with the Thomson-Houston Company. The facilities of Edison and Thomson-Houston were actually complementary and not really competitive, believes MacDonald, and he goes on to claim that "J.P. Morgan, who held a large amount of Edison General Electric stock, strongly favored the merger. Morgan, who disliked both Villard and Insull, the two top executives in the Edison Company, made it clear that he preferred the basic philosophy of Thomson-Houston over that of Villard."[34]

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[32] *Ibid.*, p. 88.

[33] *Ibid.*, p. 81.

[34] Forrest MacDonald, *Let There Be Light* (Madison, Wisconsin: The American History Research Center, 1957), p. 28.

It may seem that all were in favor of the merger, but as time moved on, one by one members became apprehensive. Edison General Electric became fearful that Thomson-Houston men would gain control. "Edison himself opposed it from the outset, on the general ground that monopoly is stifling to technological progress, and on the specific ground that he disliked (the) Thomson-Houston (Company)."[35] Edison wrote to Henry Villard in April of 1889 on this subject. Edison said that

> . . .the statement that they (Thomson-Houston) ask no favors from the Edison Company might be met by the fact that having boldly appropriated and infringed every patent we use, there is very little left to favor them with, except our business, which they are now after.[36]

Perhaps because of Edison's feelings and for some other reasons which are not discernible, by 1891 Villard himself openly opposed the merger.

Whatever the feelings of Villard, Edison, and Edison workers might have been, Morgan and the Thomson-Houston officials were for the merger. MacDonald says that Edison General Electric was badly in need of cash and merger was one way to get it.[37] Arthur Bright, the electrical industry historian, says that Thomson-Houston was also in need of working capital as it had considerable assets tied up in securities obtained in its efforts to sell goods by accepting large blocks of stock.[38]

The merger was consummated by the work of Thomson-Houston's most able-minded president, Charles A. Coffin, and F. P. Fish, General Counsel for Thomson-Houston, and on the Edison side by H.M. Twombley, an influential stockholder

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[35] *Ibid.*

[36] *Ibid.*

[37] *Ibid.*, p. 29.

[38] Bright, *op. cit.*, p. 94.

and member of the House of Morgan. General Electric was incorporated in New York on April 15, 1892, and was truly a Thomson-Houston top-heavy firm in its upper management. Charles A. Coffin was made first president. Of the eleven board members, Thomson-Houston had five men; and of the six Edison men, four were classified as Morgan people, including, J. P., himself. Only T. S. Hastings and Thomas Edison were not of the Morgan or Thomson-Houston block. Interesting enough, Coffin's successor was Edwin Rice who was Elihu Thomson's pupil and assistant in the early Thomson-Houston days. Figure 1 lists General Electric's first top management.

The advantages of the merger were many. Each company had patents badly needed by the other. Edison Company was strong in DC but had no AC products. Thomson-Houston was very strong in AC products. The Edison firm also needed management talent for Villard had spent only part of his time with the electrical firm.

This consolidation cannot be classified as just another of the "Trusts" which were so prominent at this time. If the parties intended to form a trust, Westinghouse would have been considered, but he was not.

Of the two early inventors, Edison was made a Director but was inactive in the company. Elihu Thomson turned down a Director's position to stay close to the laboratory and was made head of the Lynn research laboratory.

General Electric Under Charles Coffin

Charles Albert Coffin was President of General Electric from its outset in 1892 until 1913, and thereafter was Chairman of the Board until 1922. General Electric's first organizational structure was centralized into five

Figure 1

DIRECTORS, OFFICERS, EXECUTIVES OF GENERAL ELECTRIC

Just After Merger, 1892

Name	GE Status	Previous Company	Previous Status
Directors			
F. L. Ames	Director	Thomson-Houston	Influen. stockhldr.
C. A. Coffin	Director	Thomson-Houston	Chief Executive
T. J. Coolidge, Jr.	Director	Thomson-Houston	Influen. stockhldr.
C. H. Coster	Director	Edison Gen. Elec.	Director
Thomas A. Edison	Director	Edison Gen. Elec.	Director
Eugene Griffin	Director	Thomson-Houston	Head RR Dept.
F. S. Hastings	Director	Edison Gen. Elec.	Treas. -Asst. Sec.
H. L. Higginson	Director	Thomson-Houston	Influen. stockhldr.
D. O. Mills	Director	Edison Gen. Elec.	Influen. stockhldr.
J. P. Morgan	Director	Edison Gen. Elec.	Influen. stockhldr.
H. M. Twombley	Chairman, Board of Directors	Edison Gen. Elec.	Influen. stockhldr.
Officers			
C. A. Coffin	President	Thomson-Houston	Chief Exec.
Eugene Griffin	First V. P.	Thomson-Houston	Head RR Dept.
Samuel Insull*	Second V. P.	Edison Gen. Elec.	Comptroller
F. P. Fish	Gen. Counsel	Thomson-Houston	Gen. Counsel
E. I. Garfield	Secretary	Thomson-Houston	(unknown)
B. F. Peach, Jr.	Treasurer	Thomson-Houston	(unknown)
Executives			
S. D. Greene	Gen. Mgr. Lighting	Edison Gen. Elec.	(unknown)
O. T. Crosby	Gen. Mgr. Railway	Edison Gen. Elec.	(unknown)
J. R. McKee	Gen. Mgr. Power	Thomson-Houston	Head Coml. Dept.
T. R. Lovejoy	Gen. Mgr. Supply	Thomson-Houston	(unknown)
E. W. Rice	Technical Dir.	Thomson-Houston	Asst. -E. Thomson
John Kruesi	Mgr. Schenectady	Edison Gen. Elec.	Mgr. Schenectady
G. E. Emmons	Mgr. Lynn	Thomson-Houston	Mgr. Lynn
F. R. Upton	Mgr. Harrison	Edison Gen. Elec.	Mgr. Harrison

*J. P. Ord succeeded Insull shortly after merger.

[From Harold C. Passer, *The Electrical Manufacturers 1875-1900* (Cambridge, Mass.: Harvard University Press, 1953), p. 323.]

functional departments (Figure 2). This was by design because the formation of General Electric came about by combining two different entities. The internal workings of the firms must have been somewhat decentralized in reality, for in the company's second annual report President Coffin, in January of 1894, stated that the "Board had little success in its efforts to centralize and simplify the organization."[39] But Coffin, whose managerial ability should receive much of the credit for General Electric's early success, was able to pull the numerous divisions together into a centralized functional type of organization. Although General Electric was by far the largest firm in the industry, managerial ability and managerial know-how was not readily available nor were the product lines large enough to warrant any other type of organizational setup. At this time the company only had three plants--Schenectady, New York; Lynn, Massachusetts; and Harrison, New Jersey.

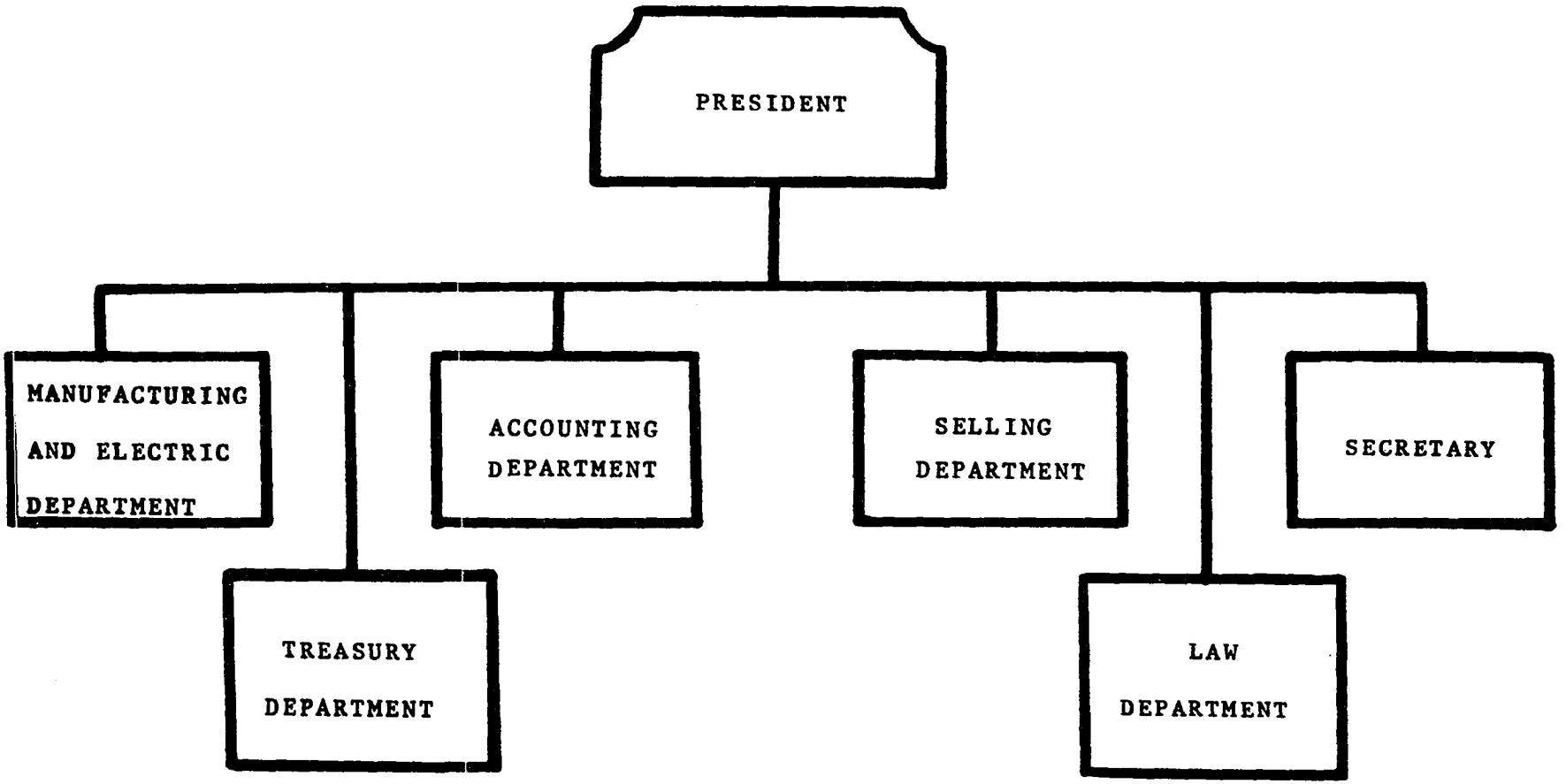
General Electric found a rocky sea in its early years as 1893 was a year of financial panic and depression. Sales dropped quickly in 1894 from over $16,000,000 in 1893 to about $12,500,000 in 1894. They did not get back to $16,000,000 until about 1898.[40] A debit balance of $14,800,000 was reported for 1894 and the common stock market price dipped from $115 in 1892 to below $30 by early 1895.[41] Only the financial support of Drexel, Morgan, and other New York and Boston bankers kept General Electric out of receivership. It was not until 1898 that General Electric was able to get an upward swing in its

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[39] *Professional Management in General Electric Book One: General Electric's Growth* (New York: General Electric Company, 1953), p. 4.

[40] Passer, *op. cit.*, p. 328.

[41] Bright, *op. cit.*, p. 97.



GENERAL ELECTRIC'S FIRST ORGANIZATION STRUCTURE--1892

Figure 2

sales and profits. In 1899 it wisely wrote down its assets in an attempt to reflect true value.[42]

Even though General Electric did not come out of the depression until 1898, it still was considerably larger than any other firm in the industry. Passer says that "By 1897, when about 325,000 arc lights were in service, General Electric. . .accounted for about 300,000."[43] The only sizable arc-lighting firm not absorbed into General Electric was Weston, which eventually became part of Westinghouse. Westinghouse was the only really large industrial firm to compete with General Electric, and these two leaders locked horns for the first four years of General Electric's existence. It was in connection with the Chicago World's Fair of 1893 that the two companies first squared off on an issue above local competition. Bids were asked for the lighting of the Fair. General Electric felt very safe behind its Edison patents and bid high, well over $1,000,000. Westinghouse devised a way around the patents and was awarded the contract with a bid of only $399,000.[44]

When either company tried to expand their business in almost any of their lines of products, they ran into patent conflicts with the other. It wasn't until General Electric was sure that Westinghouse held the controlling patents in polyphase power, and Westinghouse was sure that General Electric held controlling patents in the electric railway business that the two firms could get together. March of 1896 the two signed a patent pool agreement.[45] The agreement came at a time when there were over three hundred patent suits pending against each

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[42] *Ibid.*

[43] Passer, *op. cit.*, pp. 56-67.

[44] MacDonald, *op. cit.*, p. 30.

[45] Passer, *op. cit.*, p. 331.

other.[46] It established at this time the pattern followed closely until 1945 and allowed General Electric, as leading member between these two firms, to retain its supremacy for over half a century. No price of product (price fixing) agreements were negotiated, but with patent problems lifted, the two firms were able to compete more vigorously than ever. General Electric contributed 67½ percent of the value of the patents, and Westinghouse, 37½ percent as determined in the agreement.[47] These figures are not output quotas, but were used for royalty purposes. The firms could work without worry of patent infringement. Of course, the position of Westinghouse and General Electric was stifling to small firms who were outside of the patent pool--the two firms had about 75 percent of total available business. The power position of General Electric and Westinghouse allowed them, at times, to write contracts preventing customers from using equipment bought from General Electric or Westinghouse with that of equipment manufactured by other firms.[48]

Four smaller firms found it more desirable to sell out to one of the two giants than to attempt to compete. Westinghouse purchased two of these smaller firms, and General Electric purchased Stanley and Sieman, and Lorain.[49]

The agreement did help considerably toward standardization of parts. This was badly needed as many pieces were not interchangeable, even when made by the same manufacturer. The use of 110 volts as a standard came from this agreement.[50]

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[46]Backman, *op. cit.*, p. 106.

[47]Passer, *op. cit.*, p. 331. Also see T. K. Quinn, "The Lamp Bulb Stranglehold," *The New Republic*, Vol. 144, No. 9 (February 27, 1967), pp. 9-10. The values of the patents were negotiated by the firms.

[48]Passer, *Ibid.*, p. 333. [49]*Ibid.*, p. 334.

[50]MacDonald, *op. cit.*, p. 32.

Also in 1896 General Electric organized an association, The Incandescent Lamp Manufacturers, for the specific purpose of fixing prices and alloting business to each firm. At this time, General Electric had half the lamp business.[51]

General Electric went international, selling lamps in England and on the Continent. In 1904 it signed an agreement with Allgemeine-Elektricitats-Gesellschaft[52] which helped obtain patents used in the steam-turbine which later became one of General Electric's most profitable and important products.

With the endorsement of Coffin, and through the initiative of Edwin W. Rice, General Electric set up a research laboratory in 1900. The laboratory was first located in Charles Steinmetz' barn in Schenectady, New York.[53] Steinmetz, General Electric's most heralded scientist, first came to General Electric in 1892, three years after he left Germany. He worked under Director of Research Willis R. Whitney who left M.I.T. for the post and held this position until 1932. Also found in this skilled group was Dr. Irving Langmuir, Nobel prize recipient in Chemistry in 1932[54] and developer of Fluorescent lighting; Dr. William D. Coolidge and Willian Stanley who worked on X-Ray tubes; and Dr. Albert Hull who developed more electron tubes than any other man.[55] At first, General

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[51]Bright, *op. cit.*, pp. 103-104; also see Quinn, *op. cit.* [52]*Ibid.*, p. 155.

[53]John Anderson Miller, *Workshop of Engineers* (Schenectady, New York: General Electric Company, 1953), pp. 16-17.

[54]*A General Electric Scrapbook History with Commentary* (Schenectady, New York: General Electric Company), pp. 33-34.

[55]C. G. Suits, "Seventy-Five Years of Research in General Electric," *Science*, Vol. 118 (October 23, 1953), p. 454.

Electric attracted many engineers because of the patents in armatures held by the company, but "later they were heard to assert that a greater asset was a man, a little hunched up, carelessly dressed, cigar smoking, young German--Steinmetz."[56] Charles Steinmetz, the great mathematician who developed the law of hysteresis, which governs losses in the magnetic circuit of an electric motor, was obtained when the newly formed General Electric Company bought the Eickemeyer firm in 1892.

Two companies were formed during the Coffin leadership which later caused General Electric much court trouble. The first firm was the Electric Bond and Share Company, a holding company dealing in utility stocks. This firm later obtained great strength in the utility field and was able to expand a preferential market for General Electric equipment. The other firm referred to is RCA. The Radio Corporation of America was organized by General Electric after it acquired control of the Victory X-Ray Corporation in 1919. General Electric brought into the RCA organization Westinghouse and American Telephone and Telegraph. The three firms gave RCA radio patents and, using over two thousand of such patents, RCA tried to keep everybody else out of the radio field. General Electric and Westinghouse divided the manufacture of radio equipment 60-40 with GE again taking the larger share, and RCA as the sole seller of it.[57] Thirteen years after General Electric formed RCA, the major companies in the agreement signed a consent decree to dispose of their RCA stock. "The government had invited them to organize RCA in the first place, and," says David Luth, Swope's biographer, "some industry officials thought it was a double cross when the Department of Justice complained that the relationship was a violation of the

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[56]David Loth, *Swope of G. E.* (New York: Simon and Schuster, 1958), p. 30.

[57]Backman, *op. cit.*, p. 108.

anti-trust laws."[58] RCA owed General Electric money after separating and gave General Electric as part payment the building at 570 Lexington Avenue, New York, New York, still used as the main office for General Electric.

Swope to Cordiner

May 16, 1922, Gerard Swope became the third President of General Electric. He took the reins of office during a depression which was hitting General Electric very hard. General Electric had laid off 20,000 men, almost a quarter of its 1920 force. Business had dropped from sales of $318,000,000 in 1920 to $179,000,000 in 1921.[59] The major problem of getting Swope, who at this time was President of International General Electric,[60] into the presidency of the parent company was how to remove President Rice. Loth notes, "Coffin. . .never had felt that he could leave the reins in Rice's hands."[61] "I never did know how Mr. Coffin persuaded him (Rice) to give up the Presidency," Swope says, "but Rice was used to taking Coffin's orders."[62] Rice was offered an honorary Chairmanship of the Board created for him, and, to the surprise of everybody, he accepted. Swope and Chairman Owen D. Young, then led General Electric from being a major manufacturer into the retailing market, developing the company name into a household word.

At this time, General Electric was producing numerous lamps under different names. Swope unified them under

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[58] Loth, *op. cit.*, p. 247.

[59] *Ibid.*, p. 4, 103.

[60] International General Electric is a wholely-owned subsidiary whose main function is to market GE products outside the United States.

[61] Loth, *op. cit.*, p. 103.

[62] *Ibid.*, p. 109.

one name: GE Mazda. Steinmetz was publicized in the press as a General Electric genius. The General Electric stock was divided so that it could sell for around $100 to $150 to allow more of the "masses" to own the company. The policy toward stockholders prior to Swope, and adopted by most corporate managements of that time, was "treat 'em rough and tell 'em nothing."[63] Swope quickly changed this as quarterly reports were sent out to all stockholders and news releases expanded.

Swope disposed of the Electric Bond and Share Company stock by distributing it as a bonus to stockholders. Coffin, who had organized the firm, was very much against this move, but Swope didn't budge. Coffin was officially retired but still kept office hours.

Under Swope, General Electric organized the employees into company unions, and later allowed national unions to enter without a fight. Many people to this day insist that this was a major blunder. Under Swope, pension plans and unemployment compensation were adopted as company policy. Unemployment compensation was adopted four years before the federal law was passed. Insurance plans were continually expanded and strengthened by Swope. Dr. Whitney of the Research Laboratory once said of Swope, his "greatest contribution was in teaching industry how to treat people."[64]

The team of Young and Swope led General Electric through the post-World War I reconstruction into the boom of the twenties, through a prostrating depression into a second recovery preceding World War II. Sales passed $415,000,000 in 1929, fell below $137,000,000 in 1933, and rose to nearly $350,000,000 in 1937. Earnings for the

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[63] *Ibid.*, p. 131.

[64] *Ibid.*, p. 153.

same time periods moved from $67,300,000 to $13,400,000 and back to $63,500,000.[65] *Fortune* magazine was able to say in 1940, "During that eighteen years (with Swope and Young) at the head, General Electric had never been in serious trouble. They leave the company with no bonded debt nor any preferred stock outstanding. Their stockholders have never missed a dividend. Their labor has never really struck."[66]

According to Theodore Quinn, but totally unsubstantiated, as early as 1933 or 1934, Gerard Swope, contemplating retirement, considered Quinn, the top-ranking Vice President, as a possible successor. Quinn, in fact, was a Vice President who seemed to have become an embittered man toward American large industry, and suddenly resigned. Quinn reflects, "I submitted my resignation orally to a surprised and shocked Gerard Swope in the summer of 1935."[67] Since his resignation, Quinn has devoted his life to attacking big business, and General Electric in particular. His book, *Giant Business: Threat to Democracy*, and his famous article, "Why I Quit Monster Business,"[68] were recommended reading by General Electric management at their management school at Crotonville, New York, in 1956. It was here that Quinn's successor story was ridiculed by GE executives, most of whom had never heard of Quinn who had resigned more than twenty years prior. Quinn wrote, "The company engaged in practices of which I could not approve, and while I might disclaim responsibility, there was a certain moral responsibility nevertheless. I'm not a prude and I had endured and been a party to many irregularities, but

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[65] "GE's Third Generation: Wilson and Reed," *Fortune*, Vol. XXI, No. 1 (January, 1940), p. 102.

[66] *Ibid.*, p. 68.

[67] T. K. Quinn, *Giant Business: Threat to Democracy* (New York: Exposition Press, 1953), p. 159.

[68] This article has not been located by this author, but he believes it comes from a 1944 issue of *Journal of the School of Living*.

the question was now getting closer to me."[69] He was referring to collusion between big businesses, and to the economic power wielded against small business. The later General Electric price-fixing scandal indicated that the practice extended far back into this time structure and could have been one of the things to which Quinn was alluding, if his remarks have any validity. Just as Quinn was offered a position whereby he might have changed what he felt to be irresponsible practices, he quit the company. The reason Quinn rejected his chance to rectify the firm's affairs, arises from his belief that big business is so big that one man does not and cannot control it. He says, "These corporations are public institutions privately controlled. The executives are more like the governors of our various states. They come and they go, leaving only slight imprints."[70] Yet, he spends much time in his book showing how Swope ran GE with an iron hand.

Quinn's resignation opened the door for Charles E. Wilson and Philip D. Reed. Reed was a young attorney in the Lamp Department. Quinn says of Reed:[71]

> Someone who knew something about the highly profitable Lamp Department had to be made a principal officer, and Mr. Reed happened to be there at the time in the accidental way . . . .He had never managed any department nor employed anyone. He had no experience in manufacturing, engineering, sales or accounting, but he had an unusually pleasant and likeable personality and was made Chairman of the Board . . . .Charlie Wilson, the new president, appeared to have little regard for Phil Reed and paid little attention to him. Phil was not permitted to meddle deeply in the affairs of the company.

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[69]Quinn, *Giant Business: Threat to Democracy*, *op. cit.*, p. 159.

[70]*Ibid.*, p. 236.

[71]*Ibid.*, p. 160.

Chairman of the Board Young and Swope had picked Charles Wilson to succeed Swope as President in 1940. From 1942 to 1944, Wilson and Reed left the firm to work in the War Department, and Swope and Young returned during these years to manage the company.

General Electric, before World War II, under Gerard Swope was not the enormously complex organization it was when Wilson became President. Swope was in complete command with dictatorial powers. *Fortune* termed his attitude and deportment as pure Prussian.[72] The magazine went on to sketch the personality of Swope in order that the internal management of the firm could be understood. *Fortune* said:[73]

> There was never any possible doubt that he (Swope) was running it. Directors' meetings tended to be like a personally conducted tour of certain aspects of General Electric, which Mr. Swope was willing to reveal to the assembled company. He gave no quarter to an advisory committee of high company officers. Below him there were in general two kinds of situations. First, there were committees galore, the sub-presidential management resting largely with them rather than with responsible department heads. . . .(Second) a man with an idea that Swope approved could get authority to carry it out, plus a special new title and, probably, an office farther upstairs. . . .Thus, company operations were forever being altered by men suddenly invested with new powers.

There was a definite lack of established management design in the firm. This led some to describe General Electric under Swope as paradoxically successful chaos.[74] By the end of Swope's reign, some in the company became alarmed at the lack of systematic management, and by the uncertainty and indirection of the vast bureaucracy.

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[72] "Mr. Wilson at Work," *Fortune*, Vol. XXXVI, No. 5 (May, 1947), p. 123.

[73] *Ibid.*, p. 166.

[74] *Ibid.*

Organizationally, the firm was not structured to fit the complex needs of the operations. Top management, Swope, specifically, gave much of its time to one of its important products, large apparatus. The structure seemed to indicate little realization or top interest in the fact that it also had a great appliance business. General Electric was founded for the electrical apparatus field and built appliances to stimulate electrical consumption. The role of General Electric was one built on "the benign circle of electric power" philosophy, so well stated by Ralph Cordiner:[75]

> A turbine generator installed in a power station makes possible the sale of more lamps, appliances, motors, and other users of power. And as more people buy lamps, appliances and so on, they create the need for another turbine generator and more transmission equipment. Thus, each new use of electricity accelerates the turn of the circle--creating a bigger potential market for General Electric products, not only in end use equipment, but in equipment to produce, transmit, and distribute electric power.

Fortune's description of "paradoxically successful chaos" was best applied to the appliance business which was "conducted," they claimed, "in a fundamentally haphazard manner."[76] For instance, the refrigerator had parts made in four widely separated plants before being finally assembled. Although General Electric had a good showing in refrigerator sales, the operation was inefficient and costly. In smaller appliances--toasters, clocks, and so forth--General Electric was very inefficient compared with the small independent companies specializing in these products. General Electric was doing about 30 percent of its gross business in appliances, yet it was not managing appliances

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[75]Ralph J. Cordiner, *New Frontiers for Professional Managers* (New York: McGraw-Hill Company, Inc., 1956), p. 11.

[76]"Mr. Wilson at Work," *op. cit.*, p. 168.

as though it were a major contributor to the firm.[77]

Theodore Quinn, Chairman of the Sales Committee and top ranking Vice President under Swope, claims, "General Electric proved to be a high cost, inefficient manufacturer. The company was never an efficient manufacturer of anything to my best knowledge, except lamps or articles produced by outside companies which we purchased. Our position always depended upon capital advantage."[78]

In 1938, Charles Wilson, Executive Vice President, and later to succeed Swope, moved to change this managerially unhealthy situation. He set up a Planning Committee consisting of one or two key men from each of the firm's main departments, with the objective of giving General Electric a thorough overall review. The committee concluded that in order to progress efficiently the business must adopt two principles: in management, decentralization; and in production, diversification and specialization.[79] The importance of this committee's recommendation is not to be overlooked, for this is the beginning of GE's concerted efforts by top management to decentralize the managerial decision making to lower ranks. Although the term "decentralization" was perhaps understood much differently in 1938 than in 1951 (or any later year), this recommendation is the real starting point for the company's decentralization policy which culminated in Cordiner's reorganization in the 1950's. Wilson became President in 1940, and at once began to reorganize and decentralize, but World War II intervened and he and Chairman Philip Reed went to Washington for the war effort, being replaced by Young as Chairman and Swope as President.

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[77] *Ibid.*

[78] Quinn, *Giant Business: Threat to Democracy*, *op. cit.*, p. 79.

[79] "Mr. Wilson at Work," *op. cit.*, p. 168.

Peace brought Wilson and Reed back to their prewar positions, and also brought Ralph J. Cordiner, who, prior to the war was president of the Schick Company, to General Electric as Vice President and Assistant to the President. Under Wilson's leadership, Cordiner gradually developed the organization structure as shown in Figure 3.

Cordiner, Diversification, and Decentralization

Decentralization had its beginnings in General Electric as early as 1929, when some aspects of it were covered at a company convention of top and middle management held at Association Island on Lake Ontario. The need for the General Electric type of decentralization stems from the complexity of problems inherent in the diversity of the company product lines. When General Electric was first organized, it was principally in heavy apparatus for utilities, and light apparatus for street railways and lamps. "Today, it is the most diversified company in the country"[80] claims labor expert and ex-General Electric employee, Herbert Northrup. It is in almost every aspect of the electrical equipment industry, as well as in metallurgy, glass, aerospace, and land-based nuclear power, and is one of the nation's leading chemical manufacturers.

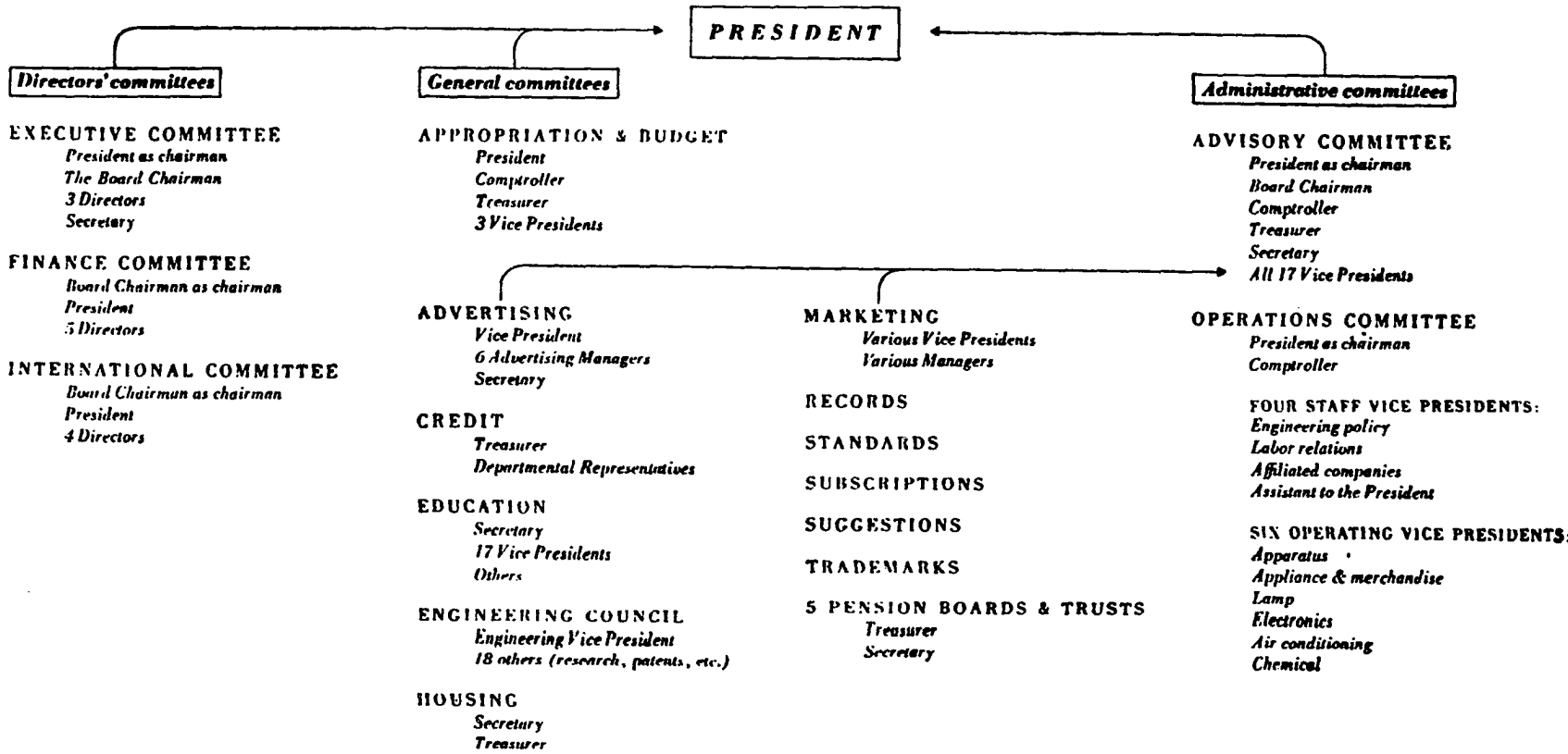
In 1943, Ralph Cordiner was made Assistant to President Gerard Swope (Charles Wilson was still on the War Production Board) and his major assignment was to develop a plan for overhauling the management and organization structure of the corporation. After three years of study, he called for a complete reorganization. He said, "Unless

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[80]Herbert R. Northrup, *Boulwarism* (Ann Arbor, Michigan: University of Michigan, 1964), p. 3.

Figure 3

UNOFFICIAL ORGANIZATION CHART OF GENERAL ELECTRIC COMPANY
(SHORTLY AFTER WORLD WAR II)



*Source: "Mr. Wilson at Work," *Fortune*, Vol. XXXV, No. 5 (May, 1947), p. 168.

we could now put the responsibility and authority for decision making closer in each case to the scene of the problem, the company would not be able to compete with the hundreds of nimble competitors. . . ."[81] At General Electric, decentralization meant to keep the strengths afforded by large organizations but adding the flexibility of smaller firms. The key to decentralization is placing responsibility and authority for making business decisions on the level where they are needed. Of course, upper management was retained for long-range planning, guidance, policy, and to delegate generally this authority to lower echelons. The latter was perhaps the greatest obstacle that Cordiner had to overcome when he first instituted decentralization.

After World War II the company began to implement its bold new program of total decentralization. By 1948 the company had passed the $1,500,000,000 sales level,[82] and it had detected signs of operational immobility which Cordiner attributed to organizational design weaknesses.

Cordiner became President in December of 1950, and within two years General Electric was reorganized. Cordiner was not due to take over for another two years, but Wilson was called to Washington to team with Sidney Hillman to head up the Korean War Office of Defense Mobilization. Because of the sudden departure of Wilson, Cordiner was faced with the immediate problem of should he quickly implement his decentralization policy or should he slowly implement it.[83] He chose the quick route. Some

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[81] Ralph J. Cordiner, *op. cit.*, p. 16.

[82] *General Electric Company Annual Report 1948*, p. 15.

[83] Interview with Harold F. Smiddy, retired Vice President, Management Consultation Services, General Electric Company, Cincinnati, Ohio, August 24, 1969.

two thousand top manager jobs were created or redefined; twenty divisions were set up with about seven departments.[84] The Functional Organization--Taylorism--was abolished. The staff or services employees were cut down to a relatively few, but highly experienced, number of men to render assistance and advice. This completely did away with the growing tendency found in American industry of allowing the staff consultants to make the actual decisions by virtue of their position. Figures 4 and 5 show the evolution of General Electric's Executive and Services Organization structures.

The new philosophy and organization meant replacing central control with decentralized control, and the essentially autonomous structuring of about eleven operating product departments. The emphasis was directed to removal of "security, complacency, and mediocrity,"[85] and an installation of an incentive or reward system which was hoped to bring higher and tougher standards.

Under Ralph Cordiner, the decentralization activities followed his well-conceived plan which fit so well with the beliefs of the new generation of company leaders who had grown up during and after the Hawthorne experiments and therefore preached human relations. It brought a new concept of delegated authority, responsibility, and accountability. "Success would bring advancement and reward," noted one-time manager, Dr. Edward Currie, "Failure would be equally swift in its results."[86] Concern for people is a hallmark of the corporate philosophy of decentralization.

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[84]Frederick W. Cleveland, Jr., and Clarence C. Walton, *The Corporations on Trial: The Electric Cases* (Belmont, California: Wadsworth Publishing, 1964), p. 63.

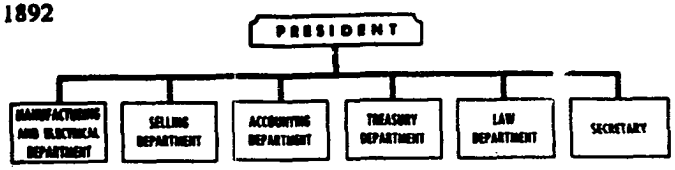
[85]Edward M. Currie, "The Importance of Human Relations in Decentralization: A Study of G. E.," unpublished Master's thesis, Iowa State University, April 15, 1965, p. 1.

[86]*Ibid.*

Figure 4

EVOLUTION OF GENERAL ELECTRIC'S OPERATING ORGANIZATION STRUCTURE

1892



The President was both the "Chief Executive Officer" and the "Chief Operating Manager." Responsibility for establishing Objectives and Policies and for making Operating Decisions was centralized for all products and for all functions. Only the President and his immediate subordinates had profit responsibility and accountability. This was an efficient arrangement for the economic conditions and the size of the business at that time.

1940-1950
GRADUAL DIVERSIFICATION AND DECENTRALIZATION

Beginning with the formation of the National Electric Lamp Association in 1901, the Company gradually moved toward decentralized operation of particular businesses, e.g., Edison Electric Appliance Company (1918), International General Electric Company (1919), Locke Insulator Corporation (1920), Canadian General Electric Company (1923), Trumbull Electric Corporation (1925). The "Chief Executive" of each of these decentralized components as it was formed or acquired had responsibility, authority and accountability for performance for his component except as specific Reserved Authorities were withheld by the Executive Officers of the parent Company. These Reserved Authorities had to do principally with Policy matters affecting the operations of the Company as a whole.

1940-1950
DECENTRALIZATION BY SPLITTING OFF GROWING BUSINESSES

In this period many separable business components were split off from their parent businesses and given decentralized operating status. This was a period of rapid growth in sales and diversification of the Company's Products. The evolution of General Electric's decentralized Operating Organization Structure has been gradual and continuous. Some Operating Components had responsibility for all six of the primary types of functional work from the time they were established. Others took over their own functional and subfunctional work gradually over many years, as they became more completely decentralized, autonomous sub-businesses. Some functional types of work were decentralized generally before others. Parts of a single function were usually decentralized before the entire function.

1951
RESULT OF EVOLUTION OF GENERAL ELECTRIC'S MANAGEMENT PHILOSOPHY AND ORGANIZATION STRUCTURE

From this chart it may be seen that Managerial and Organizational concepts in General Electric have evolved over many years to the following clear separation of responsibilities:

1. **EXECUTIVE OFFICERS** are responsible principally for decisions concerning over-all Company Objectives and Policies in the balanced best interest of all concerned with the Company's present and future productivity. The Executive Officers do not have day-to-day Operating responsibility.
2. **OPERATING MANAGERS** are responsible principally for profitable execution of such Objectives and Policies in their particular components and have complete accountability for performance.
3. **Services Officers, Managers and Consultants are responsible principally for pioneering and communicating best practices in their particular functional fields, for aiding in formulation of Objectives and Policies, and for advising and assisting both Executive Officers and Operating Managers in all possible ways.**

1953
DECENTRALIZED OPERATING BUSINESS COMPONENTS

The Company's plan is to decentralize *Operating Decision-Making* to the General Managers of Separable Business Components as rapidly and as completely as possible. Each of these General Managers, as the "Chief Executive" of his component, has full operating responsibility and authority except as specifically reserved and withheld in writing by his immediate superior. Each has commensurate accountability for the performance of his component. This includes accountability for profit (or loss), return on investment, market position and all other measures of operating and managerial performance.

The present general organization concept is to establish "Product Department" as soon as reasonable foreseeable early business potential is of the order of around twenty million dollars per year with good growth possibilities and profit (or loss) and market position accountability can be established for the particular products involved. A General Manager is placed in charge of each such Product Department with complete responsibility, authority and accountability for his Deparment as a Separate Business Component, within over-all Company Policy and except for specifically reserved authorities as communicated to him by his immediate supervisor.

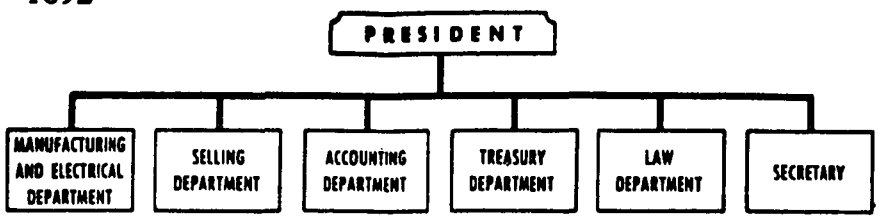
The Product Departments are the basic "building blocks" with which the Company's Organization Structure is formed. Their Managers and workers constitute the wide-awake, competitive teams charged with the responsibility for keeping General Electric out front in all of its Product Lines.

Source: "Professional Management," *General Electric Book One, General Electric's Growth* (New York: General Electric Company, 1953), between pp. 48, 49.

Figure 5

EVOLUTION OF GENERAL ELECTRIC'S SERVICES ORGANIZATION STRUCTURE

1892



The President was both the "Chief Executive Officer" and the "Chief Operating Manager." Responsibility for establishing Objectives and Policies and for making Operating Decisions was centralized for all products and for all functions. Only the President and his immediate subordinates had profit responsibility and accountability. This was an efficient arrangement for the economic conditions and the size of the business at that time.

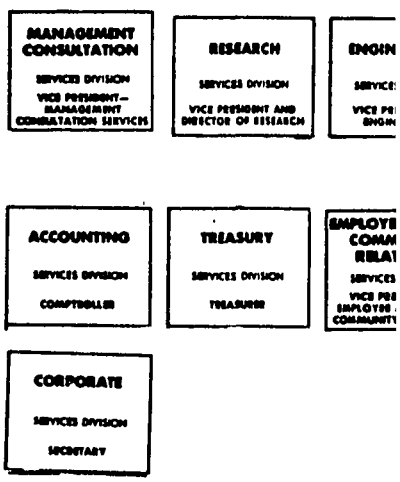
1900-1940
Gradual Diversification and Decentralization

Beginning with the formation of the National Electric Lamp Association in 1901, the Company gradually moved toward decentralized operation of particular businesses, e.g., Edison Electric Appliance Company (1918), International General Electric Company (1919), Locke Insulator Corporation (1920), Canadian General Electric Company (1923), Trumbull Electric Corporation (1925). In this period, the degree of centralization or decentralization of functional services for these decentralized components depended largely upon particular conditions and varied from component to component. Because of the necessity for uniformity, policies and methods for financial and legal matters were determined by centralized agencies for the whole Company. On the other hand, the decentralized components took care of their own engineering, manufacturing and sales functions, whereas other components not yet decentralized looked to centralized agencies for all functional services.

1940-1950
Decentralization By Splitting Off Growing Businesses

In this period many separable business components were split off from their parent businesses and given decentralized operating status. This was a period of rapid growth in sales and diversification of the Company's Products. The evolution of General Electric's decentralized Operating Organization Structure has been gradual and continuous. Some Operating Components had responsibility for all six of the primary types of functional work from the time they were established. Others took over their own functional and subfunctional work gradually over many years, as they became more completely decentralized, autonomous sub-businesses. Some functional types of work were decentralized generally before others. Parts of a single function were usually decentralized before the entire function.

1951-1953



1951
Result of Evolution of General Management Philosophy and C

From this chart it may be seen that Ma
in General Electric have evolved over
separation of responsibilities:

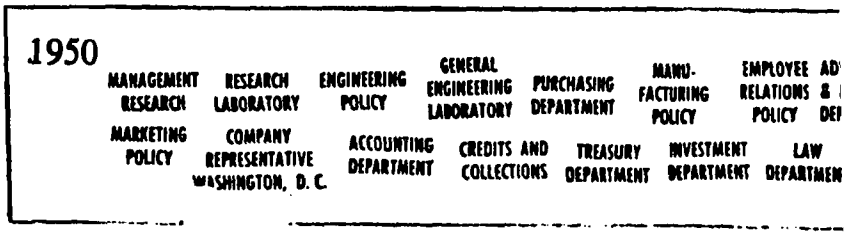
1. Executive Officers are responsit
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of all concerned with the Company's
Executive Officers do not have day-

2. Operating Managers are responsi
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have complete accountability for per

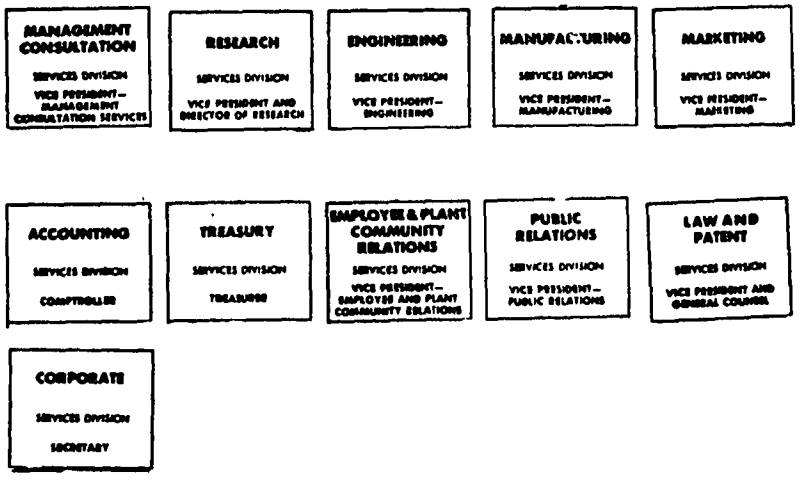
3. **Services Officers, Managers and Co
for pioneering and communicating b
tional fields, for aiding in formulatio
advising and assisting both Executi
in all possible ways.**

AL ELECTRIC'S
)N STRUCTURE

1950



1951–1953



)51

ESULT OF EVOLUTION OF GENERAL ELECTRIC'S
ANAGEMENT PHILOSOPHY AND ORGANIZATION STRUCTURE

From this chart it may be seen that Managerial and Organizational concepts General Electric have evolved over many years to the following clear aration of responsibilities:

1. EXECUTIVE OFFICERS are responsible principally for decisions concerning over-all Company Objectives and Policies in the balanced best interest of all concerned with the Company's present and future productivity. The Executive Officers do not have day-to-day Operating responsibility.

2. OPERATING MANAGERS are responsible principally for profitable execution of such Objectives and Policies in their particular components and have complete accountability for performance.

3. **Services Officers, Managers and Consultants are responsible principally for pioneering and communicating best practices in their particular functional fields, for aiding in formulation of Objectives and Policies, and for advising and assisting both Executive Officers and Operating Managers in all possible ways.**

1953

COMPANY-WIDE SERVICES COMPONENTS

The Company-wide Functional Services Components talize on large Company facilities and know-how in all s areas. There has been a gradual evolution and separatio primary functions, namely:

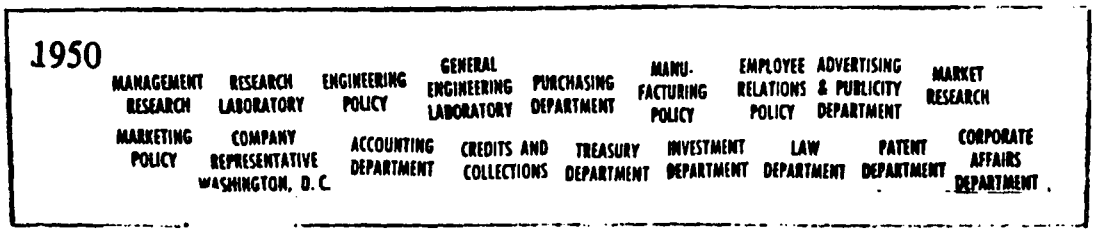
1. Management Consultation
2. Research and Engineering
3. Manufacturing
4. Marketing
5. Financial
6. Employee and Public Relations
7. Legal and Corporate

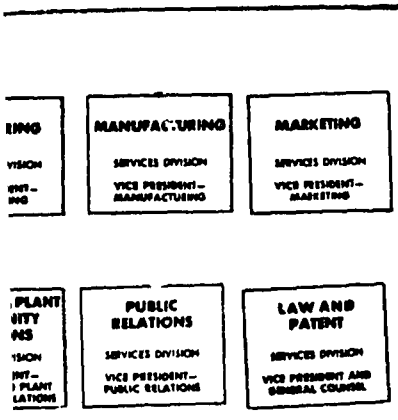
The Vice President in charge, the Managers, the Consult in each Company-wide Functional Services Division have functional field the responsibility for:

(a) Aiding in formulation of Objectives and Pol
(b) Functional service and advice to Executive
(c) Comprehensive functional service to all Op
(d) Recruiting and professional development of specialists
(e) Pioneering in new functional research and d

The over-all objective of the distinct separation of duties bet Office of the President, the Decentralized Operating Co Company-wide Services Components is to provide optimu long-range service and profit through alert, competitive, operating business teams assisted and supported by the Co how of Services Specialists and Consultants in the balanc share owners, Customers and Employees, Suppliers, Govern lic – all those interested in the Company's continuing prod

Source: PROFESSIONAL MANAGEMENT IN GENERAL ELECTRIC GENERAL ELECTRIC'S GROWTH (New York, Genera Company, 1953), between pages 50,51.





AL ELECTRIC'S
GANIZATION STRUCTURE

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Policies in the balanced best interest
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sultants are responsible principally
it practices in their particular func-
of Objectives and Policies, and for
Officers and Operating Managers

1953
COMPANY-WIDE SERVICES COMPONENTS

The Company-wide Functional Services Components are designed to capitalize on large Company facilities and know-how in all specialized functional areas. There has been a gradual evolution and separation into seven distinct primary functions, namely:

1. Management Consultation
2. Research and Engineering
3. Manufacturing
4. Marketing
5. Financial
6. Employee and Public Relations
7. Legal and Corporate

The Vice President in charge, the Managers, the Consultants and their staffs in each Company-wide Functional Services Division have in their particular functional field the responsibility for:

(a) Aiding in formulation of Objectives and Policies
(b) Functional service and advice to Executive Officers
(c) Comprehensive functional service to all Operating Managers
(d) Recruiting and professional development of functional specialists
(e) Pioneering in new functional research and development

The over-all objective of the distinct separation of duties between the Executive Office of the President, the Decentralized Operating Components and the Company-wide Services Components is to provide optimum short-range and long-range service and profit through alert, competitive, small component operating business teams assisted and supported by the Company-wide know-how of Services Specialists and Consultants in the balanced best interest of share owners, Customers and Employees, Suppliers, Government and the Public – all those interested in the Company's continuing productivity.

Source: PROFESSIONAL MANAGEMENT IN GENERAL ELECTRIC BOOK ONE GENERAL ELECTRIC'S GROWTH (New York, General Electric Company, 1953), between pages 50,51.

In a 1945 statement concerning decentralization Vice President Cordiner stated:[87]

> In 30 years the areas most seriously demanding management's immediate attention have gone through more than a complete cycle. First, it was the customer and the employee, and these two should have continued first. Then, it was the production backlog itself. Then, it was the customer--in the severest buyer's market of all times. Then, with war, it was production again. Now the equipment and facility problems are largely answered, and the personnel problems rising to an all-time high. In the belief that the personnel problem--or opportunity--is a series of intimate, personal, local cases, we are looking to decentralization to bring top management close to the employee.

In a 1946 paper Cordiner again emphasized the need for organizational discipline and leader skills in terms of human relations:[88]

> The problem in all larger companies is to have the members of the organization generally understand that the real test of a good manager is not the multitude of details and the amount of functional operations he performs, but, rather, how well he can visualize the over-all responsibility, assign the work to qualified people, and then see that the employee who is given the assignment, his associates, and the entire organization understands the organization structure and adhere to it.
>
> Our joint objective should be the continual study to simplify, streamline, and strengthen our organization, which means our human relations and their interdependence. (Emphasis added.)

Edward M. Currie, Associate Professor of Accounting at the University of Hawaii, worked for General Electric through most of Cordiner's presidency, and for some of that

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[87]Ralph J. Cordiner, "The Implications of Industrial Decentralization," *General Management Series*, No. 134 (New York: American Management Association, 1946), p. 26.

[88]*Professional Management in General Electric Book One. . ., op. cit.*, p. 42.

time as Financial Analyst assigned to the President's Office. He tells us that the opportunities for college graduates mushroomed under decentralization. He says, "To illustrate the magnitude, in financial terms, of the opportunities which unfolded, it is helpful to recall that a typical starting salary, in 1948, for a college graduate was $200 per month. GE's starting rate was $225. A salary of $8,000 or $9,000 would represent an ambitious lifetime goal for most college graduates of that year. The average pay of all company employees, at that time, was about $3,000. During the following fifteen years the *average* employee compensation was destined to pass the $8,000 mark, and the starting salary for a college graduate was to rise to $6,588. Enterprising executives were to be rewarded by salary levels of $30,000 and upwards in their rise through the vast new arena of middle management."[89] Today's average income per employee (wages or salary) is over $9,000.

Contrary to the preachings of decentralization, however, along with its implementation came an emphasis on conformity. Instead of developing a departmental approach to management philosophy, the departments relied heavily on "central intelligence." Company-wide incentive plans were put into effect. A formal structure of position guides, job specifications, salary scales, and employee rating procedures, was for the first time established. Today it may seem impossible for such a giant firm to have lasted so long without these essentials, but only with the managerial revolution inside the company did they become actually developed into practice. Attempts were made to install a bonus plan and control

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[89]Currie, *op. cit.*, pp. 2-3. The $8,000 average salary figure is the level reached in 1963. See *General Electric Company Annual Report 1963*, p. 32. More precisely, the average salary in 1948 was $3,367, as figured from *General Electric Company Annual Report 1948*, p. 2.

system which could reflect performance in eight key result areas (to be discussed in Chapter III).[90] Chains of command were established with clearly defined channels of communications. Management courses were set up to inculcate the new concept of decentralization. Even top level management, as well as third and fourth level, went to school at the Company's Crotonville, New York, complex where Drucker, Dale, Argyris, Haire, Brooks, and so forth, were frequent instructors at this old Harry Hopf estate.[91] "Two-way" communications received emphasis. The interdependence and the significance of authority, responsibility, and accountability were thoroughly developed, especially by the outstanding mind of Harold F. Smiddy and his Management Consultation Services Division. Regular reviews of results were conducted and an organized reporting system was put into place.

Managerial positions multiplied under decentralization, and to combat the manpower need the company appealed to self-development, thus developing the firm's concept of self-control. That is to say, the firm believed that each manager must be able to evaluate himself, to be able to measure himself, using the same measuring devices as his superior would use. This concept is called self-control by GE managers. The results of this self-evaluation should be evident before the same conclusion can be drawn by his superior. Even with the self-development concept

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[90]The eight key result areas will be detailed in following chapters. The areas are: Profitability, Market Position, Productivity, Product Leadership, Personnel Development, Employee Attitudes, Public Responsibility, and Balance Between Short-Range Goals and Long-Range Goals.

[91]See "G. E. Institute Nears End of Run--Now What?", *Business Week* (March 4, 1961), pp. 50-56, and "G. E.'s 'College' Is Back in Session," *Business Week* (February 8, 1964), pp. 78-79.

the philosophy continued to charge each manager with a responsibility for the development of subordinates. The decentralization reorganization needed so many new managers that management talent became more of a premium than it was before Cordiner. Yet, it was under Cordiner that the firm first developed the three-deep concept--that is, the firm likes to have three candidates for each potential opening in any three-year period.[92] The stated principles of self-development and self-control include:[93]

1. Development is primarily the responsibility of the individual himself.
2. Manpower development is based on helping the individual to do his present job better--"Our best way of getting a promotion is to deliver outstanding results on our present job."
3. Learning on the job is more important and more effective than learning by study and educational courses. "We can't learn to swim without getting wet."
4. Responsibility for the development of men is part of each manager's job.
5. The outstanding specialist has a responsibility to teach and develop the men around him.
6. A sound manpower program should be designed to help everyone develop to his maximum capacity: it should not be designed to help only the chosen few.
7. Manpower development plans must operate for and through the decentralized components.
8. The skills required for General Electric work can be learned and taught.

Professor Currie, in reviewing the company's management philosophies during his tenure (1948-1961) said,

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[92]"Management Training: An Act of Faith," *Dun's Review*, Vol. 92, No. 6 (December, 1968), p. 47. The definition of three-deep is GE's own and should not be confused with more traditional definitions.

[93]*Professional Management in General Electric Book Two: General Electric's Organization* (New York: General Electric Company, 1955), pp. 290-291.

> One is impressed with their breadth of scope and their heavy reliance on the tenets of "scientific management" as developed originally by H. L. Gantt, Harry Hopf, and Frederick W. Taylor, as long ago as 1885. The injection of human relations emphasis by the Gilbreths and Mary Parker Follett is also given recognition.[94]

By the time the decentralized philosophy was developing at GE, it was understood that "scientific management" had a number of weak spots. Drucker, in his *Practice of Management*, a book which draws heavily on his association with Harold Smiddy and the author's long hours as consultant to General Electric during the conceptual years of the firm's philosophy, notes:[95]

> . . .Scientific Management. . .has not succeeded in solving the problem of managing worker and work. . . .It has two blind spots . . .the first. . .is the belief that. . .the individual motion (is) the essence of good work organization. . .that the human being is a machine tool. . . .The second blind spot is the "divorce of planning from doing". . . . Planning and doing are separate parts of the same job; they are not separate jobs. . . . There is no work that can be performed effectively unless it contains elements of both.

It should be remembered that by 1950, and the years of formulation of the decentralized management philosophy, the prevailing schools of thought in management were heavily rooted in the "Scientific Management" school of Frederick W. Taylor, the "principles approach" of Henri Fayol, in the writings of Follett, and, particularly, at GE, in the works of Harry Hopf. Follett and Hopf seem to balance the scientific, principles, and relations approaches, for their times. Through the human relations

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[94]Currie, *op. cit.*, p. 4.

[95]Peter F. Drucker, *The Practice of Management* (New York: Harper and Brothers, 1954), pp. 282-284.

experiments of Mayo and Roethlisberger and the publication of Chester I. Barnard's *Functions of the Executive* in 1938, a new movement stressing human relations and behavioral science was launched.[96] Inside General Electric it was Harold F. Smiddy who conceptualized the balancing of the various approaches into the corporate philosophy.

A look at some of the financial figures will give us a little more of an insight at what happened under decentralization at General Electric. It is not claimed that decentralization caused these results as that claim could not be substantiated. We can see what happened with decentralization but we cannot see what would have happened had General Electric not reorganized. We shall look at General Electric with respect to financial figures only superficially to get a general idea; no depth analysis is attempted. A comparison of GE against Westinghouse is useful as Westinghouse is more like GE in terms of products and organization structure than any other firm is. Also, a comparison with the other four largest firms in the United States is of some value to see if General Electric has kept pace. The other four largest firms from 1947 to 1968 have been General Motors, Standard Oil (N. J.), Ford, and U. S. Steel.[97]

We shall look at GE in comparison with the firms mentioned above for three different intervals. Since the firm began its decentralization during the last few years of the Wilson tenure, the first figures cover 1947 through Cordiner's last full year as President in 1957. In 1958

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[96]The works of Munsterberg, L. Gilbreth and Lewin are not to be cast aside, but from the practitioners' side, Human Relations became a fad through the work of Mayo and Roethlisberger and the later researchers.

[97]Ranked in terms of net sales. Recently, U. S. Steel has dropped below Mobile and Chrysler, but for most of the 1947-1968 period U. S. Steel was in the top five.

he became Chairman of the Board and Chief Executive Officer and continued to be in control and did not seem to change policy. The second group of figures from 1957 to 1964 was a period in which GE plateaued; that is, the growth was very slow as demonstrated in a paper on the financial development of GE by Professor Currie.[98] The last group of figures is 1964 through 1968, the most recent available. It was after 1964 that the firm had major price adjustments, which were unfavorable to the firm; 1964 was also the year when the company adjusted its books to reflect the antitrust cases and changed the format of its Financial Statements.[99]

The First Decade (1947-1957)

In 1947 General Electric had basically the same organization found in 1945 (Figure 3), one which was extremely simply in organization structure with only six operating departments. In December of 1950 it had ten major operating departments (Figure 6) with six service divisions. This 1950 organization chart was the *first* overall organization chart made widely known in the history of the company.[100] Swope did not believe in them. In January of 1951 Cordiner jarred the organization by beginning a two-year shakedown in organization structure which created about two thousand new management assignments and ended up with twenty decentralized divisions containing seventy independent operating departments.[101] An operating

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[98]Currie, *op. cit.*, Part II, "The Results--1947-1964."

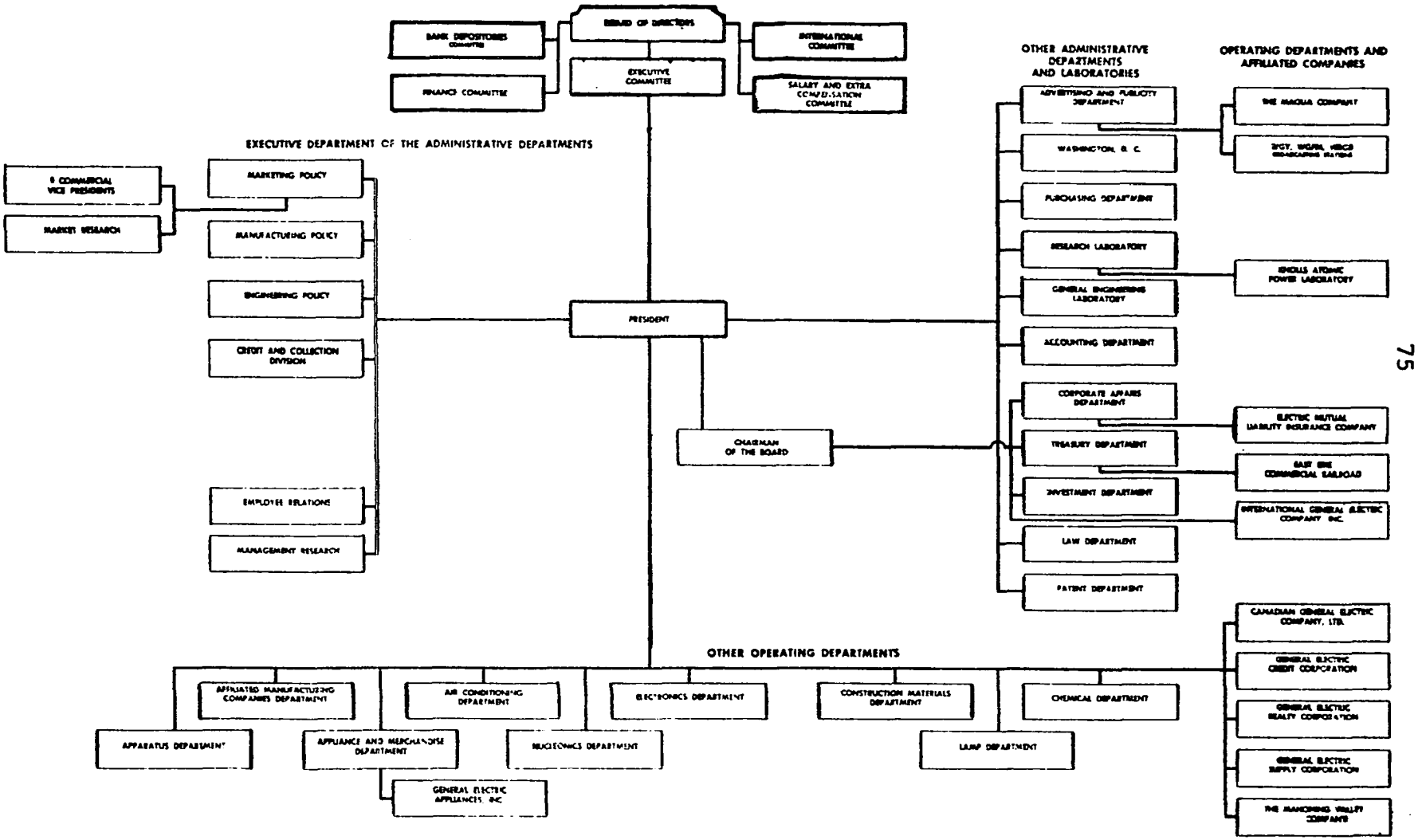
[99]*General Electric Company Annual Report 1965*, p. 22.

[100]*Professional Management in General Electric Book One..., op. cit.*, p. 45.

[101]William B. Harris, "The Overhaul of General Electric," *Fortune*, Vol. 52, No. 12 (December, 1955), p. 115.

Figure 6

1950 ORGANIZATIONAL CHART (FIRST OFFICIAL CHART)



department is a profit center, or an entire "business" unto itself, acting as if it were an independent company (see Figure 7). The 1952 divisions were organized into five groups which were:

1. Affiliated and Foreign Companies Group
2. Apparatus Group
3. Industrial Products and Lamp Group
4. Appliance and Electronics Group
5. Defense Products Group.

In early 1952 *Fortune* had the following quote from Cordiner: "All the basic change is behind us," and then *Fortune* commented, "Mr. Cordiner is in the habit of settling problems years ahead, and when he calls the new GE structure complete, he means complete, he means not simply for the present fifty-four departments, but for up to seventy-five."[102] But, by 1956,[103] the company's organization had mushroomed into over one hundred and fifteen decentralized and semi-autonomous operating entities, arranged into twenty-two divisions and having nine more divisions of services with over sixty more departments (Figure 8). Currie, as an employee during these changes, proudly states,

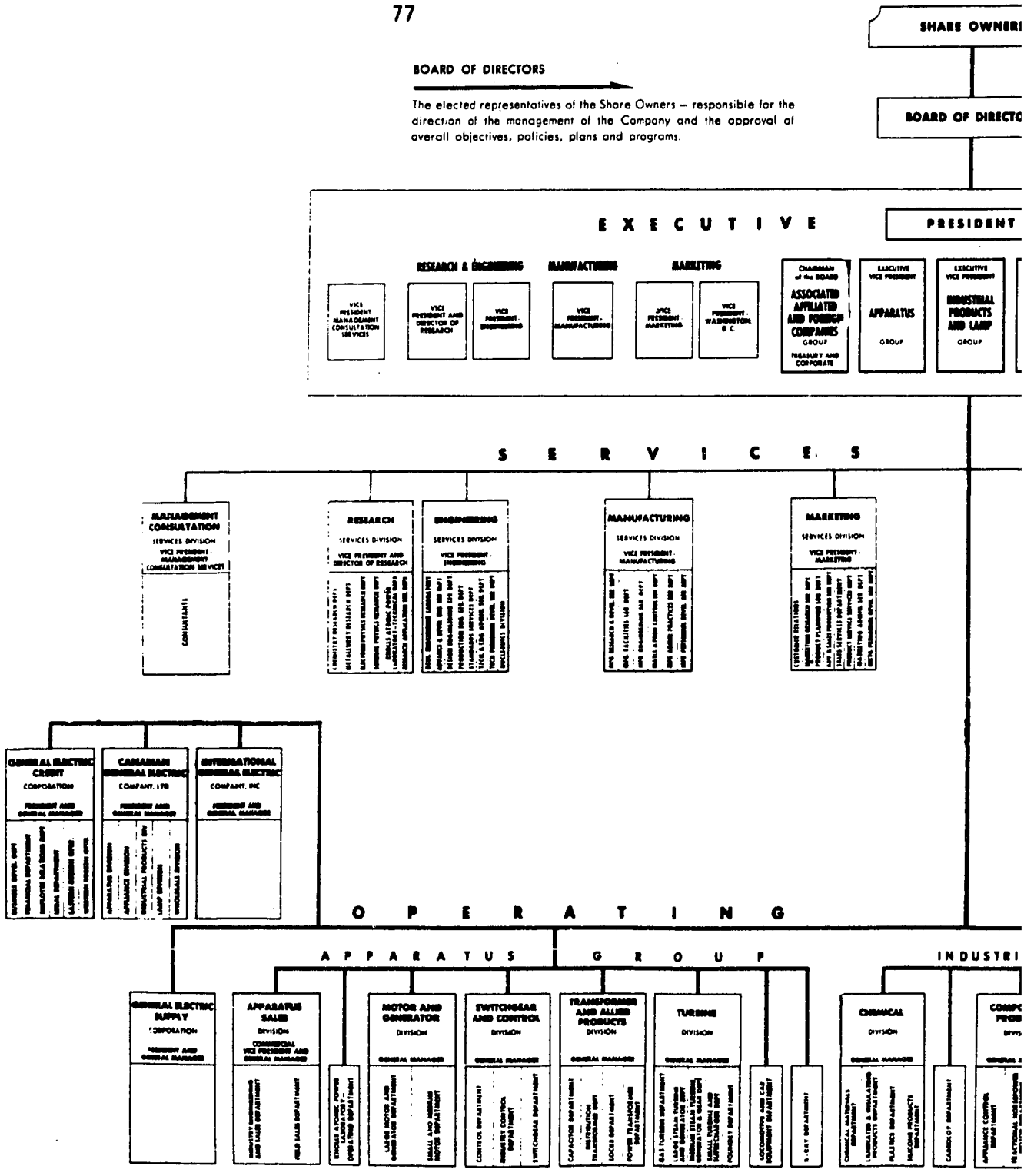
> The myriad of details and major decisions which accompanied these changes represented an almost incomprehensible network of complications in facilities and manpower adjustments. The accomplishment of a depth reorganization of such awesome proportions, in a time of unprecedented expansion pressures, is a monumental tribute to its planners and executors (particularly Cordiner and Smiddy).[104]

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[102]"Cordiner of General Electric," *Fortune*, Vol. 45, No. 5 (May, 1952), p. 157.

[103]No organization chart was issued in 1957. No charts were issued between July 1, 1956, and July 24, 1958.

[104]Currie, *op. cit.*, p. 6., and "G. E. Rejiggers at the Top," *Business Week* (December 4, 1954), p. 71.



AUTHORITY, RESPONSIBILITY AND ACCOUNTABILITY — Management authority, responsibility and accountability for

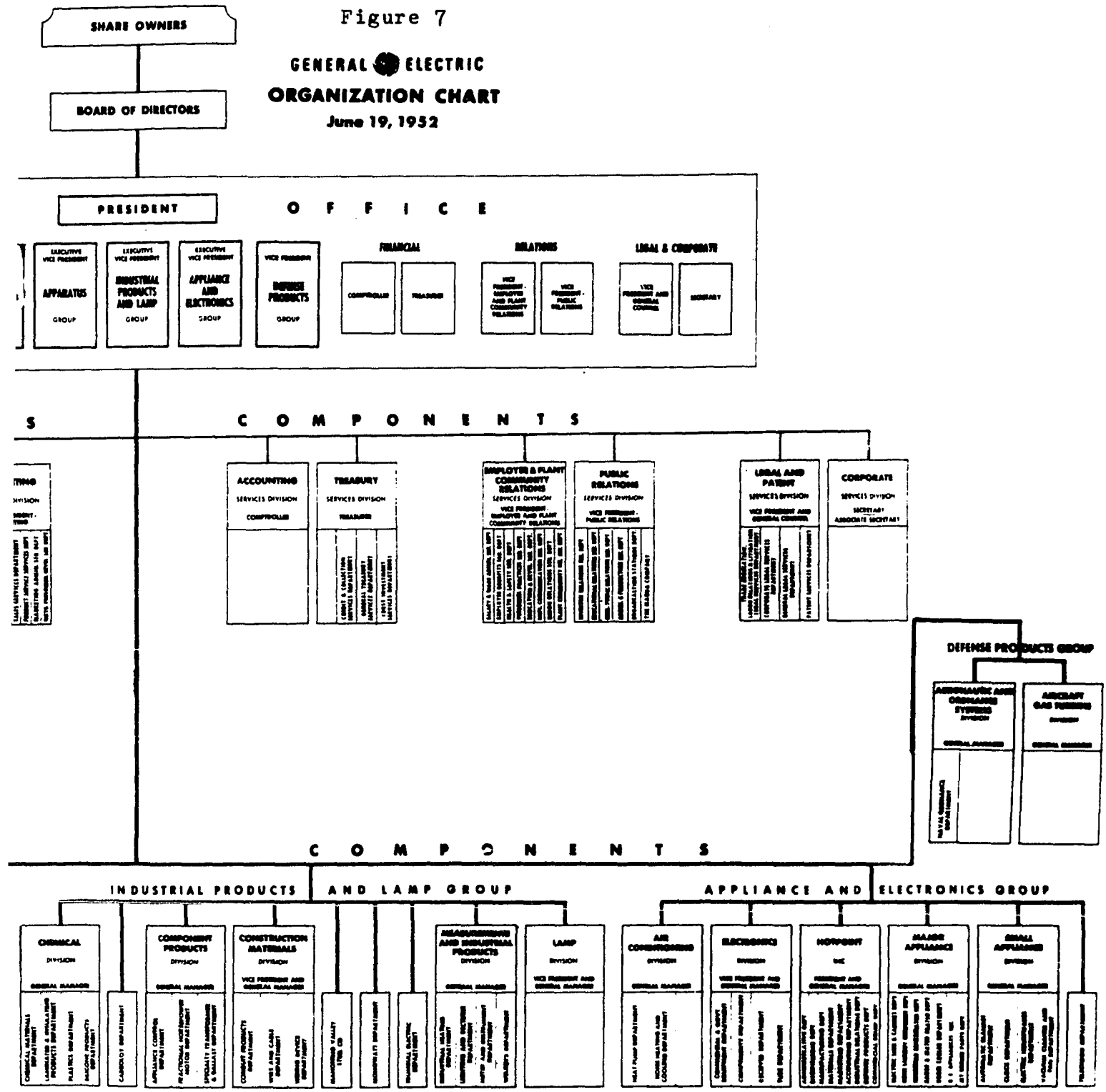
(a) **Operations** -- deciding and taking action, and

(b) **Services** -- functional service (assisting, teaching, advising, counseling and recommending) and functional appraisal, or the "right to look" (examining, finding, analyzing, appraising and recommending);

and their relationships at all levels of the organization, are denoted by the lines and text of the chart.

CHANNELS OF CONTACT -- While the organization structure and chart define lin authority and accountability, they do not indicate or limit **Channels of Contact**, or between or among members of the organization. Organization policy permits and of common sense and good judgment, at all organization levels, in determining contact for expeditious handling of Company work (orders, and flow of informat and components of the organization should be carried out in the simplest and mos cable. In making such contacts, however, it is the duty of each member of the orga

Figure 7



e organization structure and chart define lines of responsibility, indicate or limit Channels of Contact, or flow of information. *nization. Organization policy permits and expects the exercise* t all organization levels in determining the best channels of ipons work, contacts, and flow of information between people ill be carried out in the simplest and most direct way practi- it is the duty of each member of the organization to keep his

superior promptly informed regarding any matter

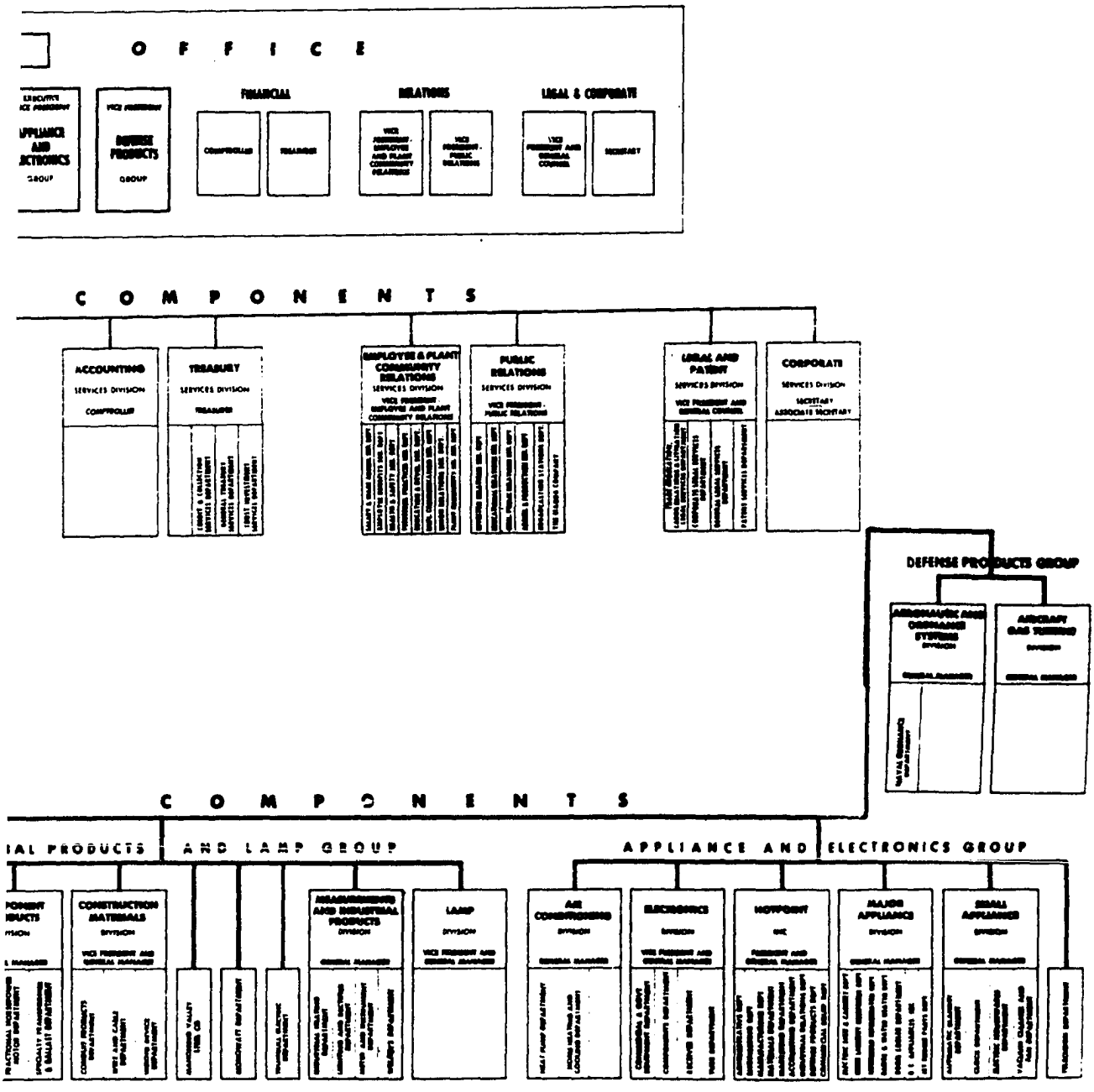
(1) For which his superior may be held properly accountable by others.
(2) As to which there is, or which is likely to cause, disagreement or controversy, especially between different components of the organization.
(3) Which require the advice of his superior or coordination by his superior with other components of the organization or
(4) Which involve recommendations for change in, or variance from, established policies

Figure 7

GENERAL ELECTRIC

ORGANIZATION CHART

June 19, 1952



lines of responsibility, or flow of information. ...d expects the exercise ...e the best channels of ...action. Between people ...most direct way practi... organization to keep his superior promptly informed regarding any matter

(1) For which his superior may be held properly accountable by others,
(2) As to which there is, or which is likely to cause, disagreement or controversy, especially between different components of the organization;
(3) Which requires the advice of his superior or coordination by his superior with other components of the organization or
(4) Which involve recommendations for change in, or variance from, established policies

Figure 8

GENERAL ELECTRIC ORGANIZATION CHART

JANUARY 3, 1956

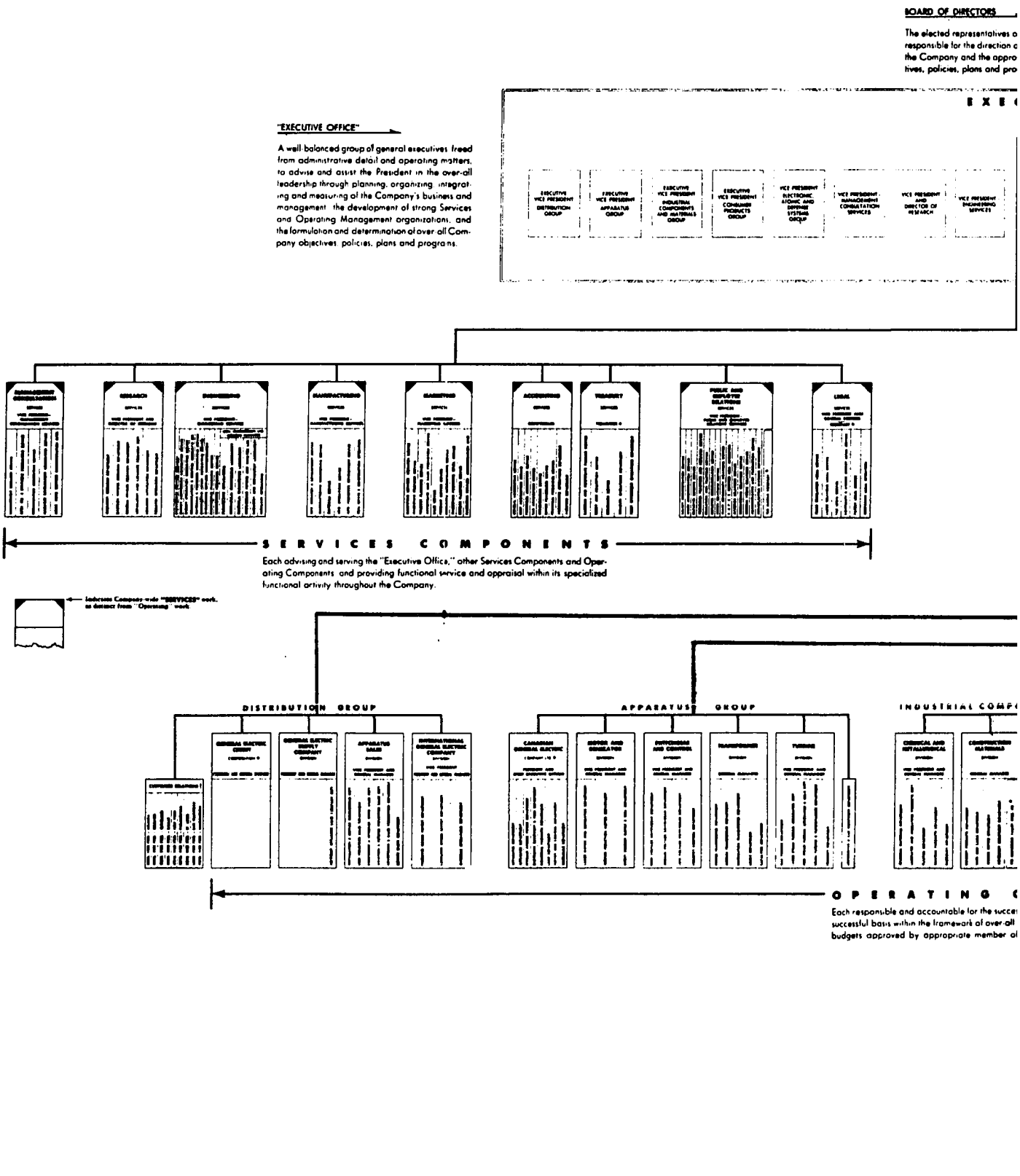
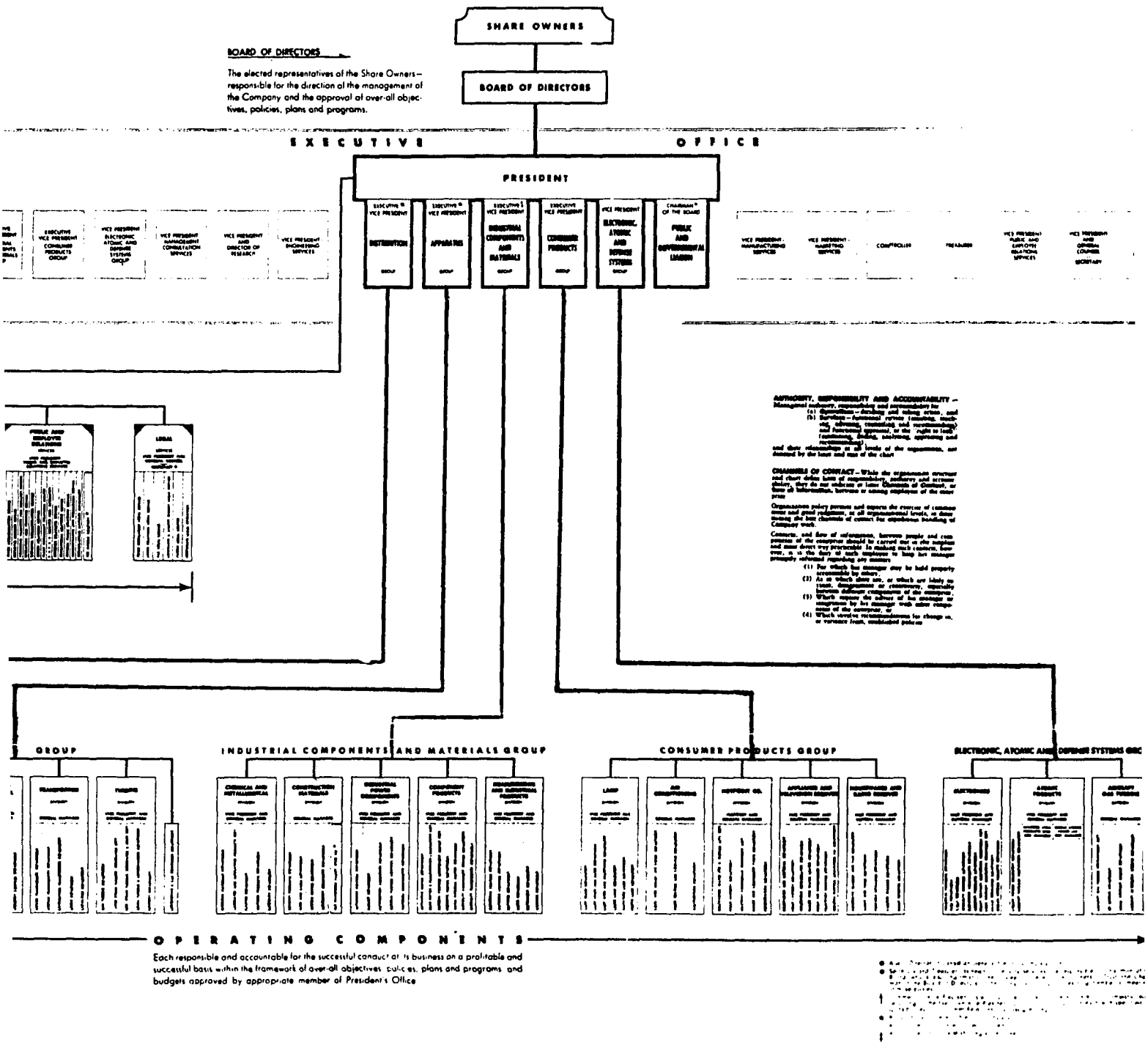
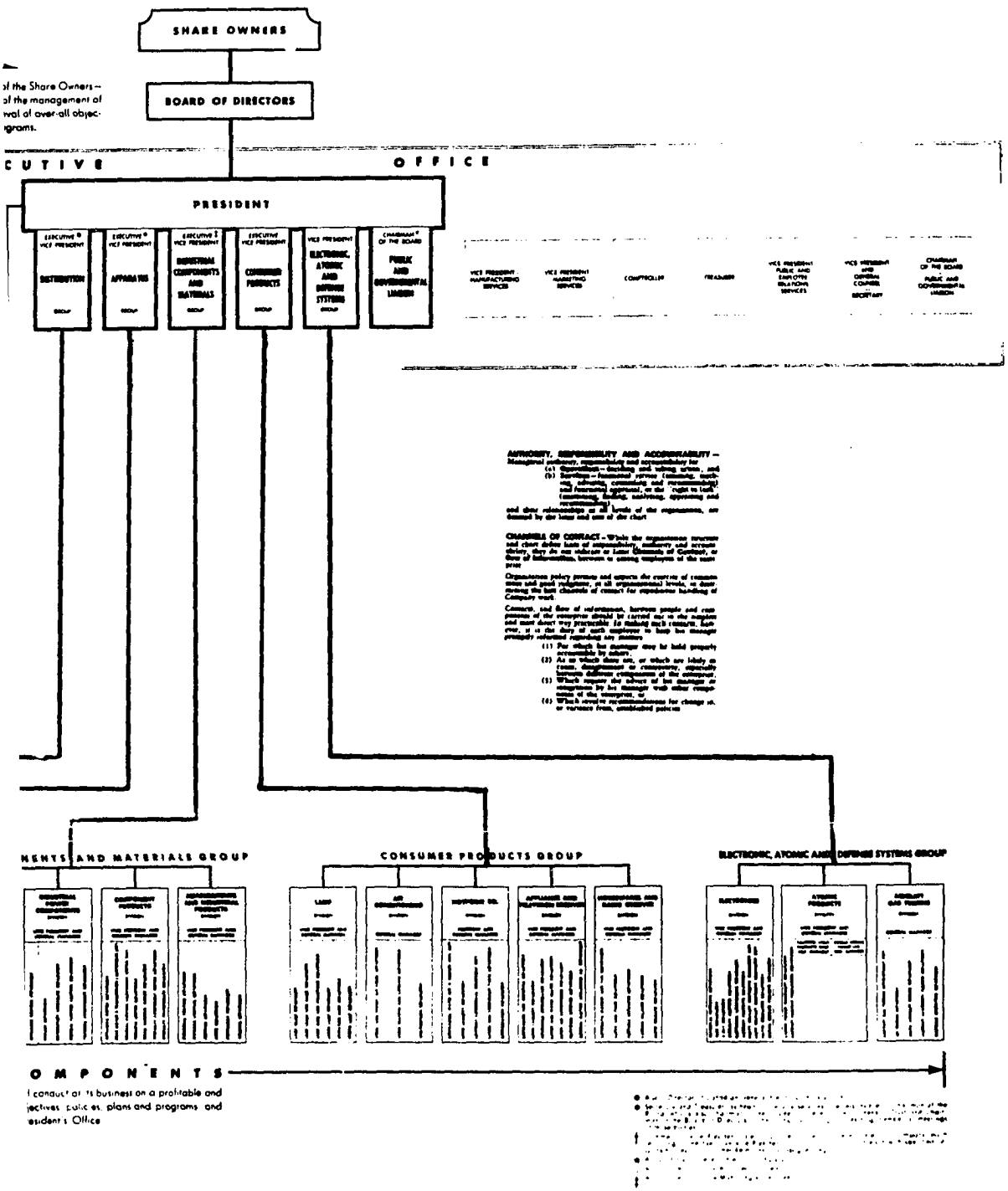


Figure 8

GENERAL ELECTRIC
ORGANIZATION CHART
JANUARY 3, 1956





of the Share Owners --
of the management of
val of over-all objec-
grams.

AUTHORITY, RESPONSIBILITY AND ACCOUNTABILITY --

CHANNELS OF CONTACT -

OMPONENTS

conduct of its business on a profitable and
jectives, policies, plans and programs and
esident's Office

Compared to other large corporations, such as General Motors, U. S. Steel, Ford, and Standard Oil (N.J.), GE's sales growth during the 1947-1957 decade ($1.3 billion[105] to $4.3 billion[106]) was impressive: 230 percent versus 160 percent[107] growth of the other four. A similar advantage was achieved in the growth of net income, which increased 161 percent as compared to only 116 percent increase for the other companies.[108] With assists from both inflation and automation, GE's sales per employee more than doubled (from $7,400[109] to $15,380[110])--a rate of increase which was slightly better than that shown by the other four companies.

Successful efforts in automation and mechanization allowed the firm to obtain a large growth in sales with only a small increase in the employment level. The number of employees in 1947, 180,000,[111] grew to 282,000[112] by 1957, an increase of only 57 percent, as contrasted with the sales growth of 230 percent. The company had no major strikes, partly because of the revolutionary no-nonsense approach to bargaining which is widely known as "Boulwarism," after the designer of the mode of bargaining,

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[105] *General Electric Company Annual Report 1955*, p. 31.

[106] *General Electric Company Annual Report 1957*, p. 32.

[107] Currie, *op. cit.*, p. 6.

[108] *Ibid.*

[109] *General Electric Company Annual Report 1955*, p. 31.

[110] *General Electric Company Annual Report 1957*, p. 22.

[111] *General Electric Company Annual Report 1953*, p. 33.

[112] *General Electric Company Annual Report 1957*, p. 32.

Lemuel R. Boulware, Vice President of Employee and Plant Community Relations.

In 1953 Harold F. Smiddy's staff completed an intensive study of management development--a nineteen volume, eleven hundred page report believed to be the best synthesis of information yet prepared on the subject.[113] In 1954 the company led the way by setting up a department of Operations Research and Synthesis under Smiddy and headed by Mel Hurni--today one of the most respected names in the field.[114]

By 1952, sales had reached $2.6 billion,[115] nearly double the volume of 1947. In 1953, a ten-year forecast was made, ten-year forecasts are made annually, which called for a goal of $4 billion in sales for 1962 ($4 billion was reached in 1956[116] just three years later). The 1954 forecast[117] was a projection of more rapid growth expecting 1963 to have five or seven or perhaps even nine billion dollars. This did not appear to be unrealistic in view of the growth of 1947-1953, an increase from $1.3 billion to $3.1 billion. The year 1963 turned out to have a $4.9 billion[118] and even 1968 failed to reach $9 ($8.4) billion.[119]

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[113] *General Electric Company Annual Report 1953*, p. 15.

[114] Hurni is most likely the author of *The Next Step in Management. . .An Appraisal of Cybernetics*, General Electric Company, 1952.

[115] *General Electric Company Annual Report 1952*, p. 2.

[116] *General Electric Company Annual Report 1956*, p. 28.

[117] Ralph J. Cordiner, "The Development of Companies," *Responsibilities of Business Leadership: Talks Presented at the Leadership Conferences, Association Island* (New York: General Electric Company, 1954), p. 13.

[118] *General Electric Company Annual Report 1963*, p. 32.

[119] *General Electric Company Annual Report 1969*, p. 36.

By 1957, sales topped $4.3 billion,[120] and it began to look as if the 1963 goal for sales was not only realistic but, perhaps, conservative. The 1947-1957 decade was the most dynamic growth decade in the history of the company as determined by earnings per share. Earnings per share had never exceeded 75¢ before 1947, but after that year, it never dropped below $1 and grew almost constantly to $2.84 by 1957.[121]

The Plateau Years (1957-1964)

As previously noted, the goals set back in 1954 proved to be highly optimistic. Although the average annual growth in sales between 1947 and 1957 was nearly 12 percent, the following seven years, 1957 to 1964, were to tell a different story, with an increase during this latter period of only 16 percent overall, or an average growth of only about two percent per year,[122] well below the growth in G.N.P. over the same period. In 1952 the firm set a goal of return of earnings-to-sales ratio of ten percent or above,[123] a figure never reached after 1940.[124] Yet, prior to 1940 the figure was normally between 12 percent and 20 percent. The highest return after 1957 was 6.4 percent (6.2 percent on new accounting methods)[125] in 1959.

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[120] *General Electric Company Annual Report 1957*, p. 32.

[121] *General Electric Company Annual Report 1958*, pp. 6-7.

[122] Currie, *op. cit.*, p. 7.

[123] *Ibid.*, p. 8.

[124] *General Electric Company Annual Reports 1949*, p. 32, and *1968*, pp. 36-37.

[125] *General Electric Company Annual Reports 1957*, p. 32, and *1955*, p. 31.

During the years 1958-1963, General Electric's progress came to a virtual standstill. Sales increased only 19 percent (about three percent per year). The increased volume for the other four corporations--General Motors, Ford, U. S. Steel, and Standard Oil--was 59 percent, or nearly ten percent per year. Profits grew only 12 percent, or about two percent per year, as compared to a growth of 114 percent, or over 16 percent per year, for the other firms.[126]

Those opponents to Boulwarism should take note that average compensation, per employee, increased from $6,568 to $8,071[127] in the period 1958-1963, an increase of 23 percent, or nearly 4-1/2 percent per year. This increase is a little greater than the growth in sales, and about double the rate of profit increase. It is true, of course, that the higher proportion of management personnel, with their higher salaries and benefits, contributed significantly to the upward movement of the average compensation. With the added managerial talent GE's net profit, per employee, increased from $972 to $1,030, or six percent.[128] Assuredly, Parkinson would delight in these figures.

At General Electric, the Chairman of the Board has always been subordinate to the President. Cordiner, at the outset of the plateau years (1958), promoted himself to Chairman and moved Robert Paxton to President. These lean years are still part of the Cordiner reign, for when he became Chairman, the power position moved with him, and for the first time, the Chairman was superior to the President. In fact, Cordiner created another post, which he also put himself in as holder, called Chief

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[126]Currie, *op. cit.*, pp. 8-9.

[127]*General Electric Company Annual Report 1963*, pp. 32-33.

[128]Currie, *op. cit.*, pp. 8-9.

Executive Officer. The real power position at GE is the post of Chief Executive Officer. For, when Paxton was unable to ride out the antitrust storm in 1961, he gave up the presidency to Gerald L. Phillippe, who later succeeded Cordiner as Chairman in 1963, yet Philippe never held the number one position. When Cordiner resigned in 1963, Fred Borch became the power when he was made President. Phillippe continued as Chairman. Technically, Borch handled the operating divisions and Phillippe handled services.[129] But, the power reigned in operations, not services. Figure 9 shows the organization design just before Cordiner's retirement and compares it with the 1952 organization chart.

Growth Again Under Borch (1964-1970)

Fred Borch became President of GE just fifteen months after he was promoted to Executive Vice President, (a post originally offered to Smiddy).[130] Cordiner, in the only interview he has granted since retirement, explained how Borch was chosen. He said,

> I told the Board, you know, we're going to have to make a change pretty soon, because I'm not going to stay here til I'm sixty-five. I gave them a list of fifteen fellows whose ages were right. . . .They averaged about forty-three, or something like that. Some of them were in their thirties. Then I cut the list down until we had five. I went over it very carefully with the Board. . . .They knew these fellows. I made it my business to see that they did. It finally came down to three, and then Fred Borch was chosen.[131]

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[129]"General Electric: Two at the Top," *Forbes*, Vol. 92, No. 8 (October 15, 1963), p. 17, and "G.E. Shifts Herald Harder Consumer-sell," *Business Week* (October 12, 1963), p. 88.

[130]Interview with Harold F. Smiddy, Cincinnati, Ohio, August 24, 1969.

[131]"As I See It: An Interview with Retired G.E.

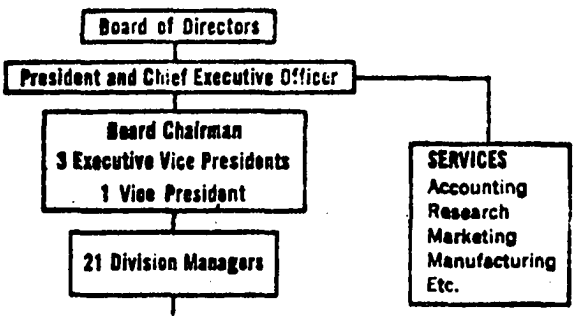
Figure 9

GENERAL ELECTRIC ORGANIZATIONAL CHARTS 1952, 1963

THE MORE THINGS CHANGE

Over the past eleven years, Ralph Cordiner has made subtle and important changes in GE's upper echelons. But the basic key to the company's successful management of decentralization has always been — and remains — the department manager. The highly flexible organization structure is bound to undergo further changes in the future. It is a safe bet, however, that the department manager will remain the fixed foundation of management at GE.

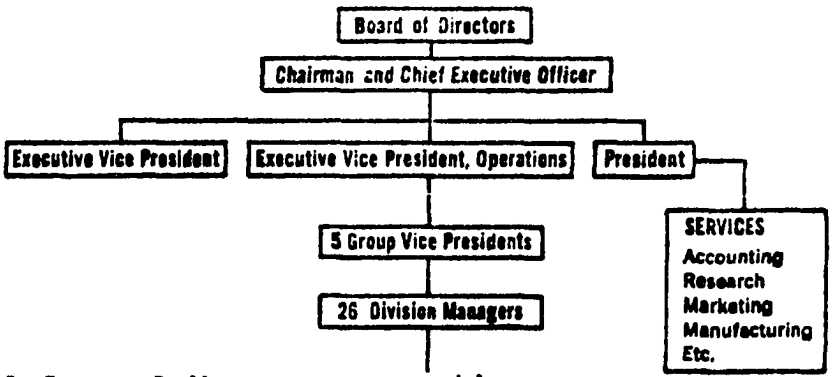
1952 ORGANIZATION CHART



76 General Managers operating semi-autonomous departments in Appliances, Electronics, Industrial Products, Lamps, Apparatus

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1963 ORGANIZATION CHART



121 General Managers operating semi-autonomous departments in Aerospace, Defense, Appliances, Utility Products, Industrial Products, Lamps and Electronics.

*Source: "Management Ways of General Electric," Dun's Review and Modern Industry (Vol.82, no. 5, November, 1963), p.30.

One of Borch's early moves was to reshape some divisions. This was incorrectly interpreted by many as recentralization. It was not recentralization. The major organizational changes occurred in two of the firm's biggest revenue producers: the home appliances and electronic data processing equipment (EDP).[132] January 1, 1966, all research, development, and production of major appliances (kitchen and laundry equipment) were reorganized into one division, known as Major Appliance and Hotpoint Division. The division still kept separate sales forces for GE branded and Hotpoint branded products within this division. At the same time, all EDP operations were combined into Information Systems Division. This division had control over domestic as well as foreign operations in this area, such as Olivetti-General Electric of Italy and Bull-General Electric of France. This type of organization, although new to GE, is basically the type of decentralization used in the auto industry.

One year later the first major organizational changes were made since the early Cordiner years. Again heralded as evidence of recentralization,[133] the move was not a recentralization of the corporation. Borch reorganized the top echelon by organizing a team termed the "President's Office" which was the creation of a five-man executive "troika" similar to that of General Motors. President Borch, Chairman Phillippe, and three Executive Vice Presidents formed the President's Office. At the same time, the firm doubled its operating groups from five

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Chairman, Ralph Cordiner," *Forbes*, Vol. 100, No. 8 (October 15, 1967), p. 37.

[132]"G. E. Reshapes Divisions," *Business Week* (December 25, 1965), p. 20.

[133]"G.E. Expands its Top Echelon," *Business Week* (November 25, 1967), p. 26, also, "G. E. Prepares Major Shifts," *Aviation Week and Space Technology*, Vol. 87, No. 23 (December 4, 1967), p. 23.

to ten. General Electric said,

> The former top executive team was felt to be too small to provide the leadership needed for the Company's projected future growth. This expansion at the group level is being implemented by increasing the components at the division level from twenty-nine to forty-seven and by the formation of some forty new product departments.[134]

The expansion of top level management was pushed forth because of the company's expanding market after 1963. The company, after the plateau period, was able to boost sales by over 60 percent in the five-year period after 1963.[135] The reorganization gave top management more flexibility as the top quintet was concerned with "company-wide commitments and policies that have both short- and long-term impact on GE's worldwide business."[136]

The reorganization actually carried decentralization a step further. It doubled the operating groups, increased divisions to nearly 50 and expanded the profit centers, the departments, from 110 to 150.[137] By 1969, there were 170.[138] Since 1963 General Electric had added $2.9 billion in volume, which matched the 1967 total sales of Westinghouse, the firm coming the closest to being an across-the-board competitor. Borch says, "We had let things grow too big down where the work is done."[139] He reorganized the faster growing operations, breaking them down into "pieces small enough for one man to get

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[134] *General Electric Company Annual Report 1967*, p. 25.

[135] "A New Team Rewires G. E. for the Future," *Business Week* (March 30, 1968), p. 102.

[136] "G. E. Expands Its Top Echelon," *op. cit.*

[137] "A New Team Rewires G. E. for the Future," *op. cit.*, p. 106.

[138] *General Electric Company Annual Report 1968*, p. 5.

[139] "A New Team Rewires G. E. for the Future," *op. cit.*

his arms around,"[140] Borch added, using a favorite Cordiner expression.

Cordiner moved General Electric from a $2 billion company to a $5 billion one in thirteen years. Borch in five years has led it from $5 billion to an $8-1/2 billion company (value of sales made). Borch, a marketing man, increased GE's foreign volume 76 percent during the first four years after Cordiner.[141] The sales mark of $8.4 billion in 1968 more than doubled that of a decade earlier. The company has been growing at a rate of $1 billion each year for the past three years.[142] But profits did not keep pace. Earnings as a percentage of sales ranged between eight percent and five percent through the Fifties (averaging 5.9 percent).[143] During the Sixties the earnings as a percentage of sales ran between 5.7 percent and 4.1 percent, averaging 4.9 percent.[144] After 1963, only 1965 (5.7 percent) was above five percent, the average for Borch and the rapidly expanding sales was only 4.7 percent. Borch is openly dissatisfied, as he says, "We have not been doing as well as we would like in increasing our earnings to match our recent sales growth."[145] It should also be noted that capital expenditures since Borch became President were up nearly five times by the end of 1967.[146] Figure 10 presents a cursory analysis of General Electric's growth. It is not offered as an in-depth study but to show how the company kept pace with Westinghouse and the other four largest firms in the

[140] *Ibid.*

[141] *Ibid.*, p. 109.

[142] Fred Borch, "How Do You Keep Up with a Company That's Growing $1 Billion a Year?" *Forbes*, Vol. 100, No. 6 (September 15, 1969), p. 336.

[143] *General Electric Company Annual Reports 1950-1959.*

[144] *General Electric Company Annual Reports 1960-1968.*

[145] "G.E.'s Heavy Armful," *Time* (January 31, 1969), p. 60.

[146] "A New Team Rewires G.E. for the Future," *op. cit.*, p. 109.

Figure 10
Financial Comparison
1947-1968

	Westinghouse	General Electric	Next Four Total (or average)	General Motors	Standard Oil (N.J.)	Ford	U.S. Steel
No. of Employees							
1947	102065	180000	3,898,165	387,303	123,000	101548#	286316
1957	128572	282000	1,296,527	588,160	160,000	160000	271037
% Growth	+26.0	+56.7	+44.3	+51.9	+30.0	+173	-5.3
1957	120572	282000	1,282,527	588,160	146,000*	277330	271037
1964	113680	262056	1,344,797	660,977	147,000	336841	199979
% Growth	-11.6	-7.1	+4.9	+12.9	+0.7	+21.5	-26.2
1964	113680	262056	1,321,797	660,977	147,000	336841	199979
1968	136527	305165	1,584,287	757,231	151,000	415039	201017
% Growth	+20.1	+16.5	+13.3	+14.6	+2.7	+23.2	+0.5
Net Sales Billed - Millions							
1947	881	1330	9795	3815	2355	1502	2123
1957	2009	4335	30072	10989	7830	6839	4414
% Growth	+144.7	+225.9	+207%	+18.0	+232.5	+353.3	+107.9
1957	2009	4335	30764	10989	8522*	6839	4414
1964	2271	4941	42564	10997	11768	9670	4129
% Growth	+13.0	+14.0	+38.3	+54.7	+38.1	+41.4	-6.5
1964	2271	4941	42564	16997	11768	9670	4129
1968	3296	8381	56913	22755	15474	14075	4609
% Growth	+45.1	+69.6	+33.7	+33.9	+31.5	+45.6	+11.5
Net Income (Net Earnings) Millions							
1947	57	95	793	288	268	109	127
1957	73	248	2362'	844	805	294	419
% Growth	+28.0	+161.1	+197.93%	+193.1	+199.3	+169.7	+229.9
1957	73	248	2195	844	638*	294	419
1964	77	237	3438	1735	960	506	237
% Growth	+5.48	-4.6	+56.6	+105.6	+50.5	+72.1	-43.4
1964	77	237	3438	1735	960	506	237
1968	135	357	3890	1732	1277	627	254
% Growth	+75.3	+50.6	+13.1	-.17	+33.0	+23.9	+7.2
Total Assets							
1947	602	1027	10,122	2472	2996	982	3672
1957	1401	2361	23,260	6826	8713	3348	4373
% Growth	+132.7	+129.9	+129.8	+176.1	+190.8	+241	+19.1
1957	1401	2361	23,260	6826	8713	3348	4373
1964	1606	3120	34,571	10292	12489	6459	5331
% Growth	+14.6	+32.1	+38.6	+50.8	+43.3	+92.9	+21.9
1964	1606	2543*	34,571	10292	12489	6459	5331
1968	2271	3311	46,140	14010	16786	8953	6391
% Growth	+41.4	+30.2	+33.5	+36.1	+33.4	+38.6	+19.9
Earnings to Sales Ratio							
1947	6.9%	7.2	7.3	7.5	11.4	4.2	6.0
1957	3.6	5.7	8.1	7.7	10.3	4.7	9.5
% Growth							
1957	3.6	5.7	7.3	7.7	7.3*	4.7	9.5
1964	3.4	4.8	7.3	10.8	8.0	5.3	5.7
% Growth							
1964	3.4	4.8	7.3	10.2	8.0	5.3	5.7
1968	4.1	4.3	6.4	7.6	8.0	4.5	5.5
% Growth							
Earned on Capital Invested Ratio							
1947	15.4	16.9	+13.7	18.3	14.8	14.3	7.4
1957	8.9	16.9	14.6	17.2	14.0	13.2	14.0
1957	8.9	16.9	13.4	17.2	9.3	13.2	14.0
1964	7.8	11.6	13.5	22.8	11.7	12.6	6.8
1964	7.8	11.6	13.5	22.8	11.7	12.6	6.8
1968	10.6	14.8	12.9	17.8	13.3	12.7	7.6

Data has been drawn from:

General Electric Company: Annual Reports 1948, 1955, 1957, 1964, 1968.

Westinghouse Electirc Corporation: Annual Reports 1951, 1957 1964, 1968, letter from D.P. Kirby, Supervisor, Corporate Accounting, December 1, 1969

General Motors Corporation: Annual Reports 1947, 1957, 1964, 1968, letter from R.B. Smith, General Assistant Treasurer, December 20, 1969.

Standard Oil Company (N.J.): Annual Report 1966, letter from Matthew F. Kane, manager, Office of the Secretary, Shareholder Relations Division, December 9, 1969.

Ford Motor Company: Annual Reports, 1955, 1964, 1968.

United States Steel Corporation: Annual Reports 1947, 1957, 1964, 1968.

Fortune Magazine, "Directory of the 500 Largest Industrial Corporations" for 1955, 1958, 1959, 1961, 1964, 1965, 1968,1969. 1969.

*The 1957 Standard Oil (N.J.) and the 1964 General Electric figures are listed to reflect bookkeeping changes. Therefore, the two rows of figures for each year will not be identical. The top row of figures is based on the earlier accounting practices and the bottom row reflects current accounting methods, i.e. Total assets for General Electric in 1964 is listed as $3120 (million), a figure consistent with the 1957 bookkeeping practices, and $2543 (million) the figure consistent with 1968 practices.

#The number of employees listed for Ford in 1947 is actually the 1946 total as the 1947 figure is not available.

economy--General Motors, Standard Oil (N.J.), Ford, and U. S. Steel--for the years 1947 to 1968.[147]

Gerald L. Phillippe died in October of 1968. Fred Borch was promoted to Chairman of the Board and, like Cordiner before him, he took over the title of Chief Executive Officer but he vacated the presidential title. Rumor has it that Borch was afraid of slighting one of the three Executive Vice Presidents--William H. Dennler, Jack S. Parker, and Herman L. Weiss--so no man was designated as President. All three were made Vice Chairmen.[148] Thus, the President's Office has no President, but is made up of the Chief Executive Officer and Chairman of the Board, both positions held by Borch, and the three Vice Chairmen, Dennler, Parker, and Weiss. The latter three were immediately "elected" to the Board of Directors. Borch and his triumvirate are the only inside members of the General Electric Board, consisting of twenty members. This organization style is similar to Westinghouse's style, only there the titles include one chairman of the board and four who are called president.[149]

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[147]The rankings of the top five firms came from the *Fortune* magazine's listing of the "Directory of the 500 Largest Industrial Corporations," published from 1954 to present. U. S. Steel was in top five from 1954 through 1960. From 1947 through 1953 it is an educated guess that Ford was in the top five. Ford was not listed until 1955, but most assuredly was a top five firm from 1947 on.

[148]"G. E. Redesigns at the Top," *Business Week* (December 28, 1968), p. 24.

[149]"Westinghouse Organizes for Long-Range Growth," *Westinghouse News Release* (Pittsburgh: Westinghouse Electric Corporation, January 7, 1969).

What does the future hold for General Electric? Fred Borch recently noted,

> Only a little over a decade ago, this was a $2 billion company. Now it's an $8 billion one. As we grow, more and more authority is pumped down. So this puts a real bite on us to fill positions of responsibility. One reason for decentralization that escapes many people is that pushing authority downward is the best method of developing good managers. The need for decentralization is a function of size, rather than a function of the times.[150]

Currently, authority is pushed downward. The Board of Directors must pass judgment on expenditures of $500,000 or more. Borch passes on those above $250,000.[151]

A decade ago GE was a $2 billion company; today it stands just short of $9 billion. General Motors is a $20 billion company. Borch predicts that "in just three decades General Electric will become a $64 billion company."[152]

The appendix to this chapter contains copies of many organizational charts issued by the company through the years, including the most recent chart.

Summary

"General Electric was fortunate to enter the most sustained growth business of the twentieth century,"[153] Cordiner once noted. At the time of its conception it was a large firm, as were most of the organizations put together by the house of Morgan near the turn of the

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[150] Fred Borch, "How Do You Keep Up...," *op. cit.*

[151] *Ibid.*

[152] F. J. Borch, "Growth of the Company: 1900-2000," General Electric Company Speech to Elfun, July 15, 1968, p. 4.

[153] *Op. cit.*, p. 3.

century. Sales in the first year (nine months, April-December, 1892) were about $12 million; they rose to just over $20 million in 1900; in 1912 they rose over $100 million level. Five years later that was doubled and by 1920 the firm had sales over $300 million.[154] The depression years saw sales dip below $200 million once although the firm never missed a dividend. The first $1 billion sales year came during World War II in 1943. After 1943 the firm failed to turn $1 billion in sales, only once, in 1946, a year the firm incurred a nine-week plant closing caused by strike.[155] In 1951 the firm became a $2 billion company, 1953, a $3 billion firm, 1956, $4 billion, 1963, $5 billion, 1965, $6 billion, 1966, $7 billion, and in 1968 the firm went over the $8 billion sales level.

The growth of General Electric can easily be seen in volume of sales, or value of output, by balance sheets and P and L statements. The intangibles mingled with some tangibles are the reasons why this growth occurred. Without the managerial minds, the organizational structure and the spirit of the combination, General Electric would have been, to quote Owen D. Young, nothing but "a muscle-bound mass of mediocrity."[156] In 1963, a panel of presidents and board chairmen, 300 in number, chose General Electric the best managed company in the United States.[157] These men knew the history of the firm, its numerous anti-trust suits, its labor problems, they also knew its research, leadership, and management organization. As a

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[154] *Thirty Year Review of the General Electric Company, 1892-1922* (Schenectady, N. Y.: General Electric Company, July 16, 1923), p. 4.

[155] *General Electric Company Fifty-fifth Annual Report and Yearbook 1946*, p. 9.

[156] Borch, "Growth of the Company: 1900-2000," *op. cit.*, p. 3.

[157] "The Ten Best Managed Companies," *Dun's Review and Modern Industry*, Vol. 81, No. 1 (January, 1963), p. 86.

training ground for executive management, General Electric is perhaps outranked only by the Harvard Business School. There are so many high ranking executives in New York alone, trained by GE but no longer working for the firm, that they have formed a club and meet once a month.[158] Paul B. Nelson, Jr., advertising vice president of North American Phillips says, "There's no better training program in the world."[159] General Electric may have staffed more executive positions outside the firm than has any other company, yet it staffed well its own organization.

The Cordiner-led decentralization is similar to what other firms have since done, on paper--the organization charts are similar, but few reorganizations have worked so well. "I think that the reason decentralization hasn't worked in other companies," said Board Chairman Phillippe, "is because although many of them put out organization charts and all the other trappings, and made the right noises, they couldn't bring themselves to the point of putting a man on the spot and giving him complete responsibility."[160] The next few chapters of this paper will delve into how the company seeks to give a man complete responsibility without losing control.

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[158]"General Electric's Old-Boy Club," *Dun's Review and Modern Industry*, Vol. 92, No. 3 (October, 1968), pp. 48-50.

[159]*Ibid.*, p. 49.

[160]John Thackray, "Management Ways of General Electric," *Dun's Review and Modern Industry*, Vol. 82, No. 5 (November, 1963), p. 30.

CHAPTER III

THE GENERAL ELECTRIC PHILOSOPHY AND THEORETICAL STRUCTURE OF ORGANIZATION AND CONTROL

This chapter will present the General Electric philosophy and theoretical structure of organization and control. It will have two distinct sections, one centering on the philosophy of the organization structure or design and the other concentrating on the control mechanisms which have been developed in theory. Some of the actual practices, present and past, will be mentioned, but only for the purpose of explaining how a particular aspect of the philosophy developed. The next chapter will explain the actual practices, whereas this chapter looks at the theory behind the organization.

The first section of this chapter on the philosophy of the organization structure has been broken down into four major parts. The first of these parts covers the "three principal branches" of the corporation: Executive, Operative, and Services. It explains the distinct separation of responsibilities of each and their relationships with each other. The second part, "managerial levels," shows that the firm uses a maximum of seven levels of managers between the highest ranking officer and the lowest ranking manager. It is important to understand that in General Electric's philosophy of decentralization, it is the third managerial level (below the Group and Divisional level) that is the true profit center, and it is this

managerial level that has been given most of the final decision-making authority for each product. Part three explains the background as to why the company does not use or make provision for decision-making committees. The last area dealing with organization structure explains why the company does not, in theory, have "Assistants" or "Assistants to" in title or in job position.

The second section of this chapter describes the company's goal setting or budgeting and measuring, which is the control function in the company philosophy. The company began a study in late 1951, not yet completed,[1] on how to measure the work performed by departments, divisions, and individuals. This measurement project, as it is called, is the key to understanding the philosophy behind the control function of the firm. This section of the chapter also includes the conclusions thus far drawn on how to budget and measure results.

Concluding the second half of this chapter is a discussion on budgeting and planning. Before decentralization (1951), planning and budgeting were top echelon operations and decisions made at this level were then handed down to subsequent levels until they reached the foreman level. Before decentralization managers below the vice president level were given their budgets. Such decisions were handed down, level by level. Decentralization, in philosophy, changed this to what is called "bottoms-up" budgeting.

The Organization Structure Under Decentralization

The Three Branches: The Executive Office

The General Electric organization structure contains

[1] Interview with Hugh Estes, New York, July 30, 1969.

two distinct concepts which must be comprehended if the operations and control of the firm are to be understood. The first concept is the sphere of authority of the Executive, Operative, and Services branches, respectively, of the organization. The second concept involves the roles played by the successive levels of the organization, the Group, Division, and Product Department.

The first concept of the three areas of the organization--Executive, Operative, and Services--is extremely important. These three distinct categories carry clear separation of responsibilities:[2]

1. Executive Officers are responsible principally for decisions concerning over-all company objectives and policies in the balanced best interest of all concerned with the company's present and future productivity. The executive officers do not have day-to-day operating responsibility for the company's separate product businesses.

2. Operating Managers are responsible principally for profitable execution of such objectives and policies in their particular component operating business and have complete accountability for performance and profit.

3. Services Officers, Managers, and Consultants are responsible principally for pioneering and communicating best practices in their particular functional fields, for aiding in formulation of objectives and policies, and for advising and assisting both executive officers and operating managers in all possible ways.

The Executive Office is therefore responsible for a company-wide view, for broad objectives, policies, and plans of the company as a whole, and for appraisal or control over the results in the interests of the various corporate publics. The evolution of the office began in 1913 when Coffin moved from the presidency to Chairman of

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[2]*Professional Management in General Electric Book One: General Electric's Growth* (New York: General Electric Company, 1953), p. 25.

the Board, and he and President Rice were considered as the "executive office." From time to time a powerful vice president or two, having "the ear of Number One," would be included in the "executive office," although this was informal. Under Swope, a man who built committee upon committee, the establishment of the Executive Department in 1936 was a major step in forming the Executive Office. By 1949, under Wilson, the concept was expanded so that all staff vice presidents were members of the Executive Committee. But it should be noted that from 1892 to some time during Swope's tenure the President was both "Chief Executive Officer" and "Chief Operating Manager." During this period only the President and his immediate subordinates had profit responsibility. It was under Swope that this concept of the President having control over operations, that is, profit responsibility, was found to be unrealistic in such a large diversified operating company.[3]

Since Cordiner established the Executive Office in 1951, this Office has included the President and/or Chief Executive Officer (title used at various times since 1958),[4] Chairman of the Board, Group Executives, and Services Officers. The Executive Office was made up of all the top ranking officers from Operations and Services. Division Executives, many of whom were Vice Presidents, were not included in the Executive Office since they reported directly to a member, usually the Group Executive, an organization structure very similar to that used for the Group Vice Presidents at General Motors today.[5] The

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[3] *Ibid.*

[4] The positions of President and Chief Executive Officer are distinct positions, although often held by the same man in General Electric.

[5] At one time, beginning in 1951, there was a group headed by Philip Reed, Chairman of the Board, who, in turn, reported to Ralph Cordiner, President.

company believes that this organization

> represents a practical arrangement for "lengthening the President's managerial arms" with respect to groups of Operating components without interposing a separate level in the organization structure.[6]

A short quote from Ralph Cordiner's paper presented at the General Management Conference of the American Management Association in 1952 will help to explain further this concept and why it does not, in theory, constitute another layer of management. He said:[7]

> This "executive Office" has been deliberately created and developed so that the top executive officers are increasingly able to free up their time to participate in planning and organizing . . . .You will observe that (the Group Executives). . .do not constitute a "layer of management." Thus these Group Executives have "line" authority and are never to be considered as "staff" or "service" officers. The Group Executives' authority is a substitute or delegated type of authority with equivalent responsibility and thus accountability. Hence, these officers do not have Operating responsibility as we have defined it, but actually are Administrative or Executive Officers. The highest Operating level is that of the Division General Manager, as the full profit-making responsibility for the individual Division and Department business rests on the respective General Managers of such decentralized businesses.
>
> Instead, the Group Executives truly are Executive Officers, aiding the President in his over-all responsibilities, but each with respect to his particular Group of product businesses as distinct from the President's Executive responsibility for the complete enterprise. They are really, therefore, an extension of the mind and arms of the President, working closely with him, familiar with his aims, plans and

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[6] *Professional Management in General Electric Book Two: General Electric's Organization* (New York: General Electric Company, 1955), p. 99.

[7] Ralph Cordiner, "Problems of Management in a Large Decentralized Organization," *General Management Series*, No. 159 (New York: American Management Association, 1952), pp. 13-14.

> organization concepts; and able to speak for him and in his stead in interpreting these to the Divisional and Departmental Operating Managers within their respective Groups.
>
> . . .each Services Officer or Group Executive so organizes his other work as to be able to set apart a measurable portion of his time during which he can act as one of this group of officers, working together with the President and thinking in terms of the Company's over-all objectives, policies, organization, management personnel, plans, budgets, controls, and performance.

To the present time, none of the foregoing has been altered in the company's managerial philosophy. To some eyes, this Executive Office may appear to complicate the corporate structure. Cordiner had developed it to simplify the organization. He wanted top management to have more time to think, more time for forward planning. Before 1951 and the organization of this office, GE used forty-seven management type committees to do the work which after the reorganization was done either by two committees linked with the executive office or by single individuals charged with the responsibility for those decisions.[8] The two Executive Office committees were the Advisory Council and the Appropriations Committee. The Advisory Council forms broad policies; the Appropriations Committee was later abolished when a written corporate policy was developed covering capital and expense authorities.[9]

Figure 11 was issued May 6, 1957, by the Management Consultation Services of General Electric. It is a concise statement of the role of the Advisory Council and Executive Office with excerpts from the company's *Professional Management* books, the writings of Ralph Cordiner, a

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[8]"GE Gets the Small-Business Touch," *Business Week*, April 19, 1952, p. 124.

[9]This policy will be described later in this chapter.

Figure 11

COMPARISON OF CONCEPT OF THE PURP
OFFICE" AND DUTIES OF ITS MEMBERS A
OFFICE WITH THE FUNCTION OF THE AD

CONCEPT OF THE PURPOSE OF THE "EXECUTIVE OFFICE;" AND DUTIES OF ITS MEMBERS AS MEMBERS OF THAT OFFICE

Early in 1951 an "Executive Office" was established. It included the President, the group executives, and the services officers, in their capacity as functional advisers to the President and the group executives.

PM I, p. 27

Under this idea, as a member of the "Executive Office," each Services Officer or Group Executive so organizes his other work as to be able to set apart a measurable portion of his time during which he can act as one of this group of officers, working together with the President and thinking in terms of the Company's over-all objectives, policies, organization, management personnel, plans, budgets, controls and performance.

In this respect he is thus a member of the over-all Company Management team, counselling in the broad steering, review, continuity and direction of the course, growth, policies and relations of the Company as a whole. And in this capacity each such man has a responsibility to be an exponent of company policies wherever he finds himself.

Thus, while the President necessarily retains the authority and accountability for the Company's over-all success, with respect to which he has accepted delegation for performance from the Board of Directors, he consciously bows to the physical need so to manage his own personal Time that he may carry such responsibilities imaginatively, with an eye to the diverse requirements of the complex future, and yet without having need for more talent or more energy than should be expected from a single individual.

RJC: AMA 1952

The Executive Office, as so conceived and created, has been designed to accomplish the following purposes:

1. Provide for adequate Company-wide, long-range business planning;
2. Provide for adequate thought, research, and discussion leading to wise, long-range Company Policy formulation and adoption;
3. Effectuate decentralization of operating decision-making to the General Managers and Functional Managers of Operating components;
4. Provide for adequate measuring and appraisal of performance with thorough study of both favorable and unfavorable deviations of achieved results from plans, forecasts, schedules, and budgets;
5. Promote individual self-development on the part of all employees, and particularly on the part of highly skilled, professional individual contributors and professional managers — making Company-wide promotional opportunities available to all who prove themselves competent in their present job and who seek and earn promotions;
6. Take full advantage of all resources and of all business opportunities;
7. Achieve "Business Statesmanship" so that the General Electric Company will be, and will be known to be, a good "Corporate Citizen" demonstrating outstanding performance in productivity, profitability, service, and leadership.

PM II, pp. 102, 103

The principal responsibility of each member of the Exec
of the President is to act as a member of the over-all m
for the entire Company and to think through with the pre
formulate over-all Company Objectives and to define Co
with respect to organization structure, managerial pers
all plans, budgets and measurements of performance.

The members of the Executive Office of the President, i
and collectively, assist and advise the President regardi
direction of progress, over-all growth and inter-relatio
decentralized businesses and for the Company as a whol
anced best interests of all persons and groups interested
pany's continuing productivity.

PM I, Fig

Each member of the Executive Office spends roughly twe
of his total effort aiding the President, because of his ex
and knowledge as an individual rather than because of the
tive or Services responsibilities with respect to his assi
or Services.

This is the means for enlisting the thinking of the Compa
enced senior officers in planning the Company's long-ra
course so that requisite steps can be taken with appropri
anticipate future needs, make favorable situations, avoi
ones, and take full advantage of all potential opportunitie
posely recognized dual responsibility, therefore, is anot
of how General Electric is pioneering in managerial phil
in organization structure as well as in other technical an
endeavors.

In this long-range, Company-wide, collaborative endeav
ficer thinks in terms of what is best for the Company as
particularly with regard to possible conditions many yea
This is the collaborative effort which is directly targete
tion and adoption of the best possible Company Policies
plans and at the taking of all practicable steps to ensure
fits and continued growth.

PM II, p.

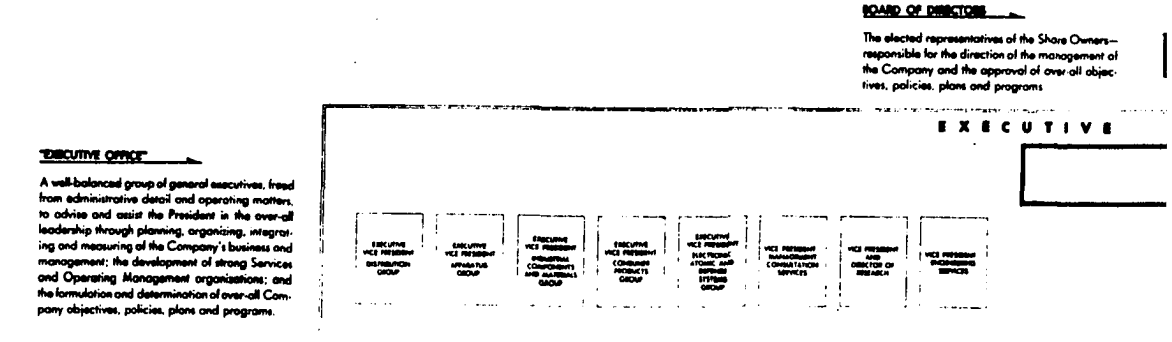
As individuals, and as senior officers of the Company, t
of the Executive Office are chosen for their wide and div
of experience and breadth of vision. Also they are as fr
from operating details. Hence, they can concentrate on
charting a sound and strategic long-term course for the
tric Company as a whole and can help to anticipate and t
to capitalize on the tide of events rather than be "entrap
tims of the torrent."

PM II, p.

These seven members of the President's Office, togethe
nine Company Officers in charge of the Services, form
as the Executive Office. These Senior Officers delibera
aside about 20% of their time to serve, not as Executive
particular areas of Operations or Services, but as a wel
group of general Executives who advise the President on
concern all functions and all operations — in other word
pany as a whole. In this way the Executive Office provid
of extensive business judgment and advanced functional k
help the President plan the Company's management, gro
course ten or more years ahead.

RJC: "New

Note: Excerpted from Over-all Company Organization Chart, dated July 1, 1956



Organization Consulting Service
New York - 5/3/57

Figure 11

CONCEPT OF THE PURPOSE OF THE "EXECUTIVE
TIES OF ITS MEMBERS AS MEMBERS OF THAT
E FUNCTION OF THE ADVISORY COUNCIL

OF THAT OFFICE

f each member of the Executive Office
member of the over-all managerial team
think through with the president and help
)bjectives and to define Company Policies
tructure, managerial personnel and over-
ements of performance.

: Office of the President, individually
lvise the President regarding continuity,
ll growth and inter-relationships for all
for the Company as a whole in the bal-
sons and groups interested in the Com-

PM I, Fig 15

: Office spends roughly twenty per cent
resident, because of his experience
l rather than because of the basic Execu-
es with respect to his assigned Group

g the thinking of the Company's experi-
ing the Company's long-range future
can be taken with appropriate timing to
favorable situations, avoid unfavorable
of all potential opportunities. This pur-
sibility, therefore, is another instance
neering in managerial philosophy and
ell as in other technical and scientific

wide, collaborative endeavor, each of-
s best for the Company as a whole and
ssible conditions many years hence.
t which is directly targeted at formula-
ossible Company Policies and over-all
racticable steps to ensure future pro-

PM II, p. 109

officers of the Company, the members
osen for their wide and diversified range
ision. Also they are as free as possible
e, they can concentrate on planning and
long-term course for the General Elec-
an help to anticipate and to shape and
nts rather than be "entrapped as vic-

PM II, p. 113

President's Office, together with the
rge of the Services, form what is known
ie Senior Officers deliberately set
to serve, not as Executives for their
or Services, but as a well-balanced
ho advise the President on matters that
perations — in other words, the Com-
the Executive Office provides a melding
t and advanced functional knowledge to
mpany's management, growth, and
ad.

RJC : "New Frontiers" book

RESPONSIBLE TO THIS	ADVISORY COUNCIL FUNCTION GUIDE	TAB	NO.
President		General Committees	1.G

ORGANIZATION

FUNCTION

The function of the Advisory Council is to provide an effective means through which the President may advise with and receive the advice of his principal associates in regard to major matters of general Company policy and operation, particularly long-range planning, major organizational changes, new objectives and programs, and other matters of major importance to the Company as a whole; and to afford the members an effective means of integrating their interests and widening their understanding of the over-all objectives, policies, plans, programs, problems, and operations of the Company as a whole.

ORGANIZATION

Membership of the Council:

President, Chairman
Chairman of the Board, Vice Chairman
Executive Vice President—Distribution Group
Executive Vice President—Apparatus Group
Executive Vice President—Industrial Products and Lamp Group
Executive Vice President—Appliance and Electronics Group
Vice President—Atomic Energy and Defense Products Group
Vice President—Management Consultation Services
Vice President and Director of Research
Vice President—Engineering
Vice President—Manufacturing
Vice President—Marketing
Comptroller
Treasurer
Vice President—Employee and Plant Community Relations
Vice President—Public Relations
Vice President and General Counsel—Secretary

Other individuals may be requested by the Chairman or Vice Chairman to attend for discussion of specific matters, as necessary.

An Assistant Secretary of the Company will attend meetings of the Council and serve as its Secretary.

OPERATION

Regular meetings—Will be held on the Tuesday before the fourth Friday of each month, at 10:00 a.m., in the Board Room.

Special meetings—Will be held as called by the Chairman or Vice Chairman.

Agenda—A member will notify the Secretary of the Council by not later than Tuesday of the second week prior to the meeting, of any matter which he desires to bring before the meeting, supplying him with a copy of any report or proposal thereon. The Secretary of the Council will then prepare and send each member an agenda and a copy of any such report or proposal a week before the meeting.

Scope of Meetings—The business of the Council will be confined to matters covered in the agenda except as to special matters requiring immediate consideration. Presentations and discussions will be of subjects of major significance to the Company and all members of the Council.

Special Studies and Reports—The Chairman or Vice Chairman may request a member or members to prepare special studies and to report at subsequent meetings of the Council in order to conserve the time of Council members.

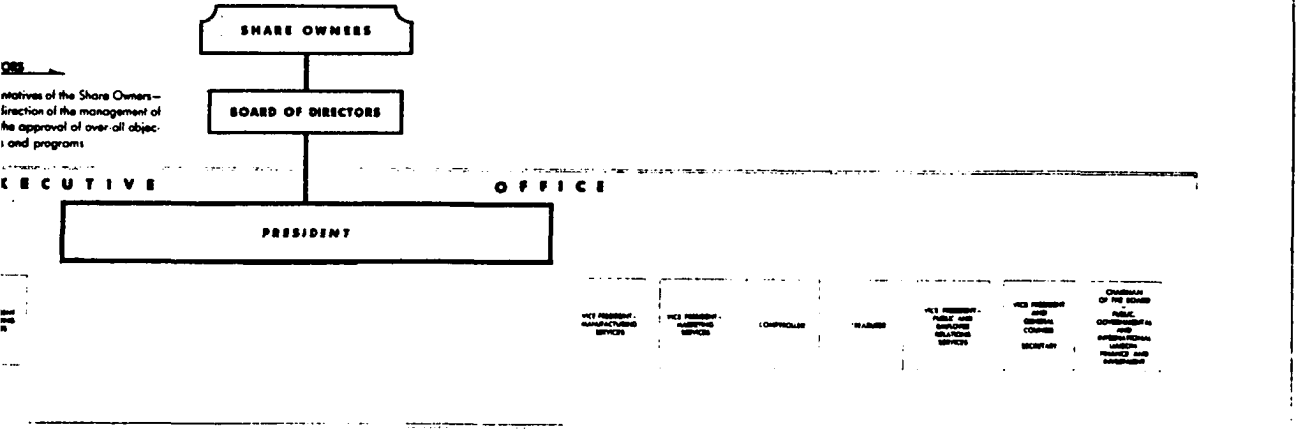
Minutes—The Secretary of the Council will distribute minutes of all meetings to the members of the Council.

ISSUED BY THIS	DATE ISSUED	SUPERSEDES ISSUE DATED	PAGE
President	12/1/54	10/12/54	1 of 1

Today, a committee may be helpful as an advisory group, and indeed the Executive Office of the General Electric Company meets twice monthly as an Advisory Council for the President. In any such arrangement, however, it must be made abundantly clear that the authority for any particular decision lies with the responsible individual, even if he makes it while sitting with the other Council members.

Such a deliberate avoidance of assistants and decision-making committees is directly in keeping with the decentralization philosophy, which requires full delegation of responsibility, authority, and accountability to the person who is best qualified to make the decisions for a certain area of work.

RJC: "New Frontiers" book



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Vice President—Engineering
Vice President—Manufacturing
Vice President—Marketing
Comptroller
Treasurer
Vice President—Employee and Plant Community Relations
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RJC: "New Frontiers" book

ARE OWNERS

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OFFICE

PRESIDENT



reproduction of a Function Guide of the Advisory Council (issued December, 1954), and a section of the organization chart showing the Executive Office concept. The specific responsibility of each member of the Executive Office is included in the position guide for his position; in the case of the President, Chief Executive Officer (not in existence in 1957), and the Chairman of the Board, these are specific position guides; in the case of the Group Executive and Services Officers, these are generic position guides. Complicating the picture of the Executive Office for students of organization, General Electric, from time to time, uses two titles for those people who can act as president for particular groups. The first is the Executive Office comprised of the Chief Executive Officer, Chairman of the Board, Operating Group Vice Presidents and Services Officers. When acting with line authority only (when Services were not included), the group is known as the President's Office. The only difference between the Executive Office and President's Office is that the President's Office handles problems and policies which do not affect the Services; therefore, it deals only with pure line operating policy. The old President's Office has been discontinued, but company jargon refers to the organization comprised of Chief Executive Officer Borch and Vice Chairmen Dennler, Parker, and Weiss, as the President's Office.

Harold F. Smiddy, with Cordiner, the principal designer of the Executive Office and its smaller section, the President's Office, was once asked the question: "Aren't you just kidding us to count it as only 'one level,' as you do, for Organization Structuring purposes?" His answer, given in 1956, was:[10]

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[10]Harold F. Smiddy and Paul E. Mills, "Discussion by Harold F. Smiddy and Paul E. Mills of Questions Raised by AMC-1956" (Crotonville, N.Y.: General Electric Company, 1956), pp. 16-17.

> In the first place, that a group that small, who dedicate themselves to doing so, can become able to work *substantially* "as one," even if they use different words and have different personalities. Now three years ago (1953) we said that was the *goal*. But at that time you could talk to one Group Executive and then another, and you'd say "nuts"; because they not only didn't sound alike but they were really saying different things.
>
> *Today* I don't think that's so. We contact those fellows about as much as any of you and we go the circuit with them and tap the most diverse problems with them and can see just how they do tick. So what do we see? Well, of course, they still have the different personalities and the different words. But there is a surprising *uniformity* in what they basically say, if you're listening, through their different phraseology and personalities. This is what I see. I think it is what you'll see *too* if you stop being pure skeptics a while and really look and really listen.
>
> . . .(In the Executive Office) you do need more than one man at the helm, even if we do the best we know how to prepare any man for that responsibility and to prepare successors and so on; and it is true that the essential Executive work is so unique and at the same time so similar for each of the persons concerned that there is truly no "layer" or "level" than from an Organization Structuring standpoint.

Services or Functional Components

Each operating department in General Electric has full responsibility for engineering, manufacturing, marketing, finance, personnel and legal operations. It would be an exceptional department which did not, from time to time, encounter problems beyond the experience of its members. The Services components help to fill some of the need for specialists with depth knowledge. The company takes from operations "the most skilled, the most experienced,

the most imaginative men"[11] and puts them into Services, claims Arthur Vinson, former Vice President of Manufacturing Services and later Group Executive. He goes on to add:[12]

> They will not only know how to do work in their respective functions but will also know how to seek better ways and to teach them, thus advancing and multiplying availability of knowledge in each function. Once found, such men are promoted from product operating organizations and put into company-wide functional services divisions. If, on occasion, we fail to identify men of sufficient caliber for our needs in such respects, we do not hesitate to go outside of our General Electric organization in this hunt for talent.

Figure 5 (in Chapter II) shows the evolution of General Electric's Services components. Very little change has appeared since the 1951 Cordiner organization. The three years listed in Figure 12 are representative of the Services used in GE. The year 1951 was the first year of Services as organization components, and they reported to President Cordiner. The 1960 group reported to Cordiner as Chairman of the Board and Chief Executive Officer. They did not report to President Paxton who was responsible for all operations. In 1970 the Services report to the new President's Office (realistically they report to Borch as Chief Executive Officer).

The General Electric Services concept, new to the company in 1951, is in fact an old concept found in the military and religion, as well as in corporate organizations. General Motors used this staff concept as early as the

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[11]A. F. Vinson, "General Electric's Services Divisions," *Planning, Managing, and Measuring* (New York: Controllership Foundation, 1955), p. 9.

[12]*Ibid.*

FIGURE 12

SERVICES COMPONENTS

1951	1960	1970
MANUFACTURING	MANUFACTURING	MANUFACTURING
RESEARCH	RESEARCH	RESEARCH & DEVELOPMENT
ENGINEERING	ENGINEERING	ENGINEERING
LAWS & PATENTS	GENERAL COUNSEL AND SECRETARY	OFFICE OF GENERAL COUNSEL AND SECRETARY
TREASURY	TREASURY	TREASURER
ACCOUNTING	ACCOUNTING	COMPTROLLER FINANCE
EMPLOYEE & PLANT COMMUNITY RELATIONS	PUBLIC & EMPLOYEE RELATIONS	EMPLOYEE RELATIONS
PUBLIC RELATIONS		INDUSTRIAL RELATIONS
CORPORATE RELATIONS (SECRETARY)		
MARKETING	MARKETING	MARKETING & PUBLIC AFFAIRS
MANAGEMENT CONSULTATION	MANAGEMENT CONSULTATION	MANAGEMENT MANPOWER DEVELOPMENT
		CORPORATE PLANNING

term of Pierre S. du Pont.[13] Cordiner and Smiddy, in setting up the General Electric organization, wanted to develop the General Motors type of environment and structure. They must have been aware of what Drucker had written of General Motors in 1946. For the following Drucker paragraph about General Motors can be found in concept in the philosophy writings of Cordiner, Smiddy, and most of the General Electric literature about the place of staff in General Electric theory. Drucker said:[14]

> It should be emphasized that the staff agencies in their relations with the divisions rely on suggestions and advice, and that they have no direct authority whatsoever over the divisional manager and his policies. Of course, they might appeal to top management in a last attempt to force an obstructionist divisional manager into line; this, however, is a theoretical rather than a practical recourse. In the normal course of events the service staffs have to "sell themselves" to the divisional manager, and have to rely on their ability to convince the divisional management and on their reputation and achievements. No divisional manager is under compulsion to consult the service staff or to take their advice. Yet the relationship between service staffs and divisional managers is on the whole quite frictionless.

At General Electric the Services act as the central trust or clearinghouse for all the technical and specialized areas of the business. They are the consultants for all

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[13]See Alfred P. Sloan, Jr., *My Years with General Motors* (New York: Doubleday and Company, 1964), especially Chapter 3, "Concept of the Organization." Also see Ernest Dale, *The Great Organizers* (New York: McGraw-Hill Company, Inc., 1960), Chapter 3, "Contributions to Organization and Administration by Alfred P. Sloan, Jr., and GM."

[14]Peter F. Drucker, *Concept of the Organization* (New York: John Day Company, 1946), p. 56.

of GE's businesses and are, as John Thackray in *Dun's Review* noted,

> a strong force that keeps departments or divisions from anarchy. They have no power of command; their job is simply to question, probe, inform, or advise the department men on the front line.[15]

Gerald Phillippe, as President, once said, "The question of how you hold together a company when it's decentralized is a very serious problem. Our services are the mortar that holds the company together."[16] These service organizations are deliberately designed to act as social innovators; that is, they are specifically organized to systematically diagnose social needs and opportunities and to develop concepts and designs to satisfy them. Drucker said in 1959 that General Electric was the only company he knew of that set up its headquarter service organizations to deliberately act as social innovators.[17]

Services do not carry line authority in Operating components. The authority of people in Services and any person outside his own component is indirect. Authority comes from the influence of suggestions and persuasion and comes from the "authority of knowledge," expertness. It comes from advising and teaching in the functional field of particular expertise. The Services "authority" comes from keeping ahead in theory and method of the particular function, pioneering in knowledge, if need be. Services are also responsible for developing and coordinating the firm's national and international associationships and relationships in each functional field. Within each

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[15] John Thackray, "Management Ways of General Electric," *Dun's Review and Modern Industry*, Vol. 82, No. 5 (November, 1963), p. 68.

[16] *Ibid.*

[17] Peter F. Drucker, *Landmarks of Tomorrow* (New York: Harper and Brothers, 1959), p. 41.

functional field (Services), each separate Service component is responsible for

> doing any company-wide Operating work which, by its corporate or over-all nature, cannot be performed naturally and effectively in decentralized Operating components.[18]

Traditionally, only the following few activities have fallen into this category of operating functions which have not been decentralized but are in Services components at General Electric: basic types of general research, general engineering development, consolidated accounting, institutional advertising, and union relations which are so required by contract.[19] This kind of work found in Services has been called "pooled operating work" so as not to confuse the philosophy of the structure.

The Services also are responsible for doing some "operating work for which specific Operating components wish to contract for and pay for. . . ."[20] This intra-company charging is rarer today than it was during the first few years after reorganization. William Greenwood, Consultant in Management Consultation Services for a decade under Smiddy, said,

> When I was in General Electric we were the only Services component that really did charge, and we did it for maybe only a couple of years. I think Management Consultation Services, which was the name of our division under Smiddy, was able to do this because of the great need for knowledge in the whole field of organization.[21]

Becoming more specific, he continued,

> As I recall, Smiddy's time went something like $500 a day--which, going back into 1952-1953

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[18] *Professional Management in General Electric Book Two. . .*, *op. cit.*, p. 120.

[19] *Ibid.*

[20] *Ibid.*

[21] Interview with William J. Greenwood, Darien, Connecticut, October 19, 1968.

> was pretty damn high! I forget what (Paul) Mills' was, but I think it was $250 a day, and I think mine was only $100 a day. But that's plus expenses. Expenses, of course, means travel, living, entertainment, and things of that kind. Nobody objected to the payment, but it could have been out of fear of what might have happened. . . .Smiddy was in favor of charging for the services on the grounds that, if you're any good, they come to you. So far as to what the competition was charging at that time, well, those were the days when we were only paying Drucker about $250 a day.[22]

This type of billing or charging for services did not last long. In fact, Smiddy didn't even remember doing it when questioned on this subject about fifteen years later.[23] Further questioning William Greenwood as to why this billing was given up, he replied:[24]

> The reason we gave it up, I'm not too sure, except that I have strong impressions that nobody would ask us to do anything for them if they were going to be billed specifically. Since we wouldn't have any work, the chances are that no matter what objectives we had set for ourselves. . .nobody wanted us. I am quite sure that would leave a distasteful image in the eyes of the chief executive (Cordiner). So, Smiddy, very wisely, decided at that particular time (1953) that he wouldn't charge them either. On the other hand, once our time was charged out as an assessment against the total corporation, requests were so heavy that Smiddy had to increase his component by about ten times.

Services are considered to be of higher status in the organization structure than are operations of similar title. For instance, a man moving from the position of Operating Department General Manager to Services Manager

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[22]Interview with William J. Greenwood, Darien, Connecticut, October 19, 1968.

[23]Interview with Harold F. Smiddy, Honolulu, Hawaii, November 8, 1969.

[24]Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

would be receiving a promotion in status and in compensation. The company-wide Services involve greater responsibility and carry a greater possible impact on the performance of the whole company than do the operating positions at corresponding levels.[25] This higher status for Services work was later to cause a personnel problem, which will be discussed below.

The thirteen-page "Services Officer Position Guide," included in full in the Appendix, gives a more complete understanding of the total concept of Services work. Quoting from the opening paragraph, the Broad Function is that:[26]

> The Services Officer has Executive Officer and Services responsibilities. He is responsible for Executive, Managerial, and Functional types of work, and for Services Functional and Appraisal work. He is accountable to the Chairman of the Board and Chief Executive Officer for the efficient managing of the Services component, and for the quality of Services Functional and Appraisal work.

The "Services Officer Position Guide" then goes on to detail the generic responsibilities, authority, and accountabilities for the position under the four broad functions: Services Functional and Appraisal Work, Executive Work, Managerial Work, and Functional Work (Operating). Figure 13 summarizes the generic responsibilities common to all Services work. These responsibilities are built into each specific Position Guide, as can be noted from the Appendix.

To detail the work of the service organizations, a close look at one of the Services is of some benefit. Marketing Services performs its function just as the other

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[25] *Professional Management in General Electric Book Two. . ., op. cit.*, p. 123.

[26] "Services Officer Position Guide," *General Electric Organization and Policy Guide*, Issued by Chairman of the Board and Chief Executive Officer, p. 1.

FIGURE 13

GENERIC RESPONSIBILITIES

COMMON TO ALL SERVICES WORK

* * * * *

Managers and Consultants in Services work have the following fundamental and generic Company-wide responsibilities with respect to their particular subfunction; namely to

---

1. Study, seek and know functional principles and the best practices that have been developed either outside or inside the Company

---

2. Develop professional expertness and deserve and earn recognition outside and inside the Company

---

3. Contribute to the advancement of fundamental knowledge; and invent, pioneer, develop and formulate better principles and practices

---

4. Design and recommend pertinent patterns, systems, classifications and nomenclature

---

5. Develop, recommend and interpret functional objectives, policies and plans

---

6. Provide "clearinghouse" service; and communicate and teach functional principles, theories, philosophies and practices

---

7. Measure, review and appraise present practices as requested or needed

---

8. Cooperate in voluntary teamwork toward the achievement of Company Objectives

---

9. Lead and teach by persuasion, example and the authority of knowledge

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10. Practice and encourage "Business Statesmanship."

Services perform their particular functions. The company is now organized into about one hundred and seventy separate product departments, each with a General Manager, a Marketing Manager, an Engineering Manager, a Financial Manager, and a Manufacturing Manager. Each department has a clearly defined scope of products and markets to be served. The Marketing Manager is expected to perform a major role in the preparation of business plans for his department. These business plans must reflect the company's budget objectives of volume, profit, and other aspects of the eight key result areas to be explained in greater detail later in this chapter. Although the products of some departments--mainly industrial components and "apparatus"--are sold jointly,[27] decentralization has created more than one hundred clearly defined Marketing Manager positions in the company. These positions are in operating management and are not in or under the control of Marketing Services.

Then the question arises, where does Marketing Services fit, and what does it do? Fred Borch, long-time head of Marketing Services before becoming Number One in the company, once said part of its job is long-range corporate marketing thinking and planning. As a member of the Executive Office, it advises the Board and top managers.[28] Marketing Services also introduces and helps supervise corporate marketing policies. Borch emphasized in 1958, "Actually, however, the number of policies has been reduced sharply in the last five years.

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[27]Lawrence M. Hughes, "G-E Under Decentralization Reaps Record Sales and Profits," *Sales Management*, Vol. 80, No. 5 (March 7, 1958), p. 35.

[28]*Ibid.*

Only three have been added: on internal pricing, continued use of affiliated companies' trademarks, and on the sale of company products to employees."[29]

General Electric does not have a company over-all pricing policy or resale policy. Each operating department, that is, has complete control over pricing its own products. Some departments "fair trade" their products; some do not. It is not company policy to "fair trade." Speaking on the subject of corporate marketing policy, Borch said, "When we think that a new policy is needed, it is worked out on the services level only *after* we've obtained the opinions of operating management about it."[30]

Advertising is carried on by both Operating departments and Services. When advertising is developed to sell a particular product, known at GE as "Sales" advertising, it is an operations function and Marketing Services counsels but cannot direct the sales campaign. A department has the right to reject all of the counseling and if a department does not ask for counseling it will not receive any. Institutional advertising, on the other hand, is carried on by the Marketing Services. General Electric spends more money institutionally, advertising "GE," than all the operating departments spend collectively.

Marketing Services was originally set up in the 1951 organization plan. John L. Busey was its first vice president. The objectives of the Services were then much smaller in scope than they are today. Originally, the Marketing Services job was:[31]

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[29] *Ibid.*, p. 112.

[30] *Ibid.*

[31] *Ibid.*

> to assist the President, Group Executives and Operating Management to obtain maximum sales volume and profits by helping to formulate over-all marketing objectives, policies and plans; providing marketing services, advice and counsel; conducting audits of effectiveness, economy, and efficiency of marketing performance; creating good customer relations, and promoting the usefulness and interchange of marketing information.

These objectives have expanded, and under Borch, who succeeded Busey, the objectives were stated in both long- and short-range terms, reflecting the eighth key area of measurements.[32] The following can be found as Marketing Services objectives:[33]

> *Long-Range:*
>
> To assure that marketing will (help to) guide the company toward its growth and profit goals.
>
> That policies, strategies and practices anticipate, and be compatible with, our constantly evolving social, economic and political environments.
>
> To acquire, develop, and communicate the type of knowledge which will help raise the standards of marketing performance.
>
> *Short-Range:*
>
> To understand operating situations. Communicate existing knowledge and develop new knowledge to help operating units to do a better marketing job.
>
> To help to sense opportunities for cooperative activities among them, and to help in translating these opportunities into action.

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[32]The Eight Key Result Areas are discussed in detail later in this chapter. They are: Profitability, Marketing Position, Productivity, Product Leadership, Personnel Development, Employee Attitudes, Public Responsibility, Balance Between Short-Range and Long-Range Goals.

[33]Hughes, *op. cit.*

Most of the other Services are organized similarly to Marketing Services. Marketing Services has research specialists who develop new knowledge about the company and its environment which should help in making marketing decisions. There are consultants who act as liaisons between Operations and Marketing Services. There are also "Marketing Specialization Consultants" who are aids to operating components on particular functions of marketing, such as marketing research, product planning, advertising, and sales promotion, and even on organization planning and nomenclature.[34] Marketing Services has organized a section which is concerned with marketing personnel development and recruitment. This part of the organization works with operations to help them on their manpower planning and development. It conducts college recruitment programs and runs training programs. The training programs are run only if a company-wide program is the most effective method or if a department particularly requests such a program. It holds Advanced Marketing Seminars and has produced a basic training course. "On request, supplies names of individuals for specific openings."[35] The Advanced Marketing Seminars are conducted five times a year and are four weeks long. Two weeks are spent at the Seminar center, two weeks back on the job, and then back to the center for the final two weeks. Usually twenty students per class are selected from men nominated by division managers. The instructors come from within the company and from colleges. In 1958, one of the first years of the program, nineteen college professors were used, including D. Maynard Phelps of Michigan and E. Raymond Corey of Harvard.[36] These Seminars

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[34] *Ibid.*

[35] *Ibid.*, p. 114.

[36] *Ibid.*, p. 116.

are not to be confused with the Crotonville School which was originally set up by Management Consultation Services to teach management, although the school now offers courses in a number of functional fields for many Services. Three-day workshops relating to specific topics are organized at the request of a division or department.

Like the other Services, Marketing Services, in theory, is not supposed to initiate changes. One member once said, "We'd be glad, of course, to pass leads along, but usually we don't run into them."[37] All the Services are expected to make suggestions, but only after they have been asked for them. Services do not normally initiate. If Marketing Services believes a change should be made in operations, it has two courses of action available to it: it can counsel the operating department and can try to "sell" its idea, or the head of Marketing Services can send the suggestion to the Group Executive. If the Group Executive accepts it, the suggestion goes through the Division Manager to the Department Manager. This is how it works in the corporate theory; the problem with the implementation of the theory is left for discussion in Chapter IV.

Operating Components

The decentralized businesses are found in the Operating components. The Operating components are responsible for salable products and customer services. Cordiner said that each Operating component has responsibility for engineering, manufacturing, and marketing, "each of them bearing full operating responsibility and authority for the Company's success and profitability in

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[37] *Ibid.*

a particular product or service field."[38] The Operating components have "line" authority and a division or department general manager is, in philosophy, a "president" of a decentralized product Operating business. The Operating departments are grouped by similarities to form divisions, and these divisions are combined to form eleven operating groups. This will be further detailed later in the description of the layers of organization. The heads of the Operating groups are members of the Executive Office. Today, there are eleven groups, up from the basic five found throughout most of the 1950's. The early evolution of the operating organization can be found in Figure 4 of Chapter II. The groups in General Electric have been and are:[39]

1952	1960	1970
1. Affiliated and Foreign Companies	1. Consumer Product	1. Aerospace
2. Apparatus	2. Electric Utility	2. Aircraft Engine
3. Industrial Products Company	3. Electronic, Atomic and Defense Systems	3. Appliance and Television
4. Appliance and Electronics	4. Industrial	4. Components and Materials
5. Defense Products	5. International	5. Construction Industries
		6. Consumer Products
		7. Industrial
		8. Information Systems
		9. International
		10. Power Generation
		11. Power Transmission and Distribution

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[38] Ralph J. Cordiner, *New Frontiers for Professional Managers* (New York: McGraw-Hill Company, Inc., 1956), p. 58.

[39] See organization charts in appendix to Chapter II. Also see *Business Week*, February 3, 1951, p. 25; *Business Week*, June 9, 1951, p. 109; *Business Week*, December 10, 1955, p. 128; *Aviation Week and Space Technology*, Vol. 87, No. 23 (December 4, 1967), p. 33; *Business Week*, December 25, 1965, p. 20; *Business Week*, April 19, 1969, p. 37.

The Operating departments are the basic "businesses," the building blocks on which the whole decentralization scheme rests. Each Operating department is a profit center. There are about one hundred and seventy departments today. Above the department level is the division level which coordinates the activities and needs of the many "businesses" which have similarities, enabling them to be organized into a particular division; currently there are about forty-five divisions. Above this level is the Executive layer headed by the eleven Group Vice Presidents. About 98 percent of the employees of the company work in these Operating components at one level or another.[40] The departments are reasonably autonomous "businesses" and are charged with profit responsibility. Therefore, each department has been assigned corresponding authority over all the functions which affect the results because GE feels that without this authority a manager could not fairly be held accountable for profits. The minimum requirements needed to develop an autonomous "business" status for an Operating department are, according to Smiddy:[41]

> (a) That it have *both a distinct product line* (or for a non-manufacturing business, a distinct and salable *service*) *and a distinct market* (or customer identity); and
>
> (b) That its *"manager"* have both *authority* and *responsibility* for all of those basic *functional kinds of work* really essential to determine *profit results;* which, as a minimum, need to be those concerned with the *"distinct product"* and *"distinct market"* characteristics

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[40] *Professional Management in General Electric Book Two. . ., op. cit.,* p. 135.

[41] Harold F. Smiddy, "Profit Accountability, and Relationships Responsibilities, of Decentralized Product Operating Components; and Especially of 'Non-manufacturing' Business Components," *Addresses and Comments by Harold F. Smiddy on Organizing, Managing and Related Subjects,* Volume II (New York: General Electric Company, (July, 1958), p. 1.

> or specifically with applicable "engineering" (including development) and "marketing" work and, where involved, the attendant "manufacturing" (including purchasing), "employee relations," and "finance" (specifically, cash and credit, as distinct from accounting) work.

As "autonomous" businesses the Operating departments have broad objectives written into each General Manager's position guide. From these broad objectives, specific objectives can be derived by the General Manager himself, with "persuasion veto power" in the division manager's office. These specific objectives will define what the business component is to accomplish, as well as what it is to provide through what sales channels for what customers in what markets, in what product lines, with what resources, and with what scope of actions and functions. The corporate philosophy states that department general managers design their own specific objectives, which fit into the broad, general objectives of the product group. This philosophy can be overturned by the personalities of the managers involved. Strong-willed division managers can and perhaps do run "rough shod" over weaker-willed department general managers. This is contrary to the organization philosophy and can cause decentralization on paper to be centralization in reality. This problem will be discussed in more detail in Chapter IV.

Each department general manager has the authority and responsibility to determine the organization plan for his component to meet the objectives. Within the framework of the broad objectives--which are found in the position guide, the department's function guides, and the "business charter of the department"--the general manager plans for new product lines, for expansion, for attaining a leading position, and for other changes of importance. He has the responsibility for success or explaining failure in the eight key areas which are used to measure his effectiveness.

From the broad and specific objectives--broad objectives are top down goals and specific are developed at the general manager level--each general manager must determine what work needs to be done and how to get it done.[42]

Decentralization at General Electric is more than the geographic, product, or functional decentralization which was popular before 1950. It is much more decentralization of responsibility--the delegation of the decision-making to the lowest possible level--the lowest level at which knowledge to make the decisions allows authority to be placed. This is what shocked General Electric managers when Cordiner first put forth his plan, claims Smiddy.[43] It was an attempt to put into practice the principle of "authority to decide must be brought as closely as possible to the point where action originates,"[44] one of Harry A. Hopf's guides to organization.

Ralph Cordiner, in an effort to show how low the delegated authority was placed at General Electric, wrote in 1956:[45]

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[42]For a detailed discussion of the organization structuring and philosophy, General Electric prepared a manual of about 600 pages: *Manual of Organization Structuring Principles and Criteria Designed for Use in Operating Components of General Electric Company* (New York: Management Consultation Services, January 21, 1955 (Reprinted December, 1957). The firm designed a like manual for Services Components (November, 1957).

[43]Harold F. Smiddy, "Automation," speech at Atlantic City Management Conference, General Electric Company, March 5, 1959. (Taken from recording of speech).

[44]Harry A. Hopf, *New Perspectives in Management* (Philadelphia: The Speculation, 1953), p. 194.

[45]Cordiner, *New Frontiers for Professional Managers*, *op. cit.*, pp. 58-60.

> To demonstrate that the responsibility, authority, accountability of these Operating Departments is real, not window dressing, consider their pricing authority. The price of a product can be raised or lowered by the managers of the Department producing it, with only voluntary responsibility on their part to give sensible consideration to the impact of such price changes on other Company products.
>
> As further evidence of the freedom provided by decentralization to the Operating Departments, consider the fact that the operating budget of the General Electric Company is not a document prepared by the Executive Offices in New York. It is an addition of the budgets prepared by the Operating Department General Managers, with the concurrence of the Division General Managers and Group Executives. These budgets include planned sales volume, product development plans, expenditures for plant and equipment, market targets, turnover of investment, net earnings, projected organization structure, and other related items.

Because the department level was responsible for profits, each department head was given almost total authority in his area. In many situations, this gave him independence for performance from those above him. The final evaluation of projects and directions taken by a department head was measured by superiors; nonetheless, a department head could go in a direction not desired by his immediate superior, for it is the department head who has final authority for the direction of his department. His forecasting ability or his judgment would be measured at a later date. A decision, unpopular with a superior, might turn out to be a "stroke of genius" later on. Gerald Phillippe often told two success stories of department managers making decisions which ran contrary to what the corporate leaders recommended. Phillippe would say:[46]

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[46] "Lessons of Leadership: Part XXXIV: Inspiring Teamwork," *The Nation's Business*, Vol. 56, No. 3 (March, 1968), p. 44.

> Years back, one of our department heads wanted to build an electric toothbrush; everybody he talked to said he was out of his cottonpickin' mind.
>
> Anybody too lazy to brush his teeth, by gosh, hadn't ought to be alive anyway.
>
> He said, "All right, just give me the money to go into production, and we will see who is right."
>
> You can guess who was right; in the first two years we sold over a million units.
>
> I am one of those who had told him he was crazy.
>
> Another example is the portable dishwasher. Every member of the then-existing Executive Office told that department general manager he was crazy to bring out a portable dishwasher, because we had had one before and it flopped.
>
> But, he said, "This one is square; the other was round. This one is automatic; the other was manual."
>
> He brought it out, and it was the best selling item we had the next three or four years.

Operating components as holders of line authority may encounter the often-voiced problem of not having real authority, as opposed to theoretical authority, often found in the staff or Services components. Chapter IV will discuss this point in greater detail. It is sufficient here to point out the philosophy of the independence of the Operating department in General Electric. At the General Electric Group Executive Management Conference in 1952, it was carefully explained that the President and Group Executives supply leadership for the firm as a whole; Services components supply specialized advice and interpret policies; and Operating management has the responsibility for direct day-to-day operations. Whereupon the following question was raised:

> You mean these Services Divisions can't tell an Operating department what to do? I've heard there are some things we're doing because we've got to--orders from New York!

The reply was made by one of the Group Executive Vice Presidents, who said:[47]

> If you heard that, it probably means that somebody is lacking in intestinal fortitude. If an Operating Manager has good reasons for not accepting the advice of a Services Division, he doesn't have to do so. He is accountable for results, not the Services Division. But if he does accept the advice, he should make it his own policy and back it to the hilt. Let's cut out this buck-passing "orders-from-New-York" malarky! Now obviously, there are certain matters--such as Company wide labor relations, certain aspects of public relations and legal matters affecting corporate structure of operations--where we must have a common front, with policies recommended by the Services Divisions and approved by the President.

Further questioning indicated concern over what would happen if an Operating manager refused to accept recommendations from New York or Services. The Group Executive replied that recommendations are made directly from the Services component to the Operating manager, and that the Division and Group Executives would not be involved. But, he said,

> In case of a serious dispute, I might have to resolve it with the Services and Operating Managers. Or, if the Services Officer feels that the decision is one involving the interest of the Company as a whole, he can go with the Group Executive to the President.[48]

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[47] "Excerpts from Distributed Reports of General Electric Management Conferences," Appendix J, *Manual of Organization Structuring Principles and Criteria for Services Components of General Electric Company* (New York: General Electric Company, December, 1958), pp. 5-6.

[48] *Ibid.*, p. 6.

The Managerial Levels

General Electric has a maximum of seven levels of management; six levels is normal, and five levels is the goal. The maximum of seven levels counts the Chief Executive Officer (or President) and Group Executive as the highest level. The second level is the Division General Manager and level three is the Department General Manager. So, there is only one managerial level between the top level and the profit center or business level in the organization. Figure 14 shows the seven possible managerial levels. In each department there is normally found to be five organizational levels. The Department General Manager is the top level; level two is made up of functional managers; level three (and four and five, if needed) is made up of component managers or supervisors; and the lowest level is the individual contributor employee. The individual contributor is defined by General Electric as the member of the organization who

> makes his contribution to the Company's total output of goods and services through work done directly by his own personal efforts, whether as a researcher, engineer, salesman, artisan, specialist, expert, advisor, consultant, professional, or as a clerical or manual worker of any kind, in any function or branch of the total business.[49]

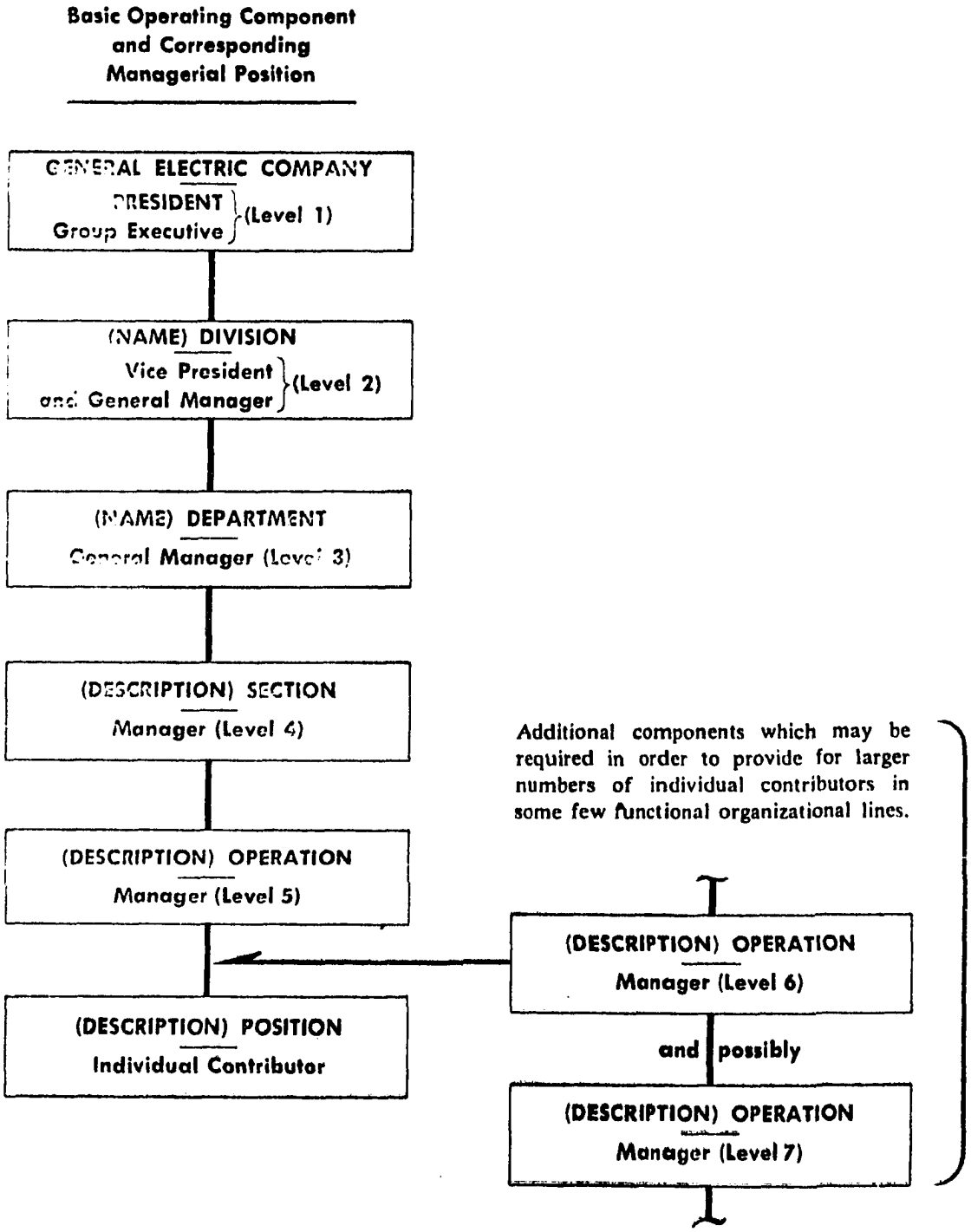
He is not a manager. A manager, on the other hand, does a kind of work in which the principal responsibility is for getting work done through other people. Both the manager

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[49] *Individual Position and Organization Component Nomenclature* (New York: Management Consultation Services, General Electric Company, August 10, 1956), p. 105. For a fuller discussion of the individual contributor, see *Professional Management in General Electric, Book Four, The Work of a Functional Individual-Contributor* (New York: General Electric Company, 1959).

FIGURE 14

OPERATING COMPONENT NAMES AND ORGANIZATIONAL LEVELS



and the individual contributor work with other people, but the former is primarily responsible for securing results through the work of others, while the latter is measured in terms of his own personal output and productivity in his particular work field.

Short explanations of each level in the organization are useful. The fact that the Chief Executive (and Chairman of the Board and/or President) and Group Executives are counted as one level has already been explained in the discussion of the Executive Office.

The second level is that of the Division. Related divisions form the Groups. A division is composed of related Operating Departments having related and usually similar types of products, markets, or functions and for which over-all Operating managerial responsibility is assigned to a General Manager. An example is:

Aerospace Group

Divisions:

Aircraft Equipment Division
Defense Programs Division
Electronic Systems Division
Re-entry and Environmental Systems Division
Space Division

The third level is that of the Department General Manager who reports directly to the Division General Manager. Primarily this is the component representing a product or salable service having direct accountability for profits. An example is:

Aerospace Group

Electronic Systems Division

Departments:

Power Tube Department
Receiving Tube Department
Rectifier Components Department
Semiconductor Products Department

The number of levels through the General Manager of the Department level is three. Within the department level there may be two or three levels between the General Manager and the individual contributor, making a total of five or six levels above the individual contributor. Before reorganization, General Electric had seventeen or eighteen layers in several Divisions.[50] Peter Drucker claims, ". . .any business that needs more than six or seven levels between rank-and-file employee and top management (vice president level?) is too big."[51] Smiddy responded to a question as to why General Electric has a goal of five managerial levels above the worker in the organization, as follows:[52]

> We have departmental businesses as small as five or six million dollars. . .others where business runs up well over a hundred million dollars annually. . . .In the first place, I don't think there's anything sacred about five. . . .How did five get into the act? It came from taking a look at the problems of trying to get an optimum balance of spans and levels as the two Organization Structure design factors that influence, on the one hand, the best integrating and communicating and, on the other hand, the best achievement of actual performance of the particular work. Five came about by looking at where we were and seeing what might be a sound goal to shoot at. We knew that seventeen or eighteen layers. . .was too many for the reason that many levels factually prevented good two-way communications. . . .

Later, Paul Mills, who helped to design the organizational structure, added that you don't organize from the top down. He said:[53]

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[50]Smiddy and Mills, *op. cit.*, p. 5.

[51]Peter F. Drucker, *The Practice of Management* (New York: Harper and Row, 1954), p. 234.

[52]Smiddy and Mills, *op. cit.*, pp. 4-6.

[53]*Ibid.*, p. 20. This statement is not to be confused with Barnard's and Argyris' belief of bottoms-up authority.

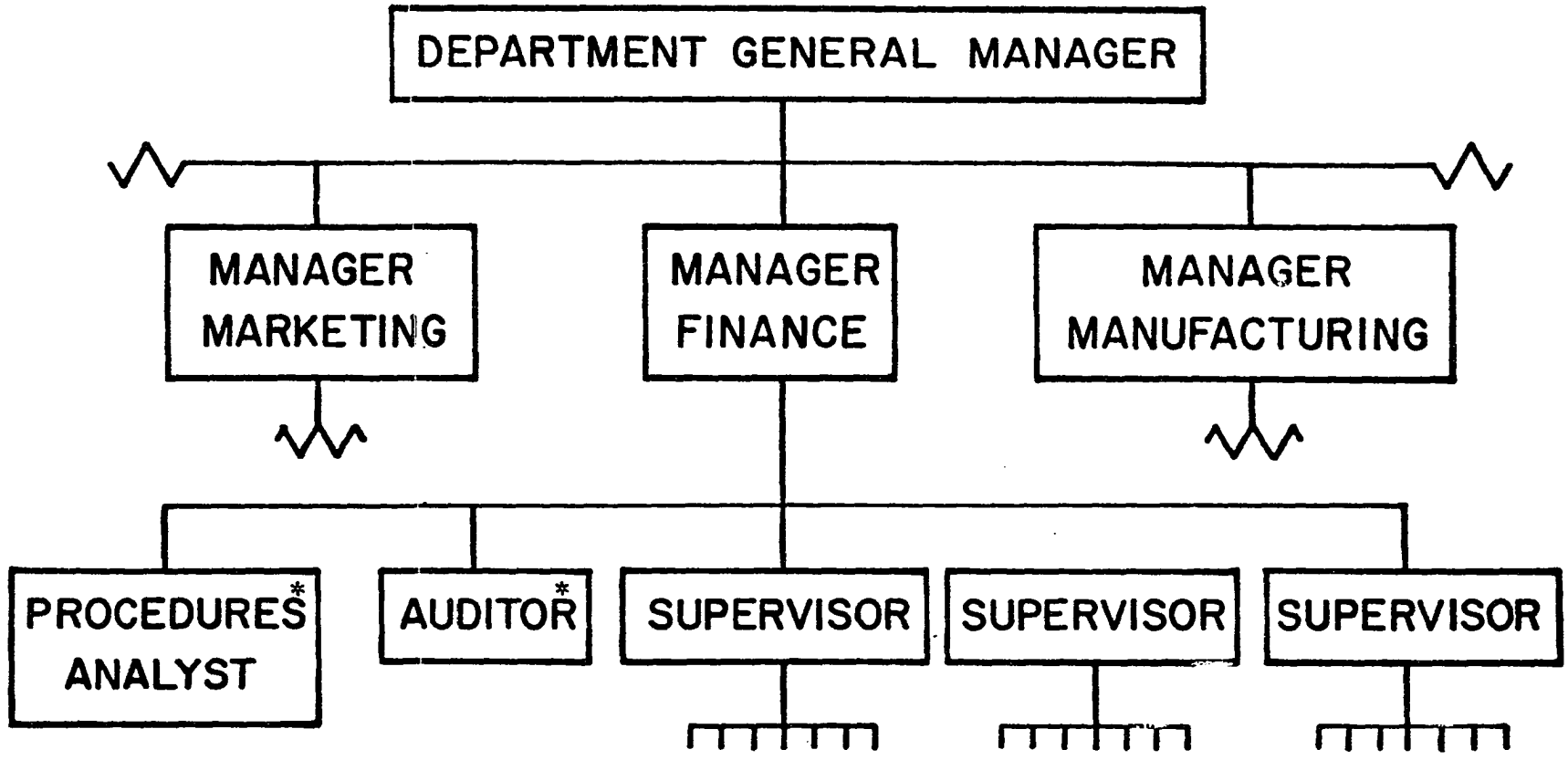
> You need to start out with the actual work and with the people to do it from the bottom, and go on *up*. Forget the handles that they have on these levels; whether they are general managers, general foremen or what. Start at the bottom, the worker; go up and then see how many managerial levels you need for different kinds of managing work in depth and scope.

Below the department level there may be a section level, but this is not general. A section is a component within a department which in itself has a product or salable service and has accountability for profits. The section manager reports to the Department General Manager. Usually, a section is organized when the department develops a product which is similar to its generic product, but which can stand alone. An example of this is sycachome which is really a plastic, but it has unique qualities so that it seems to be a distinct product. Frequently, these sections grow to a point where they can be spun off as separate departments. During the maturing stages the product development will be managed as a section until such time the department and division manager deem it proper to organize it as a department.

Usually the next level below the Department General Manager, the fourth level, is that of the functional managers, such as Manager--Marketing, Home Laundry Department or Manager--Finance, Home Laundry Department. Below these Functional Managers is the lowest managerial level which has been termed supervisory level, such as General Foreman. Reporting to this last managerial level are the individual contributors, such as Auditors, Procedures Analysts, Drill Press Operators, Machinists, and so forth. A department would be set up a shown in Figure 15.

FIGURE 15

ORGANIZATION STRUCTURE OF A DEPARTMENT



*The "Procedures Analyst" and "Auditor" may, in fact, be individual contributors, although in large departments these will be supervisory positions. each having a staff reporting to them.

Committees

In the foregoing discussions of the organization structure of the General Electric Company, it is worth knowing that there are no provisions for the use of committees as decision-making bodies, such as those found in General Motors.

In writing the four books on *Professional Management in General Electric*, Harold Smiddy developed the philosophy of management issued under Ralph Cordiner's name as the official philosophy of the firm's top management. Soon after the release of these books many top executives found innumerable areas of disagreement with the philosophy, but Cordiner and Smiddy planned to persuade all to their philosophy. The *Professional Management* series was written not only to set down on paper the corporate philosophy but to be used as a guide on how to manage, to help educate and further the study of management, and to help organize the investigation of the area so as to upgrade the philosophy through greater in-depth reasoning.

Smiddy developed sixteen principles relating to the process of Delegation, reprinted as Exhibit 16. The fifth principle explains why General Electric does not have decision-making committees. The principle states that a "Responsibility, like authority, is personal and cannot be shared by a group of individuals or a committee. Confusion results if this is attempted."[54]

The corporate philosophy is that committees cannot be responsible for making decisions. This conclusion is drawn from the belief that decisions are acts

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[54] *Professional Management in General Electric Book Two..., op. cit.*, p. 95.

FIGURE 16

DELEGATION

THE PROCESS OF ESTABLISHING WORKING AGREEMENTS BETWEEN A MAN AND THE MANAGER TO WHOM HE REPORTS IN AN ORGANIZATION STRUCTURE

* * * *

Two-Way Understanding Is Required

1. Assigning responsibility for work and teamwork, transferring authority, and accepting corresponding accountability are three inseparable, complementary parts of the process of **Delegation** of work. They are not separate, independent concepts.

2. Being complementary parts of one process, such responsibility, authority, and accountability are bounded by the same limits in time and in scope and are evaluated in the same units of measurement. They are simultaneous, co-terminous, and commensurate.

3. The responsibilities, authorities, and accountabilities inherent in each position in an Organization Structure are detailed in its "Position Guide," in order that they may be clearly understood by all concerned. Responsibilities so defined include both duty and relationships—that is, both "work" and "teamwork"—responsibilities. A team, unlike a committee, has assigned positions and *individual* responsibilities for both work and teamwork.

4. These represent a "meeting of the minds," and working understanding and arrangements, between two individuals only—a man and the manager to whom he reports.

5. Responsibility, like authority, is personal and cannot be shared by a group of individuals or a committee. Confusion results if this is attempted.

6. The definition of the areas of responsibility must be clear, precise, and complete so as to avoid confusion, omissions, or overlaps. If there is to be assurance that the work will get done, each area must be assigned by a manager to an individual, who in turn understands and accepts accountability for performance.

The Man's Part

7. The incumbent of a particular position automatically accepts the obligation of accountability to his manager for performance of all responsibilities—all duties and relationships—assigned to him when he accepts a particular position, and as long as he holds it.

8. When the incumbent of a particular position voluntarily accepts the obligation and the accountability for carrying out the defined responsibilities—for both work and teamwork—inherent in that position, he is automatically endowed with the authority which goes with the position as so designed, and which is needed to do the designated work. Such authority is inherent in the position in the organization structure. It is a mantle worn by the incumbent as long as, but only as long as, he occupies the position.

9. An individual should have only one boss, the manager to whom he reports.

The Manager's Part

10. The manager, to whom the incumbent of a particular position reports, assigns the designated responsibilities and relationships, transfers from his own position to the position of the men who report to him all authority needed to do the designated work, and rightfully expects accountability for performance of such assigned responsibilities and relationships.

11. An individual has a responsibility or he does not have it. An attempt to assign partial responsibility does not work. Partial responsibility is confusion.

12. Authority cannot be transferred and retained at the same time. An attempt to transfer partial authority does not work. Partial authority is confusion.

13. Limits to and boundaries of responsibility and relationships, of authority, and of accountability are set by the manager, and need to be co-terminous with each other.

14. To allow for maximum individual initiative, limits to or boundaries of responsibility and authority should be as broad as possible. Those necessary to achieve unity of action in the over-all balanced best, or common, interests of all concerned should be stated clearly, and preferably in writing so as to avoid misunderstandings and to permit working together to achieve the corresponding common purposes.

15. Within such designated limits and boundaries, the process of delegation and each of its inseparable parts must be clear-cut, complete, and understood if delegation is to be effective and the needed work and teamwork is to be accomplished.

16. Delegating responsibility for an area of work to a man who reports to him does not relieve the manager from the responsibility for being sure that the work gets done. If the man to whom the work was delegated failed in its performance, the manager must assume the blame since his act of delegation did not relieve him of his own accountability for getting the work done. Delegation is not abdication.

of mind and will, and only individuals have mind and will. Nor can a committee effectively be held accountable for results. The process of delegation between a manager and another individual involves responsibility and accountability as two aspects of that process. Committees cannot be held accountable for results, thus the delegation of responsibility must be from one individual to another individual and it is clearly stated in the General Electric philosophy.[55] This does not rule out committees as advisory organizations.

The elimination of decision-making committees in the early 1950's was one of the most significant changes in the General Electric philosophy under Cordiner. Under Wilson and quite historically under Swope, the General Electric Company was a committee-oriented organization. When Cordiner studied the reorganization of the company he decided that he was going to, quite obviously, decentralize; but he hadn't concentrated on what this would do to committees as part of the philosophy and structure. It was not Cordiner, but Smiddy, who developed the original thinking on this subject.[56] Harold Smiddy was quite vehement in his belief that committees produced a weak organization because of the inability to pin responsibility for decision-making on any one incumbent of a position. He felt that you could not share responsibilities, and that shared responsibilities promoted the weakest kind of decisions.

After Cordiner accepted this philosophy, he formalized it and it was included in the *Professional Management* books[57]

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[55] *Ibid.*, pp. 197-199.

[56] Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

[57] Particularly Book Two.

which were written by Smiddy and his staff. Thus, all decision-making committees were abolished. Immediately, there was an outcry by a number of managers that the Advisory Council was nothing more than a decision-making committee.[58] The Advisory Council is explained in greater detail in Figure 11. The Advisory Council is just a committee to advise the President or Chief Executive Officer (Cordiner during the decade of the '50's). Cordiner answered the perplexed managers about the status of the Advisory Council by saying:[59]

> When it comes to policy decisions, discussed at the Advisory Council, I make the decisions. But I am not so stupid that I will not listen to pros and cons. But, they could be all against me. I will still make the decision. It is my decision to make. I won't depend on a vote to determine whether or not we will do this, that, or the other thing. But, I want to get the benefit of everyone's counsel. And there is a difference between advisory (thinking) and decision-making. When I have the responsibility I will accept it.

To clear the status of the Advisory Council, the President issued the "Advisory Council Function Guide" which reflected Cordiner's above thoughts. This Function Guide is reproduced as part of Figure 11.

Later Cordiner wrote:[60]

> General Electric structure has no place for committees as decision-making bodies. It is my feeling that a committee moves at the speed of its least informed member, and too often is used as a way of sharing responsibility. Before decentralization, an official tried to get on a great number of committees.

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[58] Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

[59] Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

[60] Ralph Cordiner, *New Frontiers for Professional Managers*, *op. cit.*, pp. 70-71.

> He would lead a very calm, safe, orderly life. Not much would happen, but nothing would ever happen to him.
>
> Today (1956), a committee may be helpful as an advisory group, and indeed the Executive Office of the General Electric Company meets twice monthly as an Advisory Council for the President. In any such arrangement, however, it must be made abundantly clear that the authority for any particular decision lies with the responsible individual, even if he makes it while sitting with the other Council members.

One other committee was very powerful at the outset of the decentralization program and that was the Appropriations Committee. The Appropriations Committee passed on the advisability of providing large expense or capital funds to the various operating components. Detailed documents written in the form of appropriation proposals were sent to this committee. The material was always furnished by the financial staff of the division which was responsible for requesting the money. The Manufacturing Services component was especially powerful as it would, with the aid of representatives of other Services, make the decision on the proposed appropriation. Harold Smiddy pointed out to Ralph Cordiner that this was in fact a decision-making committee and as such was in violation of the corporate philosophy against the use of decision-making committees.[61] The Appropriations Committee was, therefore, abolished and was replaced by a very strong policy (Appendix Exhibit 3-2) approved by Cordiner and issued over his name on what the authorizations would be to the various divisions, what they had to do, and how much approval in dollars would be made at each level. It was found that most of the appropriations that had gone to

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[61] Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970,

the Appropriations Committee could be handled at the local level, thus increasing decentralization. The larger dollar requests, which were not many, were reserved for Cordiner and the Board of Directors, but these money amounts were spelled out very specifically. These dollar amounts are explained later in this chapter in the section "Budgets."

The General Electric concept of all employees working together on the same team is distinctly different from the "group effort" approach to work. "Group responsibility and group decision-making imply a fallaciously comforting anonymity," says one internal paper, "making it possible for each individual in the group to avoid personal responsibility for results."[62] The company doctrine reflects the belief that no one person is then really accountable for the action of the group, and the alleged desirability of unanimity of action of a committee more often than not results in a course of action most secure, least risky, least courageous, perhaps with the highest probability of success but with limited results.[63] Ray Brown notes that managers like decision-making committees. He says, "They will use 'group decide' as an administrative fox hole in which to hide. Fearful of the administrative dark, they venture out only in the company of a committee."[64] Later, he pointed out that committees "become an escape mechanism for those administrators who can't take the organizational heat and who resort to presiding in order to avoid the personal responsibility of deciding."[65] The theory that

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[62]"Designing Work Into Positions and Grouping Positions Into Components," without publication data, internal General Electric working paper (pre-1960), p. 20.

[63]*Ibid.*

[64]Ray E. Brown, *Judgment In Administration* (New York: McGraw-Hill Company, Inc., 1966), p. 43.

[65]*Ibid.*, p. 77.

individuals desire the comfortable anonymity of group action is, of course, counter to the belief that each individual wants to assume sole responsibility for his own actions and thus, to make the greatest possible contribution to the objectives of the component and the business enterprise.

This concept does not rule out the use of meetings and conferences for informative or stimulative purposes. There are committees in General Electric, such as safety committees, salary committees, and so forth, but these committees are for the purpose of determining or recommending what policy should be. They are not decision-making committees. One man is always responsible for the attainment of outcome. If seven people are on an advisory committee, only one man--whether he is a member of that committee or not--and only that one man is held one hundred percent accountable for the decision that is made. Cordiner felt that advisory committees must get the best minds that can be utilized on any particular subject, but only one man can make the decision. That is good business. Thus, the popularity of "brainstorming" sessions is well earned. Their value for idea generation has been proved in practice. But these "brainstorming" sessions should be considered for what they really are: group stimulation of individual efforts. One internal document said that these committees "can often be the catalyst helping create ideas more quickly than by individual thinking in isolation."[66]

Assistant and Assistant To

Lt. Colonel Lyndall Urwick, who is an advocate of the

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[66] "Designing Work. . .," *op. cit.*, p. 21.

"assistant to" position, wrote this writer that,

> It is extremely difficult to make "assistant to" positions work smoothly in business. This is not because they are unnecessary: many Chief Executives are grossly overworked. And their undertakings suffer in consequence. But, they (the superiors) can't get their immediate subordinates to accept communications from an "Assistant to," because such communications appear to infringe the unofficial status symbolism of the undertaking--a Captain is ordering a Colonel about (to use a military parallel).[67]

Although Urwick admits business has had some difficulty with the "assistant to" position, he nevertheless advocates its use. Urwick and Dale correctly note that "assistant to" is normally inferior in status to his chief's immediate subordinates, has no authority of his own, issues instructions only as a representative of his chief's authority, and cannot replace his chief in his absence.[68]

Theoretically, without responsibility or authority, "assistant to" positions are found in many business and military organizations. In the military, the "assistant to's" function is primarily to convey the decisions and orders of his chief and he is known as a general staff officer. Urwick says, "An 'assistant to" position involves an officer of junior status (rank) sending instructions to his superiors in status."[69] Continuing, Urwick says:[70]

> In Armies everyone accepts the Fiction that they are his superior's orders, even when the recipients are perfectly well aware that his superior has never seem them. That is because

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[67]Personal letter from Lt. Col. Lyndall Urwick, June 24, 1969.

[68]Ernest Dale and Lyndall F. Urwick, *Staff In Organization* (New York: McGraw-Hill Company, Inc., 1960), p. 159. This statement does not always apply and does not apply to subordinates to the "assistant to."

[69]Urwick letter, *op. cit.*

[70]*Ibid.*

> status is defined by rank. And it is so unthinkable that an officer of inferior status should be issuing orders to an officer of superior status, say a Captain issuing orders to a Colonel, that Colonels at a lower echelon accept that a Staff Officer is merely acting as a Post Officer (or a Secretary) to his General.
>
> Personally, I am convinced that a great deal of the personal friction which occurs in civil establishments can be traced to the fact that they have not yet "grown up" in this particular. Men are concerned about status. . . .They build unofficial status symbols. Any arrangement which appears to ignore or run counter to this symbolism excites resentment and retaliation.
>
> (He ends by adding) Smiddy won't agree with a word of this.

Urwick does believe that the "assistant to" should be given a dignified status. He says, "Nothing deteriorates the morale of an assistant to more than becoming known as a bronze key to the president's toilet."[71]

There were a number of reasons why General Electric used "Assistant" or "Assistant to" positions before 1953. These reasons were:[72]

1. To relieve excessive load on the Boss.
2. To train the man in broader duties.
3. To give the man a special title or status.
4. To give the able man more work to do and to challenge his ability.
5. To give authority to check others in detail.
6. To provide an "understudy" for the Boss.
7. To break in a successor to take over the Manager's job.

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[71]"Can Management Be Managed?" *Fortune*, Vol. 48, No. 7 (July, 1953), p. 141.

[72]Harold F. Smiddy, "Some Notes on the Subject of 'Assistants' For, and To, Executives and Managers," July 5, 1952 (New York: Management Consultation Services Division, General Electric Company). (From notes made September 14, 1951.)

Each one of the above reasons for using an "assistant" was easily ruled out under the new philosophy. An overloaded boss must learn to delegate. A man can train and broaden his duties by the use of staff meetings, proper job placement, and rotation. A man can be rewarded by higher pay and a more challenging job, with appropriate title. A man can get a bigger and more responsible job within the company's basic organization structure by assigning him to a specialist job or to a managerial job of stature commensurate with his full ability. Men needing detailed checking should be replaced with competent performers who won't need to be so checked or audited; it's not sound economics to pay twice for getting work done right once. The use of such a "title" instead of a more specific designation of work, makes job titles unclear and adds to organizational confusion. In addition, a man has more pride when he is a manager on his own feet than an "assistant" to someone else. An understudy should be designated as an "understudy" and he should act when needed. There is no need to have the "understudy" on "make work" projects all the time. When breaking in a successor to take over a manager's job it is sound business to allow a man to act as an "assistant" only for a limited period when the actual succession is imminent and the "assistant" must really get into all the phases of the Boss' job. This type of short-termed "assistant" position must be removed and not be refilled when the "assistant" moves into the Boss' chair. Even this latter argument was not acceptable in General Electric: the successor was appointed immediately, and the incumbent was removed and used as a consultant, when necessary. This maintained clear relationships and pinpointed responsibility.

During the early years of formulating the philosophy of management at General Electric, a number of

management practices were discovered which did not fit in with the emerging philosophy. As Smiddy was developing the principles of delegation (Figure 16), it became clear that these principles ran counter to some of the structure used by the enterprise. "Assistant" and "Assistant to" positions were counter to the developing philosophy for two major reasons. First, it was felt that these positions were not the best way to get work done under the principles of delegation and of organization structuring which had developed. Second, there was a better organization structuring of positions for stimulating self-development of individuals.

The first major point in reference to the principles of delegation, can be seen from reading Figure 16. A responsibility cannot be shared by two or more individuals (point 5). An individual has responsibility or he does not have it (point 11). If the assistant has responsibility for helping his manager by doing part of the work, then General Electric philosophy claims "he is simply being a clerk, a messenger, or 'leg man.'"[73] If, on the other hand, a manager truly delegates a piece of work to an "assistant," then that "assistant" is no different from any other subordinate reporting to the manager.

If a subordinate is not given specific work to do, for which he is accountable, then a man would take on some unknown responsibility and confusion would reign as no one would know for what the subordinate is accountable. Also, other men reporting to the manager would not know the relationship between themselves and the "assistant." Thus, in the General Electric philosophy, assistants are believed to violate a number of sound principles of delegation:

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[73] *Professional Management in General Electric Book Two. . ., op. cit.*, p. 189.

responsibility is not clearly defined; their commensurate accountability is unclear; assistants may add another level of management; other subordinates may be unable to identify the relationships and at times believe they have more than one boss.

The second general reason that these positions violate corporate philosophy is that the firm feels the position structure inhibits self-development of individuals. The following four points are used by General Electric to demonstrate this belief:[74]

1. Men who are acting as errand boys for their managers may gather much information by observation; but they do not have the stimulating opportunities to "learn by doing" as far as making their own decisions are concerned, coupled with the sometimes painful mind--and judgment--sharpening experience of having to live personally with the results of those decisions.
2. Men who get in the habit of gathering information requested by their manager so that he can make better decisions, run the risk of also getting in the habit of letting him do the thinking as well as the deciding.
3. The best men will not let themselves get stuck for long in "assistant" positions, because they are not satisfied unless they are responsible and accountable for work which is uniquely their own.
4. Experience has shown that men develop their managerial abilities and their self-confidence and belief in themselves faster and more surely if they have complete personal responsibility and accountability for a particular piece of work, even, though it be small, than they do when they have some unknown and necessarily fractional part of their manager's larger responsibilities.

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[74] *Ibid.*, pp. 191-192.

General Electric had thousands of "assistants" in 1952. At that time, Harold Smiddy and William Greenwood, both working on an organization structure project, went to Ralph Cordiner and asked him if he would mind giving up his assistant.

> Cordiner asked, "Well, Harold, what for?"[75]
>
> "Why do you need the position?" asked Smiddy.
>
> "Well, I need an assistant. Good Lord, I'm out of New York many, many times, travel quite a bit and when I'm not around I got a lot of things that have to be taken care of right away. And I need a very capable assistant."
>
> And Smiddy says, "Well, what important decisions do you permit him to make when you're out of town?"

Cordiner at this time was preaching management by exception, so it was implied that decisions made by Cordiner could not have been made by the Executive Vice Presidents. Cordiner's assistant was a knowledgeable young man, modestly paid, and considered very bright. However, no one would have even entertained the thought that this assistant could have made decisions on issues which were above the capabilities of the Executive Vice Presidents.

Cordiner answered Smiddy by saying, "I'm beginning to get your point. What you're telling me is that I need a male secretary, possibly."

"That's right. And that goes for the rest of the company, too," added Smiddy. "I don't understand why anyone needs an assistant."

Cordiner immediately decided to remove the assistant positions throughout the company's organization

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[75]The following is from William J. Greenwood's memory of that meeting. Interview, Honolulu, Hawaii, February 5, 1970.

structure. At this time there were thousands of assistants; nearly every one of them was a very capable man and Smiddy thought these capable men were rotting on the vine. In fact, within a year after the discontinuation of these assistants jobs many of the incumbents had become section managers; some had become general managers of departments. Many were to rise to the executive level after a few years. These people had been given their title of assistant because they had earned them, and these were capable individuals.

When Smiddy went to the Chairman of the Board, Phil Reed, to talk with him about Stan Holme, his assistant, Reed said, "Yes, I was talking to Ralph about that. I don't know what to do with Stan. He's a very capable individual and one of the most knowledgeable persons in the company, but I can't see him as a manager, thought. He's just a great thinker." Smiddy said,, "Fine, I'll take him."

Smiddy appointed him as a consultant and assigned him to many tricky research problems in management. He proved to be an extremely capable man and was quite happy in his new environment where he could be on his own.

Smiddy felt that "assistant to" and "assistant" positions were fictitious in many instances. Such positions were brought into being because superiors wanted to reward someone who had been doing outstanding work and didn't know how to give him a proper award other than making him an assistant manager or assistant to somebody; and in doing so, General Electric forgot that one of the greatest developers of people is to give them problems, team projects, responsibility and high pay. Unfortunately, many of these assistants, while they received good money, did not receive extraordinary pay in any sense. Smiddy's philosophy always was, "Pay the man and pay him well."[76]

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[76]Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

Shortly after Smiddy's conversation with Cordiner, Cordiner announced through Smiddy's urging that all people who became department managers, section managers, or became consultants in the various Services, were going to get extremely high pay because they were now in heavy risk positions. If they made errors, they were going to be released from their position and no one was going to take care of them. Because they were in such vulnerable positions, Cordiner said, "I'm going to pay you well and if you don't measure up I'm not going to worry about it. I'll get someone else who can do the job." So it was with that kind of offer that these individuals came into Services and others became general managers.[77]

Frequently when you have five or six people reporting to a man, and you reach down and elevate one of these men to an assistant spot, essentially what you have done is to eliminate competition among those who remain because you have appointed the man who ultimately will take over. The heir apparent to the throne has been selected, thereby killing initiative in the pack that is left. Smiddy had always contended, though, that an assistant makes work, especially if he is working for a very capable manager. The capable manager will continue to make the decisions and will use this assistant as an errand boy, one who runs around getting information but never making decisions. He gets out of the *habit* of making decisions. In time he loses his effectiveness so that if he, after several years as an assistant, goes out into the real world of decision-making, he is incapable of making decisions.

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[77]Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

General Electric found that when a man became *an assistant* and he was working under a capable department manager whom he was being groomed to replace ultimately, he frequently hired a secretary because this was a status symbol and he had to have one for his own image. Since the department manager was strong and capable there was insufficient work for the assistant. To give him something to do, he initiated a project of his own. Once the project got going, the assistant would decide that what he needed were some analysts or some young people to get information and analyze it. He wasn't going to do the whole project by himself. Besides, you should always delegate to the lowest level of competency. He would hire one, then two, while he was thinking of a new project. In time, maybe five years, he might have a staff of as many as fifteen or twenty people. When he took over the general manager's job or the manager to whom he reported, he would continue the assistant position because if his predecessor needed an assistant, he certainly did, too. "It was self-perpetuating, so that when General Electric got rid of about ten thousand assistants," says Greenwood, "whatever the number might have been, they actually got rid of maybe fifty thousand or sixty thousand jobs. (Much of this work was reorganized into other parts of the structure.) That was the ultimate impact in streamlining the company."[78]

At first the argument, of course, was "I'm working overtime now: I do need an assistant." It is true that people at times have a lot of work to do, and it is true that they sometimes get themselves somebody whom they call an assistant to take part of the load off their own back, but the key to it is always better organization.

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[78]Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

It seems that there are some men who, if they had one assistant, would work eighty hours a week; and even if they had forty assistants they would continue to work eighty hours a week. "In a study that was conducted by Management Consultation and other Services," says William Greenwood, "it was pretty well proved that people who hired assistants in the past on the basis of being overworked themselves found that the assistants never cured that situation. These men, for the most part, continued to work the same number of hours as they did before because some people would make eighty hours' work out of boiling water."[79] Or, as Parkinson notes, "An official wants to multiply subordinates, not rivals."[80]

One of the death-dealing considerations for the assistant position is that an assistant usually is one who speaks for the boss, or at least it is assumed he is speaking for the boss whether or not he is. Those who have worked for managers who had assistants were always in a bind, especially when they were given conflicting orders and this was not rare. William Greenwood comments:[81]

> Conflicting orders were a way of life and I received more than my share, especially while I was in the financial area. This did not surprise me because it was a well-known fact that usually the Assistant tried to usurp power. He tried to convey power that he did not have; he tried to be very important. And since he had really no job, no real job with any authority, in order to maintain his own status, his own respectability, he became a

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[79]Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

[80]Northcote Parkinson, *Parkinson's Law and Other Studies in Administration* (Boston: Houghton Mifflin Company, 1957), p. 4.

[81]Interview with William J. Greenwood, Honolulu, Hawaii, February 4, 1970.

> pompous ass very, very frequently, and usually it occurred immediately following his appointment. The two went hand in hand.

Urwick contends that Smiddy and General Electric really deplored the "Assistant to" concept, not because of the fact that the above reasons are untrue, but because General Electric and Smiddy couldn't make the concept work, and therefore they contend the concept is wrong. He says,

> GE put up the old Accountants' argument. Because status is ill-defined in civil life, having an "Assistant to" became a status symbol in GE. So, all kinds of people started appointing "Assistants to," not because they needed them but because having "Assistant to" in a box below them on the organization chart was as good as adding a crown to their two stars. It gave them a push up in their status symbolism. That was expensive. So, the accounting viewpoint stepped in and it was classified as "unnecessary."[82]

Whatever the case, the titles and positions of "assistant" and "assistant to" are not presently acceptable to General Electric organization theory. Ralph Cordiner said, in reference to "assistants to" and "administrative assistants":[83]

> It is our firm belief that such titles or positions create confusion as to responsibility, authority, and accountability, and tend to retard the growth of men and the Company. If a position is too big for one person and appears to require assistants, then the work should be divided up and reorganized into as many positions as are required to do the work efficiently. Each position in the Company should be able to "stand on its own," with a specifically defined area of responsibility, authority, and accountability.

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[82] Urwick letter, *op. cit.*

[83] Cordiner, *New Frontiers. . .*, *op. cit.*, p. 70.

Measurements

Ralph Cordiner underscored the importance of measurements when he defined the concept of professional management as

> the task of administration of a business enterprise through the leadership of its personnel to achieve its objectives by planning, organizing, measuring, and integrating its human and material resources.[84]

In the latter part of 1951, he raised a question with the Advisory Committee as to whether the measurements area was not of sufficient importance to the company's future to warrant a comprehensive study. In early 1952, Management Consultation Services Division was assigned the responsibility for investigating measurements. In May, 1952, Vice President Harold F. Smiddy appointed Fred J. Borch, and subsequently Robert W. Lewis in late 1952, to develop the intensive research of this essential area. Until early 1953, the measurements project was a cooperative effort of the Management Consultation Services Division and the Accounting Services Division. On May 1, 1953, when Fred Borch returned to the Lamp Division, the Accounting Services Division took responsibility for the project.[85]

The objectives of the Measurements Project were five in number:[86]

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[84]Ralph J. Cordiner, *Problems of Management. . .*, *op. cit.*, p. 7.

[85]*Measurements Project, Part I* (Schenectady, N.Y.: General Electric Company, January, 1954), p. 5.

[86]Robert W. Lewis, "Measuring, Reporting, and Appraising Results of Operation with Reference to Goals, Plans and Budgets," *Planning, Managing, and Measuring the Business: A Case Study of Management Planning and Control at General Electric Company* (New York: Comptrollership Foundation, 1955), pp. 29-30.

1. To find methods to measure the performance of the organizational components, not of individuals.
2. To find common indexes of performance but not to develop common standards; i.e., rate of return on investment is a common index, but the standard in terms of what percent is wanted as a return on investment is not a concern of the project.
3. To realize that the measurements are designed for supplementing, not supplanting, judgment.
4. To find measurements which can be used both for current results and future projections.
5. To keep measurements at a minimum for each level of the organization.

This Measurement Project is the key to understanding the control function within the firm. Out of this project came most of the quantitative control mechanisms and some of the qualitative controls used today. Therefore, a deeper study of the project appears warranted.

The project was divided into three sub-projects:

1. Operational measurements, of which there are eight, identified as key result areas.
2. Functional measurements--engineering, manufacturing, marketing, finance, employee and plant community relations, and legal.
3. Measurements of the work of managing--planning, organizing, integrating, and measuring (General Electric's definition of the work of a manager).

In developing operational measurements, a search of specific areas for which measurements should be designed was attempted. When a tentative area was being investigated to see if it were vital to the organization, the following test question was applied:[87]

> Will continued failure in this area prevent the attainment of management's responsibility for advancing General Electric as a leader in a strong, competitive economy, even though results in all other key result areas are good?

[87] *Ibid.*, p. 30.

Within operational measurements, the project leaders concluded that there were eight areas of such vital importance to the welfare of General Electric as to merit the development of measures for each of them. The eight key result areas as developed by Fred Borch and subsequently reconfirmed by Lewis are listed below alongside of Peter Drucker's eight areas in which objectives of performance and results have to be set. The similarity of the lists is striking, but not so striking when it is realized that Drucker was, during the early '50's, one outside consultant assisting General Electric in the Measurements Project, and was, therefore, in close contact with Vice President Harold F. Smiddy, head of Management Consultation Services, Fred Borch, and Robert Lewis, as head of the Measurements Project.

General Electric's Key Result Areas[88]	Drucker's Major Objective Areas[89]
1. Profitability	1. Profitability
2. Market Position	2. Market Standing
3. Productivity	3. Productivity
4. Product Leadership	4. Innovation
5. Personnel Development	5. Manager Performance and Development
6. Employee Attitudes	6. Worker Performance and Attitude
7. Public Responsibility	7. Public Responsibility
8. Balance Between Short-Range and Long-Range Goals	8. Physical and Financial Resources

Profitability

Profitability is considered by many, especially

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[88] *Ibid.*, pp. 30-31.

[89] Drucker, *The Practice of Management, op. cit.*, p. 63.

economists and accountants, as well as the less sophisticated public, as the ultimate measurement of business performance in our competitive, free economy. Drucker[90] sees two other purposes for profits: not only is it the ultimate test of the performance of a business, but it also is "the risk premium" which covers the costs of staying in business and market risk. And, thirdly, profits make possible the funds for expansion and research--for self-financing out of retained earnings or for providing inducement for new outside capital.[91] He goes on to correctly note that

> none of these three functions of profit has anything to do with the economist's maximization of profit. All these three are indeed "minimum" concepts--the minimum of profit needed for the survival and prosperity of the enterprise. A profitability objective, therefore, measures not the maximum profit the business can produce, but the minimum it must produce.[92]

Thus, as one of the many measurements of business performance, profitability has value; that is, value is derived if we understand what profitability is measuring and what it is not measuring. Used as the only measure of business performance, profitability will distort and be forced to do something it is incapable of doing.

In any business enterprise, profits are produced by the combination of capital and work. There has been a tendency to consider profits in relation only to the capital invested; hence, return on invested capital has been a time-honored business measurement of performance.

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[90]Peter F. Drucker, *The New Society* (New York: Harper and Row, 1950), Chapter 4.

[91]Drucker, *The Practice of Management*, *op. cit.*, pp. 70-77.

[92]*Ibid.*, p. 77.

A high rate of profit in terms of invested capital is a sure way of attracting new outside capital. However, any perceptive manager realizes that the efforts of the organization, that is, the work performed, in combination with the invested capital produces profits. Since an executive manager has the responsibility to change the relationships and amounts of both, he is interested in measuring the results of his action. In complex large organizations, as is General Electric, with numerous and diverse product lines, the manager must weigh not only the physical resources utilization among the various businesses or product lines, but also how the human resources should be utilized.

The stockholder's point of view is that of maximization of profits in relation to his investment. The shareholder's only contribution is his investment; therefore, it is only natural that he measure the profits of the business in terms of earnings in relation to his investment.

When General Electric sets up a profitability index it is in answer to the question, "What profitability index gives a properly weighted consideration to both capital and work, as seen by the share owner and executive manager?"[93]

From the viewpoint of the executive manager and share owner, General Electric developed indexes of profitability under the criteria that profitability measurement must recognize the contributions of both capital and work. The Measurements Project, after studying the problem, developed four criteria which the firm has

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[93] *Measurements Project, Part II, Operational Measurements Key Result Area No. 1: Profitability* (Schenectady, N.Y.: General Electric Company, Budgets and Measurements Service Department, Accounting Services Division, January, 1954), p. 3.

followed since 1954. The four criteria for profitability measurement are:[94]

1. Does the index recognize that capital investment has contributed to the profits?
2. Does the index recognize that the work performed by the business has contributed to the profits?
3. Does the index recognize the corporate "facts of life"?
4. Most important, will the use of the index work to guide decisions in the company's best interest?

The third and fourth criteria point out that the measurement index must possess the following characteristics:[95]

It should be realistic.

It should be understandable.

It should have the confidence of operating management.

It should be consistent with the organizational philosophy.

There are a number of methods of computing a figure called "profit." Such terms and relations as (a) controllable profits, (b) incremental profits, (c) real economic earnings, and (d) book profits as recorded under conventional accounting procedures are all some type of "profit" figure. General Electric concluded that the "book profit" concept was and still is most appropriate for measuring the performance of its business.

It is easy to understand why the controllable profits and incremental profits were discarded as an overall measure of the performance of the business or product line. For under these two concepts only the "controllable"

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[94] *Ibid.*, p. 4.

[95] *Ibid.*

or "variable" costs are deducted from revenue to arrive at profit and this is not realistic in terms of the third criteria, that the corporate "facts of life" must be considered. A business must be held responsible for the "non-controllable" or "fixed costs" as well.

Real economic earnings, which are, simply, book profits adjusted to a replacement cost basis, was discarded as a proper measure of business success for two reasons. First, the theory of replacement cost is unreal in that it is unlikely that existing facilities will be replaced in kind; and, secondly, there is no practical method of computing replacement cost values on which there is general agreement as to its validity. Therefore, the economic earning concept would not be consistent with the "facts of life" and would not have the confidence of the operating managers.

It must be remembered--and, hopefully, General Electric understands--that operating managers will inevitably try to make profit decisions that will improve their results in terms of the profits measurement selected. That is to say, if the measurement index is "the ratio of profits to X," then the manager will strive to make this index look good. While the "ratio of profits to Y" is also important to the business, it, too, should be incorporated as an index by which results are to be measured. This must be the thinking of General Electric as more than one index is used as a gauge. General Electric uses book profits as the general type of index for internal control of product lines in the operating units. It has three indexes of book profits which are: (1) Residual Dollar Profit, (2) Percent Residual Dollar, (3) Profit to Contributed Value.

To understand how these indexes are used as control mechanisms and the value which can be or is attributed

to them, a look at the conventional book profit indexes is of value. In looking at conventional indexes of profitability for strengths and weaknesses, profitability should also be evaluated, as General Electric did, in terms of the four criteria which the firm set up.[96]

The following measurements of profitability are used by some firms:

1. Total Dollars of Profit
2. Percent Profit to Sales
3. Rate of Return on Investment (ROI)
4. Percent Profit to Contributed Value
5. Percent Profit to Value Added
6. Percent Profit to Total Employee Costs
7. Percent Profit to Professional Employee Costs.

Each of these methods to measure profits and to control the work of product executive managers has merit; yet, there is weakness in each which must be understood if proper evaluation and measurement interpretation is to be expected.

Total dollars of profit is usually dismissed by accounting texts as a sound control measure. It can be dismissed because it does not fulfill two of the four criteria: it does not recognize capital investment, nor does it distinguish between the work of the business itself and that of its suppliers. Yet, it is important. Dividends are paid out of profit dollars, as Robert Lewis aptly puts it, "Dividends are paid from profit dollars--not ratios--and for complete concentration on maximizing profits, there is no better index than Total Dollars of Profits."[97]

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[96] *Ibid.*, Sections I and II.

[97] *Ibid.*, p. 7.

Percent profit to sales is a popular accounting favorite, yet it also fails to recognize capital investment. This is important because if percent profit to sales is used as the sale index, it would encourage the business to improve its percent to sales by using depreciation as the only determinant in deciding investments in plant and equipment. It would encourage the overlooking of inventory and other working capital. By the second criterion, the ratio does not distinguish between the work of the business and its suppliers because it measures profit in relation to the market value of the combined efforts of the vendors and the business. Percent profit to sales could dampen the incentive for the more profitable business to grow. A department with a profit ratio of seven percent to sales will add new products on which it can make eight percent, while a department with a ratio of twelve percent will tend to turn down products on which it expects to make eight percent. Thus, the total company might tend to expand in the least profitable direction, because each department has a different yardstick or goal.

The most widely used index of profitability is the rate of return on investment (ROI). It is especially important as a measuring and control device because it relates profits to the capital invested in the business and, therefore, gives an accounting of the effect of managerial decisions to the shareholder's interests. ROI does reflect the contribution of capital; that's its design. On point number two, however, it muddles the contribution of the firm with its suppliers. Also, it may force concentration on short-term profit returns at the expense of the long run. ROI has the effect of averaging down the over-all company rate of return, just as the percent profit to sales does, as previously mentioned.

The rate of return (ROI) index is subject to the criticism that each profit center or division tends to regard its own current rate of return as the criterion against which to measure investment decisions with the result that a decentralized firm will have as many different criteria as there are profit centers. John Dearden emphasizes this point in one of his attacks on the ROI in the *Harvard Business Review:*[98]

> In a decentralized company, there may be wide variations in the rate of return expected from the different divisions. It is not uncommon, for example, to find divisional rates of return on investment varying from zero (or even a negative rate) to as much as 30% after taxes. This situation creates a problem because the division with the 30% profit objective will be worse off for undertaking any capital project that earns less than 30%, while any return at all on a project will benefit the division with the zero profit objective.

This means that the possibility exists that a high return division may well turn down investments on which a greater return could be realized than on other investments being added at the same time by a low return division. General Electric feels that the capital charge concept will overcome this problem found in the Rate of Return Index (ROI) by the mere fact that all department profit centers will evaluate decisions against the relatively simple criterion of whether or not the result of decisions will be to increase dollar profit beyond an amount needed to cover the capital damage.

Residual profit has the advantage of greater sensitivity in that it declines more slowly, proportionately, than does the rate of return (ROI).

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[98]John Dearden, "Limits on Decentralized Profit Responsibility," *Harvard Business Review*, Vol. 40, No. 4 (July-August, 1962), p. 82.

Exhibit 3-3, an appendix to this chapter, illustrates this point.

The measurements team researched each operating component (division) for the years 1951 through Budget 1954, comparing results in terms of the proposed indexes under the firm's conventional indexes (i.e., percent net income to sales, return on investment, residual dollars, profit and percent residual profit to contributed value). The results are shown in Appendix Exhibits 3-4 and 3-5. The comparison showed that in the majority of instances residual dollar profit (RDP) and rate of return (ROI) reacted in the same manner--that is, when ROI increased, RDP increased and when ROI decreased, RDP decreased. But the survey found over twenty instances in which the indexes conflicted--ROI decreased while RDP increased. It was felt, from evaluating the conflicts found, the residual dollar profit was an index showing a better indication of profitability than was rate of return, and it would encourage growth and expansion.[99]

The last four measures of profitability--Percent Profit to Contributed Value, Percent Profit to Value Added, Percent Profit to Total Employee Costs, and Percent Profit to Professional Employee Costs--all have major drawbacks. The percent profit to any one of the selected bases tends to regard depreciation as almost a sole determinant for the decision to invest in plant and equipment. It overlooks the tie-up of capital in inventories, plant and equipment, and receivables. All four fail to meet the fourth criterion--guidance in operating decisions. General Electric says:[100]

> (An) area of weakness for all these indices is the undesirable effect that any "measurement by ratio" tends to have on growth and

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[99] *Measurements Project, Part II, op. cit.*, p. 37.

[100] *Ibid.*, pp. 24-25.

> balance. . . .Briefly, we feel that if a "ratio" measure is the sole criterion of profitability, decisions will be made by each business in terms of the effect that the decision will have on the particular business' current ratio without consideration of the dollar profits involved. The business with a high percent profit to contributed value, for example, would tend to turn down proposals which yield a lower profit ratio than that currently earned even though the lower ratio might be higher than the company-wide average.

After an exhaustive research on possible indexes of profitability, the measurements team developed two indexes which are basically out-growths of several of the indexes mentioned above. The project team recommended the use on a company-wide basis of:

1. Residual Dollar Profit as a primary index
2. Percent Residual Dollar
3. Profit to Contributed Value as secondary index.

These were recommendations, as the project was a Services Division Study and, therefore, could be used only as a suggestion to the line or operations divisions. Also, with a true decentralization philosophy, the executive group felt that operations must have the final say on how they should be measured. Maurice Mayo, presently manager of general accounting in the New York office, claims that even today there are no uniform measuring devices and that the only reason for having some accounts kept in uniformity is for tax purposes.[101]

Examination of these measurements is helpful in order to understand how they act as control devices. Residual Dollar Profit[102] is an index which represents

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[101] Interview with Maurice Mayo, Manager--General Accounting, New York, July 30, 1969.

[102] The following is taken from the previously mentioned *Measurements Project* report on *Profitability* (January, 1954).

the net book profit minus a capital charge. That is, Federal taxes (normal tax and surtax) shall be deducted from income to give net book value.

The capital charge will be expressed as a percent of each department's average net investment, and it is recommended that it represent *a minimum acceptable return after taxes* (normal tax and surtax only). It is desirable that the charge be set as closely as possible to the point at which discontinuance of the business will be considered. The implication will be that a business which is not returning the capital charge and has no prospect of doing so over a reasonable period of time is an unsatisfactory one from the viewpoint of Executive Management and the Share Owner and, therefore, consideration should be given to its discontinuance.[103]

The measurement project team considered four figures as possibilities for the capital charge.[104] These figures are taken as factual through 1953, but not necessarily the same as would be used through 1970. The four possibilities were:[105]

13-1/2% - the historical average of GE's rate of return since 1929; more recently, it has approximated 18%

10% - the estimated current cost to GE of equity capital; in other years it might range from 8% to 25%

5% - the minimum rate of return under the Incentive Compensation Plan as approved by the share owners

1-1/2% - the approximate cost of debt to GE, ranging from 3% to 4% before taxes. (Obviously, much too low in today's tight market.)

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[103] *Ibid.*, p. 27.

[104] Parenthetically, it should be noted that three of these figures have never been released by the firm, nor is it possible to figure them from accounting data as released by General Electric.

[105] *Measurements Project* report on *Profitability*, *op. cit.*

The measurement project team recommended five percent as the minimum acceptable return on investments as it was three times what was then the cost to borrow funds from outside and about half as large as the cost to float equity capital. Also, it was the figure proposed by the Board of Directors, and accepted by the stockholders, as the minimum acceptable return which the company must earn before management shares in profits through the incentive compensation plan.[106] Naturally, the recommended rate would change through changes in the environmental conditions.

The secondary index, Percent Residual Dollar Profit to Contributed Value, is a ratio with half of the ratio centered on contributed value. Again, contributed value is simply the difference between sales revenue and the aggregate cost of materials and parts ("direct material") purchased from others for incorporation in the finished product for resale. The subtracting out of the cost of purchased raw materials and parts is sensible according to the theory of "value added in manufacturing" accounting.[107] Drucker wrote on this subject as follows:[108]

> The single major cost category that is usually clearly identifiable with respect to a specific product is irrelevant to the revenue contribution and to the share of the cost burden. This is the cost for purchased

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[106]This is not to imply that the shareholders are not *rubber stamps* for management, for they are!

[107]Walter Routenstrauch and Raymond Villers, *Budgetary Control* (New York: Funk and Wagnalls, 1957), p. 158. Also see Harold Bierman, Jr., and Allan R. Drebin, *Managerial Accounting: An Introduction* (New York: The Macmillan Company, 1968), pp. 224-247.

[108]Peter F. Drucker, *Managing for Results: Economic Tasks and Risk-Taking Decisions* (New York: Harper and Row, 1964), pp. 29-30. Perhaps the example is drawn from General Electric.

raw materials and parts. A simple example--taken from a company making small electrical household appliances such as toasters, coffee makers, and flat irons--will illustrate this:

> Purchased materials and parts account for sixty percent of the manufacturer's price in the case of product A, for thirty percent in the case of product B. Both sell the same volume. Profit margin is ten percent of manufacturer's price for both products. Both therefore are believed to do equally well. But actually the manufacturer makes one dollar in profits for any three dollars worth of his own resources and efforts invested in product A; he has to spend six dollars worth of his own resources and efforts to make one dollar on product B. If both products had a ready market for a larger output at the same price, though the manufacturer had resources to expand only one, he would get twice as much additional output by putting his resources into product A rather than into product B. An additional unit of product A requires only thirty dollars worth of resources against a requirement of sixty dollars for product B. He would therefore get twice as much profit through expanding product A rather than product B.

The question might and should arise, do the indexes meet the four criteria as set out by the company? The fact is that no one index meets the criteria, but the double index approach does.

The first criterion is the recognition of capital investment, which is met by the Residual Dollar Profit index, to use General Electric terminology, or the more common name of "value added" approach. As was previously stated, most indexes tend to encourage decisions which consider only operating costs and to overlook the tie-up of capital in inventories and other assets. Using a fixed minimum acceptable capital charge overcomes this.

The second criterion, recognizing the work of the business, is also satisfied by the two indexes. The

residual dollar profit index alone does not fully recognize the work of the business. Even when the percent residual dollar profit to contributed value is used, it is not a full measure of performance. General Electric feels, "It is the best available measure of the value placed by the marketplace on the combined human and machine effort expended by the business."[109]

Recognition of the corporate facts of life is the third criterion and General Electric's subjective judgment is that the two indexes show just that and that they will have the confidence of operation managers. Lewis reports, "In our opinion the concepts which we are recommending approximate, as closely as is practicable, what the facts would be if each business were a separate corporate entity."[110]

The last criterion, a guide to making decisions in the company's best interests, is met according to the firm, although some outside accountants might take issue with this.[111]

The residual dollars profit index encourages concentration on improving the dollar profit rather than the improvement of ratios. "Under the proposed index," claims the measurement project team, "management will be encouraged to make decisions which will improve *dollar* profit rather than the ratio to selected base."[112]

Residual dollar profit index has the inherent drawback that many managers may believe that the attainment

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[109]*Measurements Project, Part II, op. cit.*, p. 30.

[110]*Ibid.*

[111]Harold Bierman, Professor of Managerial Accounting, Cornell University, has mentioned some disagreement with General Electric's overall accounting methods, interview, August 12, 1969, Ithaca, New York.

[112]*Measurements Project, Part II, op. cit.*, p. 31.

of the percent of net investment at which the capital charge is fixed represents a satisfactory performance. To avoid this, the measurement team suggests that it should be made clear that:[113]

1. The capital charge is a minimum acceptable return.
2. Any business (profit center) which cannot see its way clear to meet this "subsistence level" of return will be carefully studied as to whether we should continue in that business.
3. The *standard* of profit performance will be expressed as Dollar Residual Profit; i.e., the dollars of profit *above* the capital charge.

With establishment of the concept of residual dollar profit and the secondary index--percent residual dollar profit to contributed value--General Electric next faced the problem of setting standards. The method of measurement is only half of the first step of control. Once the method is determined, the problem of what is considered par for the course must be faced. Setting standards is at least as difficult as developing the measurement itself. Standards are judgments--subjective goals based on forecasts. Standards are tied to budgets. Companies do not or should not start with a rate of return and work back. They start with a forecast of what can be expected in sales and what, therefore, is needed for sales and inventory. Then the cost is evaluated. This is an oversimplification of budget preparation, but the point is that ultimately all the planning is converted into dollars and a standard of performance is produced by examining the inputs and outputs of each item contributing to the end result. Lewis writes, "And in the final analysis you must exercise judgment as to what is the optimum you can expect under the particular set of conditions

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[113] *Ibid.*, pp. 33-34.

with which you are faced."[114] The particular standards as used today are of no importance to this study, even if they could be published. The particular index standards are not important; only how they are developed and used is of significance.

It should be restated, and the project report emphasized, that the proposed indexes did not overcome one important weakness. A weakness of all known indexes is that they help develop a desire to realize immediate profits at the expense of future profits. For as many years as any person interviewed can remember, when preparing annual budgets, General Electric executives have forecasted for at least five years. Of course, there may be slight resemblance between actual results for 1974 and a budget for 1974 prepared in 1969 because of environmental changes. But management must subjectively, at least, not let the standards pressure them toward present profits at the expense of the future. The discussion on this subject will be expanded when we look at key result area No. 8, "Balance Between Short-Range and Long-Range Goals."

Market Position

The second area of control for operating managers is in the measurement of market position. Market position measurements reflect the total business. It is a measurement of "the acceptance of a company's products and services by the market and thus reflects the value of the company's products, its distributing and promotional policies, and its technological contributions."[115]

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[114] *Ibid.*, p. 36.

[115] "Excerpts from the Measurements Project," (New York: Measurements Services Department, Accounting Services Division, General Electric Company, January, 1954), fourth page (pages unnumbered).

Therefore, measurement of market position is essential in order to receive indications of progress being made toward the attainment of growth and leadership which are two of the company's objectives (see Appendix 3-12 for GE Objectives).

Although the marketing function may have a predominant interest in the measurement of market position, the results achieved are dependent upon the contributions of all the functions. Marketing must be properly understood as the only revenue producer of the operational functions; the others are all cost centers.

Management's first responsibility is for the survival of the enterprise. It is having the right product, at the right price, at the right place, at the right time, with a public having this knowledge which ensures the survival of the firm. Which means that the final focus for business activity has to be the end customers. This is a well-recognized marketing concept which is described as "a way of managing a business so that each critical business decision is made with a full and prior knowledge of the impact of that decision on the customer."[116]

In the course of testimony before a Congressional Sub-committee in 1949, the president of one of our great American companies said:[117]

> It is the customer, and the customer alone, who casts the vote. . . .The regulations laid down by the consuming public are far more potent and far less flexible than any code of law, merely through the exercise of the natural forces of trade.

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[116]Charles E. St. Thomas, "A Basic Guide to Marketing," *Modern Marketing Thought,* eds. J. H. Westing and Gerald Albaum (New York: The Macmillan Company, 1964), p. 2.

[117]Quoted by Harold F. Smiddy, "The Customer and the Business Process," speech delivered to Rotary Club, Louisville, Kentucky, January 13, 1955.

The object of measuring the market position is to compare a product's actual sales with the opportunity available to that product for making sales. It is a partial control device helping to measure the effectiveness of the management. "The purpose of a business is to create a customer," has been pointed out by Drucker on a number of occasions.[118] The firm sees the creation of a customer as selling a product. The customer sees the other side of the coin; he sees his buying as satisfying a need. Therefore, a firm cannot properly conceive its market in terms of products, but it must define the market according to customers' wants and needs.

Drucker demonstrates that market standing must be measured against the market potential.[119] The measurements team reflects Drucker's belief by recommending that the total market available to a product be the basis for measurement. The measurements team recommended that the total available market be segregated into two major classifications which they designed as served markets and unserved markets.[120] Markets are defined in terms of customer wants or in terms of uses to which the customer puts the products. This is the most intelligent method of defining markets--in terms of customers, rather than in terms of production. As Drucker notes:[121]

> To be able to set market-standing objectives, a business must first find out what its market is--who the customer is, where he is, what he buys, what he considers value,

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[118] Drucker, *The Practice of Management, op. cit.*, p. 37; *Managing For Results, op. cit.*, p. 91.

[119] Drucker, *The Practice of Management, op. cit.*, pp. 65-68.

[120] "Excerpts From the Measurements Project," *op. cit.*

[121] Drucker, *The Practice of Management, op. cit.*, p. 67.

> what his unsatisfied wants are. On the basis of this study the enterprise must analyze its products or services according to "lines"; that is, according to the wants of the customers they satisfy.
>
> All electric condensers may look the same, be the same technically and come off the same production line. Market-wide, condensers for new radios may, however, be an entirely different line from condensers for radio repair and replacements and both again quite different from the physically indistinguishable condensers that go into telephones.

Measuring market position is used as a control to see if the product, through management decision, is in the right market and is satisfying the right customer wants. Of course, the long-term objective of the use of measuring market position is to see to it that management has chosen to serve the more rapidly growing markets.

To be able to measure market standing and to set market standing objectives, it is first required to determine what constitutes the market. A market must be defined in terms of a customer want--that is, the use to which a product is, or may realistically, be put by a customer. Competition within each market must be defined in terms of the substitutability of the products available to satisfy that want, as viewed by the customer. This definition of the market does not go as far as Drucker implies it should go. He shows how a Cadillac is mainly bought for prestige satisfaction and that Cadillac competes for the customer's money with mink coats, jewelry, vacations, and other prestige satisfiers.[122] Nonetheless, General Electric has recognized what many firms have missed, that the market must be measured from the customer's point of view, from the use to which the product is put.

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[122]Drucker, *Managing for Results, op. cit.*, p. 95.

Leading from the customer viewpoint, General Electric recognized the Total Market Concept; that is, taking as a starting point the customer and his wants. General Electric is usually credited with pioneering the modern marketing concept on which many marketing instructors have centered their courses (and many have misrepresented this simple concept).[123] All companies give at least lip service to the Total Market Concept, but Drucker notes that,

> a good deal of what is called "marketing" today is at best organized, systematic selling in which the major jobs--from sales forecasting to warehousing and advertising--are brought together and coordinated. . . .But, its starting point is still our products, our customers, our technology. The starting point is still the inside.[124]

General Electric is organized by product departments; therefore, in that company's case, the

> Total Market consists of those customers wants that can be satisfied by products within *the assigned scope of the department*, whether or not the department is presently marketing products designed to answer those wants.[125]

Further breakdown of Total Market is made by use of Served Markets and Unserved Markets. Served Markets represent customer wants which a department is striving to serve and Unserved Markets are "those the department *can* serve under its assigned product scope but does not. . . ."[126]

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[123]E. Jerome McCarthy, *Basic Marketing: A Managerial Approach*, Revised Edition (Homewood, Ill.: Richard D. Irwin, 1964), pp. 35-36.

[124]Drucker, *Managing for Results*, *op. cit.*, pp. 93-94.

[125]*Measurements Project Operational Measurement, Key Area No. 2: Market Position* (Schenectady, N. Y.: General Electric Company, April, 1956), p. 5.

[126]*Ibid.*, pp. 5-6.

An illustration of served and unserved markets appropriate to General Electric can be found in the lighting equipment business, or "lamp business," in company jargon. Here, for example, the department scope is such that it is permitted to sell both street lighting fixtures and searchlight fixtures. It is obvious that the customers wants of the two are different and represent at least two distinct markets, although the production skill may be exactly the same. If the department decides to sell only street lighting fixtures, that is its Served Market then its potential searchlight fixtures customers constitute its Unserved Market.

Extending the example, the department may elect to sell only one size of street lighting fixtures while other manufacturers are marketing models in several sizes. The Unserved Market would include sales not made to customers who buy sizes not produced by the firm.

There is a strong reason why a firm must measure its Unserved Markets for it is another measure of management decisions. Management made the decision to cater to certain wants and not to others. Sometimes it was not an explicit decision by management to avoid a market but rather management never considered entering. Whatever the case, whether a market was missed through management decision or through lack of insight, the effect of (or lack of) the decision must be ascertained. For this reason, both Served and Unserved Markets--that is, retained markets and foregone markets--must be measured.

A third measure of marketing is used by General Electric. This is the Industry Market, which is really a sub-classification of Served Markets and Unserved Markets. This particular measurement is weak, and if it gains dominant position as a measurement stick it will hide the true customers from the firm. Industry Market is oriented

to a specific type or family of products, rather than to a customer wants, and it includes, as competitive products, only those which are essentially the same as General Electric's. The company says:[127]

> In many of the markets in which our departments may participate, the products of more than one industry compete to satisfy the customer wants which that market represents. Because of the fact that in some of these instances it is unlikely that we would engage in the marketing of non-electrical products, it is imperative that we be constantly alert to the relative status of electrical and non-electrical products in the market place (i.e., stoves and refrigerators both are sold in electric and gas models).

This measurement is most irrelevant as a device to measure the effectiveness of managerial decisions. Industry Market is measuring the answer to the wrong questions. It is worried about the question, "Where is our market?" The proper question is, "Where is the market?" Once a firm allows itself to believe that its products are fulfilling customer wants by thinking that its particular industry has tied up the wants, then it may be rudely awakened some day to find another industry has "stolen" the market. This is reminiscent of the waxed paper industry, which found that the aluminum and plastic industries had found a way to satisfy the same customer wants.

From the above understanding of market position, the measurement team recommended two measurements for this key area: (1) measurements of the department's position, and (2) measurements of respective positions of the Industry and Served Markets in which the department is performing.[128]

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[127] *Ibid.*, p. 8.

[128] *Ibid.*, p. 19.

It should also be noted that the primary yardstick is Ratio of Department's Sales to Served Market Sales. This particular measure is an attempt to measure market position. Thus, products sold by manufacturers in other industries are often found to be competitors. Because of this somewhat broader concept of market for General Electric "businesses," most product lines found that their percent of share of market was lower than it was under the older, narrower, and more traditional concept of the market. When General Electric first thought of changing to a wider base definition of "market" in 1956, it said:[129]

> . . .a business (department) now showing a market share of 50 percent, based on its present definition of market; they, using our definition, end up showing only 10 percent. . . we have to re-educate ourselves as to what is good *standard* within the framework of the measurement index.

Figure 17 gives the recommended market position measurements. It should also be noticed that in addition to the above mentioned measurements, the measurements study team also suggested the use of: (1) the estimated competitive rank within the Served Markets and Industry Market, and (2) the estimated share of these markets secured by leading competitors. Naturally, such measurements can only be educated guesses.

The measurements of market position only measure market position; they are not measures of the total marketing function. They, taken singularly or totally, are not measures of "marketivity"[130]--which must include marketing costs, or at least some estimate of marketing inputs, such as storage, moving, administrative costs, and

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[129] *Ibid.*, pp. 20-21.

[130] Marketivity is a term coined by Saul Silverstein, and is used for marketing as productivity is used for production.

FIGURE 17

MARKET POSITION MEASUREMENTS

Measurements of the department's position

Primary Measure:

Ratio of Department's Sales to Served Market Sales

Secondary Measure:

Ratio of Department's Sales to Served Industry Market Sales

Measurements of respective positions of the Industry and Served Markets in which the department is Participating

Ratio of Served Industry Market to Served Markets

Ratio of Served Markets to Total Market

Supplemental Measure

Customer surveys to measure customer opinion of department's products and service performance

Source: *Measurements Project Operational Measurement Key Result Area No. 2: Market Position* (Schenectady, N.Y.: General Electric Company, April, 1956, p. 19.

so forth. General Electric does not consider marketing costs in any of the market measurements. Marketing costs are only part of the cost used in the figuring of profitability.

To understand how the market position measurements are used, the study on Key Area No. 2: Market Position, which has heretofore not been published, offers useful illustration. Figure 18 is a condensation of the illustration from the study and has been updated somewhat.[131]

Figure 18 allows an understanding of the measurements systems developed by General Electric. This measurements system enables a better understanding of one aspect of how top management controls department managers through a subjective interpretation of objective or quantifiable market variables. You will note that the department's position in terms of percent of Served Industry Market shows an improvement from 15 percent to 20 percent between 1968 and 1969, and from 20 percent to 25 percent between 1969 and 1970. Sales have also increased from $60,000 to $75,000 over the same period. But, the picture is not so bright when an examination of the Industry Market is made. This shows a rapid decline from $400,000 to $300,000, or from 57 percent of the Served Markets in 1968 to only 38 percent in 1970. This indicates that, while the department's position appears to be fine, the industry as a whole has badly declined.

Looking at the share of Served Market, we find a more accurate picture of the department's position. When measured against all competitors, its position has improved very little, from 8.6 percent to 9.4 percent, despite the improvement in sales volume for the department. The

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[131]Key Area No. 2, *op. cit.*, pp. 23-35.

FIGURE 18

ILLUSTRATION OF MARKET POSITION

	1968	1969	1970
Department Sales	$60,000	$70,000	$75,000
Served Markets			
Industry	$400,000	$350,000	$300,000
All other	300,000	400,000	500,000
Total	$700,000	$750,000	$800,000
Unserved Markets			
Industry	$100,000	$200,000	$300,000
All other	200,000	250,000	300,000
Total	$300,000	$450,000	$600,000
Total Markets			
Industry	$500,000	$550,000	$600,000
All other	500,000	650,000	800,000
Total	$1,000,000	$1,200,000	$1,400,000
Department Position			
% of Served Industry Market	15	20	25
% of Served Markets	8.6	9.3	9.4
Industry Market			
% of Served Markets	57	47	38
Served Markets			
% of Total Market	70	63	57

Source: The illustration is a condensation of the illustration from the *Measurements Project Operational Measurement Key Result Area No. 2: Market Position* (Schenectady, N. Y.: General Electric Company, April, 1956), pp. 23-25, and has been updated somewhat.

"all other" portion of Served Markets indicates that while the Industry portion has been declining, the non-industry portion has increased substantially.

Completing the picture, we shall look at how the Served Markets of the department stand in relation to the Total Markets available to the department. The Served Markets' share of Total Markets has declined from 70 percent to 57 percent, obviously showing that the Unserved Markets have been growing faster than Served Markets.

The Measurements team concludes:[132]

> We think that information of this kind is important to a manager not only in informing him on his position in the various markets but even more importantly in pointing up trends affecting the long-term interests of the department and, through the department, the company. A presentation of the actual sales of the various markets, coupled with a projection of potential sales, will be a valuable guide to advance planning and establishment of objectives.

The company literature is always quick to point out that these measurements are used to help managers understand what is happening and, equally as important, to help them evaluate their own managerial decisions. That is in line with their overall corporate philosophy of self-evaluation. A cornerstone of GE's decentralization philosophy is self-development--it allows for what General Electric has long preached, self-control. It also allows for a more quantifiable control from above.

Productivity

Productivity is the third key area of measurement for managers of operations. As an economic term, it is the relationship of output of goods and services to the

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[132] *Ibid.*, p. 25. This concludes the illustration.

resources, or inputs, consumed in their production. For the national economy, productivity is more frequently measured as the amount of output per unit of labor input. But labor is only one of the many factors contributing to output. The contribution of capital, or technology, and of knowledge, are frequently overlooked in economic folklore as to their effects on productivity. It has only been since the pioneering work of Simon Kuznets that the factors of productivity other than labor have received a great amount of consideration among the economists.[133] Drucker, when discussing the economic advance of the last hundred years, claimed, "There has been no increase in the 'productivity' of labor."[134] There most likely are many who would disagree, but the fact is that almost all productivity increases can be attributed to application of advances in our knowledge. General Electric believes, "the bulk of the increases in productive efficiency comes from technological advances, creative innovation in products, and attendant progress in products, materials, facilities and methods, and in organization of the work."[135] It is the responsibility of a manager to plan, to organize, and to integrate these many different factors. It is the manager's responsibility to lead or motivate the employees to increase productivity. Productivity is a proper measure of a manager's success since he is the coordinator of all the factors affecting productivity.

General Electric has not finished its research on how to measure productivity, but when the research is complete, the conclusions should add another yardstick by

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[133]Peter F. Drucker, *The Age of Discontinuity* (New York: Harper and Row, 1959), p. 151.

[134]*Ibid.*

[135]"Productivity," *Relations News Letter* (New York: Relations Services, General Electric Company, August 1, 1960), p. 1.

which managers can evaluate themselves and others. The preliminary investigation has brought up some worthwhile insights to productivity as a control device. The indexes of productivity for an economy as a whole are computed by the relation of G.N.P. to total man hours worked. In developing an index of productivity for the firm, the figure of Sales Billed may be looked upon as the counterpart of G.N.P. (output). Therefore, for a firm, productivity is the relationship between Sales Billed and employee man hours. General Electric has found other factors which may express productivity--output against input--and each has merits. A listing of the factors which may show productivity includes the following:[136]

Output	Input
Sales billed	Man hours worked
Units sold	Payroll dollars
Value added	Equivalent man hours
Manufacturing cost	Floor space
Units produced	First cost of Plant and Equipment

There are other possible indexes which have been developed. Sales billed as a measure of output is weak and could be misleading as the firm may decide to buy materials in an advanced stage of fabrication or subcontract the manufacture of various component parts of a product. This would have no effect on sales billed, but man hours worked would be reduced and "productivity" would show a substantial improvement.

The measurements project team has been seeking to develop an index which would do two things:[137]

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[136] *Measurements Project, Part I, op. cit.*, p. 12.

[137] *Ibid.*, p. 13.

> (1) measure improvement in the productivity of our operations as distinguished from improvement contributed by our suppliers of materials, and (2) broaden the input base so as to recognize that capital as well as labor contributed to improvement in productivity.

Hoping to recognize the value capital plays in conjunction with labor, General Electric began to study the possibility of using "value added" as a basis for determining productivity. "Value added" is defined by the firm as sales billed less the cost of goods and services purchased from other producers whether incorporated in the end product or consumed in the operation of the business.[138] Value added is, in fact, what the company now uses as a basis for productivity.[139] To avoid confusion, it should be mentioned that another possible basis is "contributed value." This is not used by GE. "Contributed value" is sales billed less the cost of goods or services actually incorporated in the end product only. On the input side of the ratio, GE has thought about using payroll dollars plus depreciation dollars as the input factor. Thus, productivity would be the ratio of value added to the sum of the two dollar figures. Both the input and output figures would be expressed in constant value to make it possible to see trends.

These have been the preliminary recommendations of the measurements project team which is now only beginning a thorough investigation of the area as a sub-project.

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[138] *Ibid.*

[139] This was brought out in each of the following interviews: Hugh Estes, Organization Planning Consultant, July 30, 1969; Maurice Mayo, Manager--General Accounting, July 30, 1969; G. Richard Shoemaker, Manager--Marketing Planning--Computers, July 30, 1969.

Product Leadership

The fourth type of measurement developed for the firm is Product Leadership. Again, this measurement reflects the performance of the business or product line as a whole and should not be interpreted as a measurement of any one function. Product Leadership is defined as

> the ability of a business to lead its industry in originating or applying the most advanced scientific and technical knowledge in the engineering, manufacturing and marketing fields to the development of new products and to improvements in the quality or value of existing products.[140]

Two of the members of the team investigating General Electric's first attempt at Measurement of Performance in this qualitative area have been promoted to Vice Presidents. They are Robert W. Lewis as Group Executive of the operational field, Power Transmission and Distribution; and John B. McKitterick as Vice President of the staff field, Planning Development. So, this measurements project team was extremely high powered in terms of corporate administration positions held by the team members.

Product leadership is in the minds of the consumers and not, or should not be, what the manufacturer thinks. Drucker notes, "There is no leadership if the market is not willing to recognize the claim."[141]

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[140]Robert W. Lewis, "Measuring, Reporting and Appraising Results of Operations with Reference to Goals, Plans and Budgets," *Planning, Managing and Measuring the Business, A Case Study of Management Planning and Control at General Electric Company* (New York: Controllership Foundation, 1959), pp. 35-36.

[141]Drucker, *Managing for Results, op. cit.*, p. 44.

This means in terms of what the customers are willing to pay. Product leadership is an economic term and not an aesthetic term, and is used as a measure of two or more products, by different firms. A monopolist cannot have product leadership because the consumer has no choice. The customer, who by preferring one product to its competitor's, gives product leadership.

Therefore, it holds that product leadership should not be measured by the common test, "Share of Market." The reason for this is that, as often found, to get the largest share of the market, companies have to sacrifice profitability--compared to competitors. Thus, instead of getting paid to be the product leader, the firm is having to pay to get leadership. Drucker has found:[142]

> Some small manufacturers, each specializing in one or two special applications of low-horsepower electrical motors, have been doing proportionately better than General Electric or Westinghouse, whose dominant market share forces them to supply all kinds of motors to all customers and for all end users, and who therefore, of necessity, must be marginal or lose money on some lines.

Peter Drucker has a study of product leadership in his *Managing for Results* and he proposes that the following five questions must be asked in analyzing products for their leadership position.[143]

1. Is the product being bought in preference to other products on the market, or at least as eagerly?
2. Do we have to give anything to get the customer to buy?
3. Do we get paid for what we deliver to him as indicated by an at-least-average profit contribution?
4. Are we getting paid for what we think is the product distinction?
5. Or do we have a product with leadership position and with distinction without discerning it?

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[142] *Ibid.*, p. 43. [143] *Ibid.*, p. 44.

The extent of product leadership, or lack of it, has a vital effect on the survival and growth of the firm. In a widely decentralized company such as General Electric, the performance of one department in product leadership may have considerable influence in establishing customer acceptance of the products of other departments of the firm.

Because of the importance of this field and because of the vitalness of this area to managerial decision-making, to properly evaluate a manager's performance, it is necessary to develop a method of measuring product leadership.

Once product leadership has been determined, then the reasons why this position was reached are of paramount importance. For instance, when a department's performance has been judged to be unsatisfactory, the appraisal should include why the department has lagged behind competitors. Did it fail to recognize market requirements; was it unable to solve engineering or manufacturing problems; or were there other causes?[144]

Appraisal of a department's existing products and the similar products of competitors will enable the department to determine how well its products satisfy customer wants as compared with competitors' products. To continue as a leader, company products must be evaluated in terms of strengths--and weaknesses--which will allow the manager to develop offensive action rather than defensive action.

The Electronics Business Development Study[145] of 1955 pointed out the importance of being a leader in

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[144] *Measurements Project Operational Measurements Key Result Area No. 4: Product Leadership* (Schenectady, N. Y.: General Electric Company, April, 1956), p. 2.

[145] *Ibid.*, p. 5.

introducing new technical principles to the market. The study pointed out that when General Electric made a late entry into the market with products which copied the technical principles of other firms, GE seldom achieved product leadership. The conclusion was that product market leadership resulted from leading or at least keeping pace in *introducing* new products to the market. This seems to emphasize that the firm cannot often afford to lag in introducing new products or it will lose leadership. Hopefully, emphasis on being first or early in marketing products will not encourage the premature marketing of new products or product improvement. Of course, the measurement team did point out that delay in entering a market may give rise to lost prestige, reduced volume, and less profits resulting from the time advantage given to competitors.

When evaluating the leadership of various products, a qualitative evaluation has to be used. But General Electric measures performance, which is a measure of past managerial decisions, by appraising the firm's existing products to determine:[146]

1. How they compare with competitors' products and with General Electric standards.
2. The source of the research on which the products are based.
3. Whether the basic product and subsequent product improvements were first introduced by General Electric or by competition.

In conjunction with the second point, Ted Quinn, long-time head of General Electric's lamp department, was able to say in 1953,

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[146]"Excerpts from the Measurements Project, *op. cit.*

> I know of no original product invention, not even electric shavers or heating pads, made by any of the giant laboratories of corporations, with the possible exception of the household garbage grinders, developed not by the Research Laboratory but by the engineering department of General Electric . . . .The record of giants is one of moving in, buying out, and absorbing the smaller creators.[147]

Oddly enough, Drucker was to write a decade later, "General Electric seems to have had little luck with the businesses it acquires."[148]

In considering the factors to be evaluated in product appraisals, the measurements project team working on Key Result Area No. 4 determined that it was necessary to establish groups of basic factors that could be used for any product to be evaluated, since a detailed set of criteria could not be developed to fit the numerous diverse products of the firm. With that in mind, the team suggested that products be subjectively appraised for performance, features, and attractiveness, and the following outline was suggested as a guide for evaluating each product.[149]

1. *Performance*--how well the product accomplishes its required function.
   a. *Technical characteristics*--such as efficiency, sensitivity, accuracy, capacity, and rating.
   b. *Operating cost*--cost of operating and maintaining the product during its economic life.
   c. *Reliability*--availability for consistent and dependable performance.

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[147]Theodore K. Quinn, *Giant Business: Threat to Democracy* (New York: Exposition Press, 1953), p. 117.

[148]Drucker, *Managing for Results, op. cit.*, p. 115.

[149]*Key Result Area No. 4, op. cit.*, pp. 13-15.

d. *Durability*--ability to withstand conditions of use and environment.

e. *Life*--length of time the product renders satisfactory performance.

f. *Disturbance level*--undesirable output, such as noise, light, vibration, and heat, produced while operating under normal conditions.

g. *Safety*--freedom from hazards of a functional nature under operating conditions.

h. *Uniformity*--consistency with which the product meets its performance characteristics.

2. *Features*--aspects of the product's design that are not necessarily essential to the performance of its function but which increase its salability.

   a. *Physical characteristics*--such as size, weight, shape, and finish.

   b. *Special functions*--additional applications for which the product may be used which are secondary to its stated function.

   c. *Ease of installation and servicing*--aspects of the product's design and use of common or standard parts that facilitate the installation or servicing of the product.

   d. *Range of use*--degree to which the product may be adapted easily to different operating conditions or requirements.

   e. *Accessories*--supplementary devices that may be incorporated in or added to the product.

   f. *Interchangeability*--degree to which the product may be replaced in whole or in part with the same or a similar product or part.

   g. *Convenience*--ease with which the product may be used.

   h. *Safety*--freedom from hazards of a non-functional nature.

   i. *Packaging*--type of crating or boxing used from the standpoint of facilitating the handling, displaying, and installing of the product.

3. *Attractiveness*--aspects of the product and its package that appeal to the senses.

   a. *Styling*--harmony and timeliness of such factors as shape, texture, color, and finish.

b. *Compatibility*--degree to which the styling blends with its surroundings and other products.

c. *Construction*--evidence of good design and workmanship.

d. *Uniformity*--consistency with which the product meets specifications for such factors as shape, texture, color, and finish.

Each product department will have to exercise judgment in weighting the various factors and making them fit the particular market.

The point is that each product must be critically examined to determine its relative strengths and weaknesses from the standpoint of "appearance design, functional design, ease of manufacture, ease of maintenance, quality, and value per dollar as compared with accepted General Electric standards and with competitors' products."[150]

Each department must determine standards from the standpoint of the customer, for General Electric claims that the customer sets the standards. This view would prevent a product from looking superior on paper by being "over-engineered" beyond the desires of the market. Standards must be set by sampling the market at regular intervals to ascertain what the customer wants in way of performance, features, and attractiveness in products and also in terms of what the customer is willing to pay. The results of these surveys will help develop standards against each product which can be appraised to determine the "leading product."

It is easy to see that General Electric is developing a true control structure in this area. First, it has set objectives--to have leading products. Second, it has organized the particular measurements--performance, features, and attractiveness in the eyes of the consumers.

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[150] "Excerpts from the Measurements Project," *op. cit.*

Third, it has set standards--although they are flexible and subjective, they are standards.

Separate standards must be developed for each market because General Electric correctly defines products, not from the manufacturing needs, but from the customers' needs. For a product doing well in one market may be weak in another market. General Electric says,

> Based on survey results. . .and the informed judgment of the department management, weighted numerical values may be assigned to the various factors of performance, features and attractiveness (depending upon the relative importance of each in a particular market) to arrive at a product standard.[151]

For determining the overall rating for each product, the products should be evaluated from the standpoint of how they compare with the standards based on market requirements. Some evaluation can be expressed in numerical terms and some evaluation must be expressed subjectively. Qualitative measurements, when used correctly, can be as useful as quantitative measurements. The inability to express some inputs in absolute numerical terms should not detract from their use as evaluation aids.

Appendix Exhibits 3-6, 3-7, and 3-8 show how General Electric recommends to each department general manager how he can show product leadership so that it is easy to understand and exceptional cases can be easily seen. Such a profile makes the process easier to control through management by exception.

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[151] *Key Area: No. 4, op. cit.*, p. 19.

Personnel Development

Personnel development[152], Key Result Area No. 5, is another part of management which is future oriented. Edwin Flippo said that there are two general principles of executive development: one, all development is self-development; and, two, an effective organizational climate must be established if the program is to be successful. He also adds, as a corollary, that it is a long-range process.[153] He then goes on to discuss coaching, job rotation, special courses, and so forth, and how they fit into an executive development program. That is to say, he demonstrates how the company organization, a manager's superior, and outside stimuli affect self-development. What Flippo and most of the other "self-development" advocates are saying is that self-development requires a great deal more than the "self." Ronald Shuman has pointed out, "that 'development' *does* involve superiors. It is not, or should not be, wholly a matter of individual or self-development on the part of the

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[152]The most concise definition of General Electric's method of personnel development is found in Harold F. Smiddy, "General Electric's Philosophy and Approach for Manager Development," *General Management Series No. 174* (New York: American Management Association. 1955). Also see Gerald L. Phillippe, "Management Training at General Electric," *The Controller*, Vol. XXIX, No. 8 (August, 1961). General Electric has also published, for internal use only, the following books: *Manager Development Basic Principles and Plan* (1954), *Manager Development Guidebook I, Managerial Climate* (1954), *Manager Development Guidebook II, Self-Development Planning* (1954), *Manager Development Guidebook III, Manager Manpower Planning* (1954), *Manager Development Guidebook IV, Manager Education*(1954).

[153]Edwin B. Flippo, *Principles of Personnel Management* (New York: McGraw-Hill Company, Inc., 1960), p. 218.

subordinate."[154] Or, as Drucker has noted, the organizational climate, the structure, the standards, the managers, must be so designed that it motivates the individual to self-development. That is, the organization must have systematic, focused, and purposeful self-training.[155]

General Electric defines personnel development as, "the systematic training of managers and specialists to fill present and future needs of the company, to provide for further individual growth and expansion, and to perpetuate corporate existence."[156] It, therefore, includes programs in the functional fields--engineering, manufacturing, marketing, and finance--as well as broad programs aimed at developing an understanding of the process of managing. The programs are designed to provide a continuous flow of managers, enabling the filling of all the needs of the company.

To understand the formal training programs, a look at the control measurements may throw some light on the subject. One approach to measuring the effectiveness of company-sponsored personnel development programs consists of inventorying managers and functional specialists to determine where they received their training; i.e., as graduates of company programs, had no organized training, or were hired from outside the company. Such inventories, taken yearly, would give *some* indication of coverage of company-sponsored programs. Other measurements would be to determine what and how many weak areas are found in the organization, which could have been forecasted. That is to say from forecasting corporate

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[154]Lecture, Ronald B. Shuman, Professor of Management, University of Oklahoma, Norman, Oklahoma, April 24, 1967.

[155]Peter F. Drucker, *The Effective Executive* (New York: Harper and Row, 1967), pp. 166-174.

[156]*Key Area: No. 4, op. cit.*, p. 21.

needs in the past, how many of these needs did the program properly fill. Another measurement of the effectiveness of personnel development programs is the degree of progress achieved by employees who were graduates of such programs.

The first step in the operation of an orderly and successful personnel development program is to determine the needs, present and future, of each part and at all levels of the company, for each management position. Such a forecast would be a master plan of manpower requirements for each department and show the department's managers own needs and the needs of other departments--which are frequently filled by interdepartmental transfers and promotions. Robert Lewis notes, "Each department would have to receive some guidance with respect to the number and quality of individuals it would be called upon to supply to other components."[157]

Figure 19 shows a simple manpower chart developed in 1952 for the next decade. After a more elaborate manpower schedule is developed, the next step involves the conception of plans as how to satisfy the needs--how each department will get the number of qualified managers and specialists. This entails the looking at individual department development programs, overall company programs (usually sponsored by service organizations), the availability of individuals from other departments, and the desirability of hiring outside talent. When this is finished, it is up to the departments to tell the Services Division what its needs are from the service-sponsored programs.

Control is difficult in this area, as the objectives, the forecasts of required personnel, are future oriented and only in ten or twenty years after the fact can a

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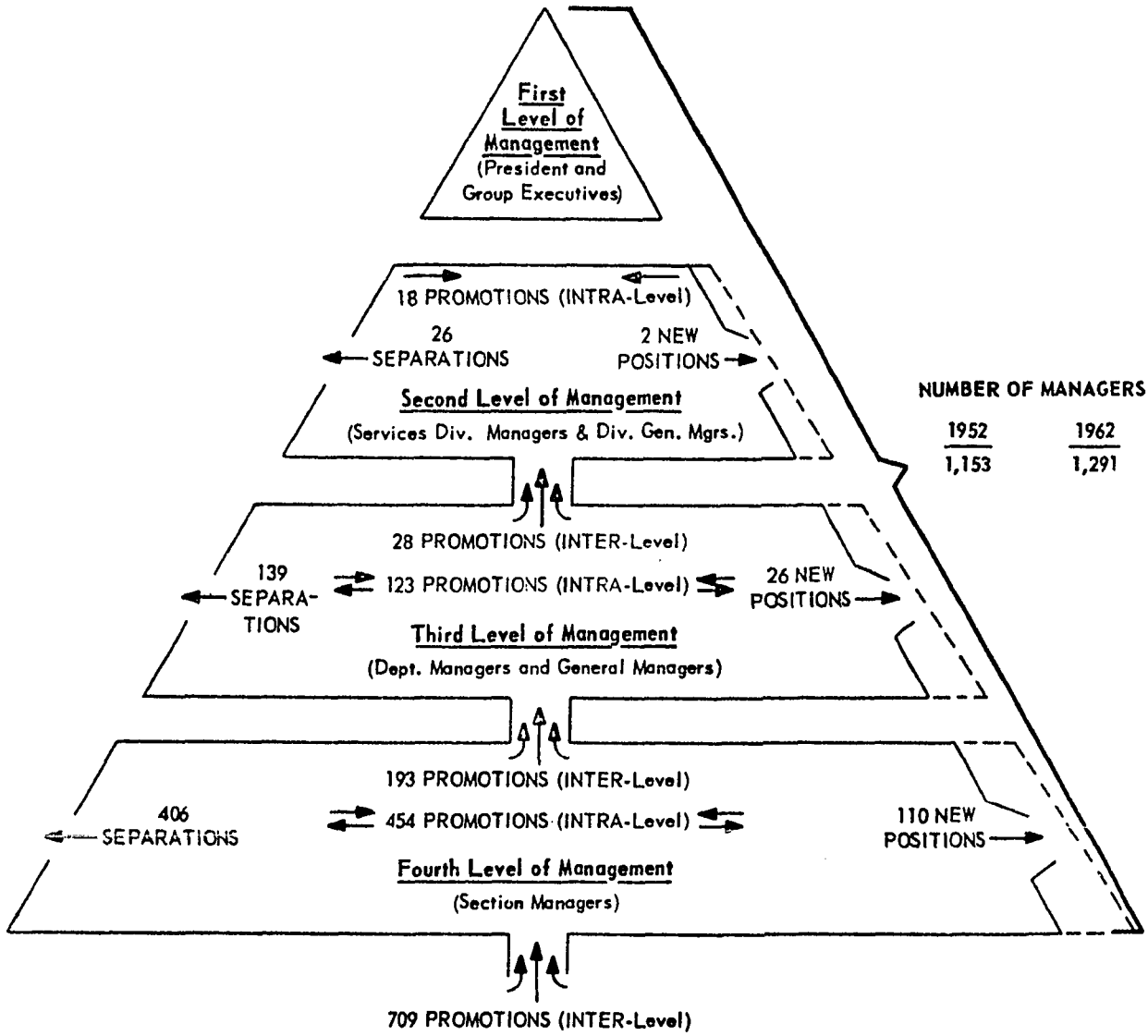
[157] *Ibid.*

FIGURE 19

GENERAL ELECTRIC

ANALYSIS OF MANAGERIAL MANPOWER REQUIREMENTS
FOR SECTION MANAGER AND HIGHER POSITIONS

1952 through 1962



Total Separations (deaths, resignations, disabilities and retirements)..... 571 (50% of Present Incumbents)

Promotions – Inter-Level..... 930 (80% of Present Incumbents)

Promotions – Intra-Level..... 595 (52% of Present Incumbents)
(64% of Inter-Level Promotions)

Total Promotions..... 1525 (132% of Present Incumbents)

program be properly evaluated. This train of thought will be explained when a discussion of control of services is made.

Harold Smiddy, a great advocate of self-development, was the designer of one of General Electric's major formal development programs. He has made some interesting points worth noting on management:[158]

> First of all, we can't engraft talent and ambition onto the personality of someone who hasn't got them. But we can create a favorable climate and give guidance to the man of ability who is his own self-starter.
>
> In the second place, the process of natural selection--the idea that the good man invariably realizes his potentialities and rises to the top or toward it--just doesn't pan out. In our case, it has produced too few managers too late.
>
> Moreover, we think that the practice of management is ahead of its codification. We are continuing research into method and motivation for a ten or even twenty year pull. Meantime, the responsibility for developing men using the knowledge already at hand, is written into the job assignment of every GE manager.
>
> Perhaps the most provocative--and important--idea on which we're proceeding is that managing should be regarded as a distinct type of work, with its own disciplines, its own criteria for achievement, something which is both learnable and teachable.

At General Electric it is not a major job requirement for a manager to train and develop those below him. Management development is more self-development than lead-development, although the company has an extensive system of formal training programs. The company's official policy is that, "a manager has the responsibility

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[158]Herbert Harris, "3-Year Study Shows How Managers are Made," *Nation's Business*, Vol. 44, No. 3 (March, 1956), pp. 90-91.

for appraising the strengths and the weaknesses of each man who reports to him for *suggesting* 'on-the-job' and 'off-the-job' plans for *self-development* by each individual." (Emphasis added.)[159]

Why is self-development emphasized over the more traditional belief that developing subordinates is an integral part of every manager's job? After a discussion with Ralph Cordiner on November 7, 1951, Lemuel R. Boulware formally asked Harold Smiddy and Management Consultation Services to undertake a study to determine the company's needs for development of managerial manpower and to formulate a plan to meet the needs. From 1951 through 1956 Harold Smiddy led a research study into the factors that make for executive proficiency. The study was begun by informal talks with officers and managers of the company. These were followed by talks with representatives of leading corporations, by study of writings about management development, and by participation in related sessions of the American Management Association and the Society for the Advancement of Management. Then, more than three hundred General Electric people were consulted covering all of the components, and finally, twenty-seven managers from department managers and above spent two days developing a plan of attack for the study of management development. The study then became extremely high powered, using top company executives and outside personnel. McKinsey and Company, the Psychological Corporation, and private consultants were gathered for the study. Peter Drucker and Ewing Reilley (of McKinsey) and Moorhead M. Wright

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[159] *Professional Management in General Electric Book Three. . ., op. cit.*, p. 89.

(GE) headed the coordination of the study.[160] Herbert Harris, staff writer for *Nation's Business*, commenting on the study, said,

> The study also demonstrated that you can't count on a man to get ahead just because he has talent, that experience alone doesn't insure capability on the job, that management is a distinct skill, and that the practice of management is far ahead of its translation into rules and procedures.[161]

The study also brought forth the need for self-development. This is not truly self-development, for it combines self-education with management coaching and with organized training programs. It is the policy of the firm that

> responsibility for manager development is accordingly a responsibility of each man as an individual and as a manager. As an indi-dual he has the responsibility for his self-development; as a manager, he has the responsibility for the development opportunities and challenges of the men under him.[162]

Position guides for managers include responsibility for manager development as inherent in each manager's job, although not a major part of the job, and as an important consideration in evaluation of the incumbent's performance. The words "teach, advise, counsel" can be found in the position guides of all managers at General Electric, including the position guide for the Chairman of the Board and Chief Executive Officer. That position guide, developed for Cordiner, states,

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[160] *Manager Development Study: Basic Report on Manager Development Plan* (New York: Management Consultation Services Division, General Electric Company, July, 1953), pp. V-VI.

[161] Herbert Harris, *op. cit.*, p. 90.

[162] *Management Development Study, op. cit.*, p. 2.

> The primary measures of the Chairman of the Board and Chief Executive Officer's performance will be:. . .The quality of managerial leadership in teaching, advising and counseling officers and General Managers. . . .[163]

Harris termed the General Electric study as "perhaps the most elaborate management development project of any in U. S. industry."[164] From the original study, extensive organized training programs were developed which are now in use at General Electric. These training programs have more than one objective. Besides the normal objective of producing competent managers and specialists for new positions and as replacements for posts vacated, the programs also seek to assist the executive to function more effectively in his present position and to correct any narrowness of outlook caused by overspecialization of function and provincialism of corporate background. "No company, no industry, can afford to let managers just happen,"[165] says Smiddy. To back up each department's personnel development programs, General Electric set up two programs under Smiddy's Management Consultation Services: a decentralized "Professional Business Management Course" and a centralized "General Electric Advanced Management Course." The Advanced Management Course was given at the General Electric Management Research and Development Institute at Crotonville on the Hudson, some thirty-five miles north of New York City. The company's attitude is similar to that found behind the excellent programs of Standard Oil (N.J.), Sears Roebuck, General Motors, and others. The General Electric program is much

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[163] "Chairman of the Board and Chief Executive Officer Position Guide," 4/24/58, *General Electric Organization and Policy Guide*, pp. 6-7.

[164] Herbert Harris, *op. cit.*, p. 90.

[165] *Ibid.*

broader than other corporate programs and may be considered similar to the Harvard MBA program.

The Crotonville Management Research and Development Institute, known in the press as "General Electric U." or "GE College," is situated on the estate of the late Harry Arthur Hopf, a pioneer management consultant. The original course was designed in 1956 by such men as Smiddy, Drucker, Marc A. deFerranti, Edward Kemble, Earl Brooks, and Frank Gilmore, currently director of Cornell's Executive Development Program.[166] Set up like an accelerated MBA Program, originally the course extended for thirteen consecutive weeks, with classes meeting five and one-half days a week; the eighty executives who attended were permitted one weekend at home during the course.[167] The first semester had most of the course designers as lecturers, as well as Ralph Cordiner, Robert Paxton (GE), Dr. Lillian Gilbreth, Lemuel Boulware, Norman Maier, Gerard Swope, and Chris Argyris.[168] Other semesters have seen Lyndall Urwick, Myles Mace (Harvard), Douglas MacGregor (MIT), Paul Mills and Gerald Phillippe (GE) and William Newman (Columbia).[169] The eighty students were selected by their immediate superiors, came from three levels below the president's office down to the section manager level. During the time of the course the students were completely detached from their work, with full salaries. The cost for tuition, room and board was $2,500 per man and charged against the divisional or departmental

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[166]Personal letter from Frank F. Gilmore, November 25, 1964.

[167]Joseph M. Guilfoyle, "General Electric U.," *The Wall Street Journal*, Vol. CXLV, No. 104 (May 27, 1955).

[168]Interview with William J. Greenwood, Darien, Connecticut, November 29, 1969. Mr. Greenwood was on the same program with Mr. Swope.

[169]Guilfoyle, *Ibid.*, and letter from Lt. Col. L. F. Urwick, June 24, 1969.

budget, ensuring that the division or department would send only those who would profit from the course.[170] In 1956, the Institute began a nine-week course with about three hundred graduates a year. By 1961, this course had a two-year backlog of nominated students.[171] Going to Crotonville became something of a status symbol; this was a consequence that the firm did not want to happen, yet it seems to have been inevitable.

The curriculum has changed greatly over the years, but it can be termed "multi-functional." Such specialized courses as finance, marketing, accounting, and so forth, are left to other training programs--those within departments or those run by special staffs. The Crotonville courses concentrate on management theory and economic, social, and political issues. Originally, the Institute stressed decentralization with such specifics as how to write and interpret policies, and how to administer salary systems. By 1960 the emphasis shifted to the business environment.

In 1961 the school shut down to reorganize the curriculum and it reopened in January of 1964 with new courses and with a larger number of students. Hugh Estes said at the time, "It is bigger than ever, and we run more people through it."[172] The new curriculum is covered by a thirteen-week course. The new course spends five weeks on "perspective and environment" and four weeks on "strategy and action for the total enterprise."[173]

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[170] *Business Week*, March 4, 1961, p. 51.

[171] "GE Institute Near End of Run--Now What?" *Business Week*, March 4, 1961, p. 50.

[172] Interview with Hugh Estes, New York, July 30, 1969. Mr. Estes said that the school shut-down was used to redesign the curriculum to match the new needs of the employees.

[173] "Management Training: An Act of Faith," *Dun's Review and Modern Industry*, Vol. 92, No. 6 (December, 1968), p. 49.

The question, for control purposes, "Is the Institute worthwhile?" At the outset, Smiddy said,

> We wouldn't be putting our money into this project if we didn't think it's going to pay off. But it will probably be five years before we know the answer for sure. One way of measuring its success will be to compare the performance of men who've attended the Institute and those who haven't. Studies made so far indicate that executives who've taken courses at Harvard and elsewhere advance much faster than those who haven't had such training.[177]

Five years later *Business Week* evaluated the Institute, saying, "Crotonville has had no measurable impact on the quality of GE's management."[178] No explanation was given on how this conclusion was reached, yet the school is still in existence.

During the seventy-eight years of its history, General Electric has tried out every form of personnel development--from job rotation, to having personnel attend graduate schools of business, to attendance in the firm's own staff college--the first ever created by a company for the advanced education of its own personnel.[179] Yet, the real development is self-development, where a job is designed so that a manager learns from his work, and by proper placement which enables the manager to stretch. "You can keep getting your feet wet around the edges of real managing just so long. Then you have to take the plunge,"[180] says Lawrence E. Walkley, General Electric General Manager.

The rigorous performance appraisal system is a major component of General Electric's development plan every six months. Every subordinate is assessed by his

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[177]Guilfoyle, *op. cit.*

[178]"GE Institute Nears End of Run," *op. cit.*, p. 50.

[179]Harris, *op. cit.*, p. 91.

superior in relation to his work assignment. The work assignment requirements are spelled out in a position guide, which is more specific and detailed than the usual job descriptions. The subordinate is rated on a sliding scale (i.e., outstanding, superior, satisfactory, not yet satisfactory, unsatisfactory) for everything from technical proficiency to emotional stability under pressure. This evaluation will be discussed more fully in the section covering control mechanisms.

Roy Johnson, General Electric Vice President of Executive Development, points out that the Institute is very important to a manager's development, even though the company preaches self-development. Explaining how formal training fits with self-development at General Electric, it is estimated that 90 percent of a man's career development is derived from actual work and the responsibilities derived therefrom; another seven percent is the result of coaching on the job from his superior; and the remaining three percent is achieved through formal training, such as Crotonville, Professional Business Management Course, Business Training Course (Accounting, and so forth).[181]

Employee Attitudes

The Measurements Project issued its report on Key Area No. 6, Employee Attitudes, in January, 1958.[182]

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[180] *Ibid.*, p. 93.

[181] "Management Training," *op. cit.*, p. 46.

[182] *Measurements Project--Operational Measurements--Key Result Area No. 6--Employee Attitudes* (Schenectady, N.Y.: Measurements Service, Accounting Services, General Electric Company, January, 1958).

Although this report has not been published for other than General Electric employees to read, a good description of the basis of the study was published fifteen years ago by two of the collaborators.[183]

This key result area assumes that part of each manager's job is to develop a positive attitude toward the company, particularly from each of his subordinates. Since this morale or attitude leadership is inherent in each managerial responsibility, then the extent to which a manager affects the attitudes of his subordinates should be measured to determine the effectiveness of the manager. Unfortunately, attitude measurement is not easily measured in dollars, although employee attitudes will ultimately affect the balance sheet.

Robert W. Lewis and his measurements study team claim that men bring to their place of employment six specific needs which affect their attitude.[184]

1. The need for compensation and related benefits to obtain or maintain a desired level of living.
2. The need for recognition and appreciation of his accomplishments and of the efforts he expends.
3. The need for acceptance by his associates and his community.
4. The need for opportunity to progress.
5. The need for adequate and safe facilities.
6. The need for security for himself and his family.

Enlightened management, such as Taylor, Follett, and the Gilbreths, long before Mayo, recognized these needs, both material and non-material. Reflecting the

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[183]Willard V. Merrihue and Raymond A. Katzell, "ERI--Yardstick of Employee Relations," *Harvard Business Review*, Vol. 33, No. 6 (November-December, 1955), pp. 91-99.

[184]*Key Result Area No. 6, op. cit.*, p. 63.

social responsibilities of business, managers have attempted to provide working conditions whereby the employees have an opportunity to satisfy their needs. The extent to which a company succeeds in meeting its social responsibility is reflected in part by the attitudes of its employees. The development of employee attitudes of active and willing cooperation, and "of wanting to direct their efforts toward the success of the enterprise,"[185] is of primary concern to the business. Brigadier General Edward L. Munson, Chief of Morale Branch, United States Army, as far back as 1921 said,

> such negative factors as impatience, indifference and lack of interest reveal themselves with mathematical accuracy in the amount of product created. Morale depression thus has the same effect on the individual's productivity as physical defeat.[186]

Earl Brooks, Professor of Personnel at Cornell, says,

> Surveys show that at least four out of five employees who fail to make good on the job have the knowledge and skill to do the work required but they fail because of their unsatisfactory attitudes, interests, and work habits.[187]

Although Brooks has introduced some additional factors, it can be safely stated that employee attitudes are of more than just a passing interest to management.

If management is to discharge its leadership function properly, it must get information concerning the types of attitudes which exist and take the proper action which will result in attitudes favorable toward the company's objectives. To accomplish this, the measurements team attempted to:[188]

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[185] *Ibid.*, p. 4.

[186] Edward L. Munson, *The Management of Men* (New York: Henry Holt and Co., 1921), p. 740.

[187] Earl Brooks, "Getting Results Through Others," unpublished mimeograph used in Organizational Behavior and Theory 120, Graduate School of Business and Public Administration, Cornell University, Fall, 1964, p. 2.

[188] *Key Result Area No. 6, op. cit.*, p. 5.

1. Arrange information in a more orderly pattern so as to facilitate understanding;
2. Give greater assurance that all of the significant information about attitudes will be disclosed;
3. Provide a method of observing changes in attitude over a period of time;
4. Provide a means whereby the relative level of attitudes in one group or segment of an organization may be observed and compared with the level of attitudes of other groups.

Using direct questioning and analysis of statistical data, General Electric developed a measuring system on employee attitudes designed to "isolate a number of broad attitude areas, measure them on a relatively uniform scale and identify them with particular segments of the organization."[189]

The statistical data to be used, in conjunction with direct questioning, relate to:[190]

Tardiness	Benefit Plan Participation
Absence	Accidents
Resignations	Suggestions

In the initial (1955) interim report, grievances and work stoppages were also used as data.[191] These data are known, collectively, as the ERI, employee relations index. The various statistics used are termed indicators of employee attitudes, they reflect behavior that is optional on the part of the employees, such as absenteeism. It is true that some absenteeism is not optional on the employees' part; i.e., illness, court duty, family emergencies, but some absenteeism is optional and used with other indicators; it helps to point out trends. "The behavior at the root

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[189] *Ibid.*, p. 7.

[190] *Ibid.*, p. 93.

[191] Merrihue and Katzell, *op. cit.*, pp. 94-95.

of the statistic should have implications as being either in accord with objectives of the business or at variance with such objectives,"[192] wrote Merrihue and Katzell, two members of the study team.

Several years of work went into getting the statistics, analysis, testing the validity and assigning relative weights to each factor. Using factor analysis on several sets of data covering forty plants and more than six hundred work groups, it was found that the indicators do tend to fluctuate.[193] Merrihue and Katzell add,

> the sensitivity of several of the indicators in the plant-wide analysis was improved when due allowance was made for the influence of certain background variables on some of them (e.g., effects of community growth on separations rate).[194]

This is adding much subjectivity to the study.

Professor Thomas Gilson, in discussing the ERI with William C. Schwarzbek, one of the members of the measurements project, pointed out that the indicators used can be manipulated by managers. Using strong authoritarian threatening pressure on subordinates, absenteeism, turnover, and so forth, can be cut down--for short periods, although in the long run organizational deterioration is likely.[195] This has been also pointed out by many others.[196]

The other half of the employee attitude study is the attitude questionnaire. A questionnaire was developed, tested, and used by General Electric for hourly rated employees. The original study questionnaire contained fifty-six questions covering twelve categories.[197] Appendix

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[192] *Ibid.*, p. 95. [193] *Ibid.*, p. 95.

[194] *Ibid.*

[195] Interview with Thomas Gilson, Chairman, Department of Management, Marketing, and Industrial Relations, University of Hawaii, Honolulu, Hawaii, December 8, 1969.

[196] See Rensis Likert, *New Patterns of Management* (New York: McGraw-Hill Company, Inc., 1961), p. 75.

[197] *Key Result Area No. 6, op. cit.*, pp. 26-28.

Exhibit 3-9 is a copy from the original study showing the twelve categories. The questions related to compensation, working conditions, various aspects of supervision, some features of group relationships, work methods, incentive climate, and value perceptions. After the survey was conducted, the managers, supervisors, and foremen received all of the information on employee attitudes which enabled them to compare the relative standing of their groups to all other groups in the plant or department. Appendix Exhibits 3-10 and 3-11 show how the tabulation of employee attitudes looks. The company has yet to develop a questionnaire for salaried employees, but Lewis suggests the use of questionnaires found in the personnel market.

The two measures, statistical data and questionnaire, are, at best, samples of employee attitudes which give some indication of employee personal satisfactions, preferences, and evaluations, and which also indicate job-related behavior based on personnel statistics. Once the attitude survey has identified significant deviation from what the manager expects, then action can be taken. Expected attitudes are determined by long-term study to determine what is "normal" for such a group and by subjective guesswork. Each manager is to be measured by matching the results of the study against expectations, which are developed as are other objectives, by close work between the manager and his boss.

It was hoped by the measurements team that the attitude survey would be made each year and that it would be used to evaluate the effectiveness of past courses of action allowing for present action to be planned with better predictability of its outcome. In other words, through long years of investigation and measuring of various situations and management actions, certain practices

might emerge which fit the needs of each type of situation, enabling management to identify the best course of action to take for a given situation.

Although the measurements team explains how the attitude survey is going to help a foreman evaluate his work group, the team failed to note adequately that this would be an excellent top management tool to evaluate the effectiveness of middle managers. Each key area was developed for self-evaluation purposes and for top-down evaluation purposes. Since a manager realizes that the attitudes in his group are being quantitatively measured, there is some support to the belief that he will try to develop a group with favorable attitudes toward the company. He will not do this at the expense of profitability or productivity, however, for each manager also realizes that profitability and productivity far outweigh employee attitudes as a measurement device.

Public Responsibility

The seventh Key Result Area by which all General Electric managers are to be measured is public responsibility. Drucker says, "Management is also responsible for making sure that the present actions and decisions of the business enterprise will not create future public opinion, demands and policies that threaten the enterprise, its freedom, and its economic success."[198] General Electric claims to place great emphasis on this area: "Society's appraisal of the conduct of the Company is dependent upon the impressions received as the result of actions taken by all levels of management, including the actions of the

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[198]Drucker, *The Practice of Management*, *op. cit.*, p. 385.

Product Department."[199] Yet, General Electric was involved in thirteen antitrust cases brought by the Department of Justice between 1940 and 1948,[200] and in late 1960 an antitrust price-fixing case became front page reading involving General Electric which gave American business as a whole its worst public relations of this century, perhaps of any century.

Public Responsibility used as a partial measurement of a manager's ability is probably more a measurement of negative responses than of positive reactions toward what a manager does. When public attitude is opposed to the firm, a product, or its managers, and this can be ascertained through employee and public attitude surveys, then corporate counteraction can be applied. Positive acceptance, which is expected, is not so readily noticed; hence, a manager can be adversely affected by measuring his effect on public opinion, but it is unlikely that he will be helped in his overall rating by having strong positive acceptance.

This area presents a major problem if it is used as a control device, for measuring it is difficult, even if it is a subjective measurement. Robert Lewis, in his preliminary study of this area, says:[201]

> We have tentatively concluded that responsibilities to share owners, educational institutions, and areas of government are best measured from an overall company viewpoint rather than from the viewpoint of the individual product businesses. In addition, we believe that there would be little point in trying to measure relationships with customers under the heading

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[199] *Measurements Project, Part I, op. cit.*, p. 29.

[200] U. S. Senate, Committee on Judiciary, *Price Fixing and Bid Rigging In the Electrical Manufacturing Industry*, S. Res. 52, Part 27, 87th Cong., 1st Sess., 1961, p. 16509.

[201] Robert W. Lewis, *op. cit.*, pp. 39-40.

> of "public responsibility". . .the effectiveness of the way in which the product businesses fulfill their responsibility to their customers is best measured by "market position". . . .

Public responsibility is the part of a manager's job which involves the realization that the job and the job holder are part of a corporate body. A corporate body, like General Electric, is an institution, a citizen and a major factor in the society in which it lives. What society and the nation believe also has a great impact on the corporation. Large corporations are in great measure responsible for many of the great gains in our society. Society and the country are its customers, owners, and employees.

Lewis, in his report on this key area, said, "We may confine ourselves to the. . .obligation of the corporation: to conduct itself as a good citizen within society."[202] This was just six years before the price-fixing case broke, and a year in which price-fixing was occurring within General Electric according to testimony offered in the now-famous Philadelphia trial.[203]

It has been suggested by a number of people, among them Senator Estes Kefauver, that decentralization within General Electric helped to foster the price-fixing stemming from the loss of control.[204] Cordiner answered under oath

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[202] *Measurements Project, Part I, op. cit.*, p. 29.

[203] Richard Austin Smith, "The Incredible Electrical Conspiracy, Part I," *Fortune*, Vol. 63, No. 4 (April, 1961), p. 137.

[204] Richard Austin Smith, "The Incredible Electrical Conspiracy, Part II," *Fortune*, Vol. 63, No. 5 (May, 1961). Also see "General Electric and the Price Conspiracy Cases," Northwestern University, School of Business, 1962, Intercollegiate Case Clearing House, No. ICH 9 G 146 and William Harris, *op. cit.*

that he believed, "the decentralization has nothing to do with antitrust violations."[205] Cordiner retained former President of General Electric, Charles Wilson, to investigate the president's office and any other part of General Electric he wished in an effort to determine guilt.[206] From Wilson's investigation and from other reports, the firm made extensive efforts to prevent future violations and to promote good public relations by having an educational campaign for the employees and by introducing different or additional auditing systems.[207] The question, of course, is why didn't the traditional auditing methods catch the violations, some of which had occurred intermittently for three decades? This problem will be discussed in Chapter V in more detail.

Balance Between Short-Range and Long-Range Goals

The eighth and last Key Result Area in measuring a manager's managerial ability is his ability to properly balance short-range and long-range goals. To be consistent with the listing of the various control devices used by General Electric, this eighth key area has been included in the discussion of the measurements project. The company has not, as yet, developed a research report for this area, although when it is developed it will necessarily be a highly subjective measurement. This area is, in fact, interwoven with the other seven measurement areas. Lewis says:[208]

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[205] U. S. Senate, Part 28, *op. cit.*, p. 17723.

[206] *General Electric Company Annual Report 1960*, p. 22.

[207] *General Electric Company Annual Report 1961*, p. 22, and *General Electric Company Annual Report 1962*, pp. 24-25.

[208] Lewis, *op. cit.*, p. 41.

> As a practical matter, we have decided that our approach will be to consider the "balance between short-range and long-range goals" as an integral part of the development of measurements in each of the first seven key result areas, rather than as an area separate and distinct in itself. Upon completion of the measurements program in the other seven areas, we plan to summarize the specific recommendations which relate to the proper balance between goals in order to assure ourselves that consideration has been given to this important factor.

From this statement it can be deducted that any measurement in the other seven areas must consider both long-range and short-range goals, however defined.

The eighth key result area is essentially different in nature from the other seven and might be treated as a major element of each of them.

The reports from the eight key result areas project represent the foundation for further operational work measurements, functional work measurements, and managerial work measurements.

Other than a cursory look at these eight key areas, as found in the eleven pages of a Controllership Foundation booklet published in 1955, no other known discussion can be found distributed outside the company. The key to the entire control function at General Electric under decentralization is found in how these key areas are designed and administered. Employees affiliated with this project do not admit that the reports have been issued on all of the areas. It is known that each area was thoroughly investigated and reported with the issuing of highly secret reports which have been closely guarded by the company as high security items of information. When questioned as to the availability of these reports, more than one high-ranking executive made it abundantly clear that the firm was not about to let any

outsiders peer at the contents of the reports. The profitability report is considered especially private as it contains penetrating analyses of the internal mechanisms of the company, and could be competitively damaging if the report were to become publicized. Reports were issued on the following key result areas: Profitability (report issued January, 1954); Market Position (April, 1956); Product Leadership (April, 1956); and Employee Attitudes (January, 1958). It was stated, off the record, that a key result area report has been issued within the past two years, so perhaps all areas have yet to be reported.

Measurements of the Work of Management

The entire statement on this subject is contained in the four paragraphs below which is all that the measurements project team has written, to this date. It is the understanding of Harold Smiddy that a fifth book in the Professional Management in General Electric series was issued on this subject.[209] General Electric did organize a Book V in 1960 but claims that the draft was discarded or destroyed; it was never published, and Hugh Estes, Organization Planning Consultant, now responsible for publications of this nature, indicates that if it ever were to be published it would all have to be redone. He also indicated that probably it never would be published.[210] Therefore, the following is taken in whole from the Measurements Project's overall report:[211]

> Measurements in the third sub-project, the work of management, also seem to us to be contingent upon the measurements developed in the

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[209] Interview with Harold F. Smiddy, Cincinnati, Ohio, August 25, 1969.

[210] Personal letter from June C. Starck, October 8, 1969.

[211] *Measurements Project, Part I, op. cit.*, pp. 41-42.

operational and functional areas. In the final analysis, the work of management must be measured in terms of actual performance in all areas in comparison with the standards set for those areas.

However, since managing is a distinct and professional kind of work, we believe that a balanced appraisal requires in effect that we back off and take a separate look at the quality of the job that has been done on planning, organizing, integrating and measuring in each of the Key Result Areas. If this kind of appraisal is performed separately, we feel that the chance of obtaining a balanced, fair, and objective evaluation is considerably enhanced.

At this point, it appears that the most useful device for measuring the work of management is of a qualitative nature, that is, a check list of questions directed at pinpointing strengths and weaknesses under each of the elements of management. Such questions must be constructed within the broad background of actual results in the operational and functional areas and must be designed to evaluate the work of a management team in a given business or a given function rather than the work of an individual manager.

This approach to measuring the work of management could be used effectively immediately following a Business Review, when the Reviewer would have at hand specific evidence on which to base his appraisal. If it is agreed that the most important areas of business performance are those that we have referred to as the Key Result Areas, presumably each business should be planning, organizing, integrating and measuring its activities--short and long range--in terms of these areas. The Business Review, in turn, should then be constructed around the Key Result Areas so that how well the management work has been performed can be evaluated in the light of actual accomplishments.

Functional Measurements

Functional measurements comprise one of the three subprojects organized to formulate a workable measurement or control system. Functional measurements include the work of manufacturing, marketing, financial, and all of

the staff functions, such as engineering, employee relations, community relations, and the legal function. It was expected that the eight key result areas, which constituted the operational measurement subproject, would form the basis on which to build sound measurements of the functional work and the work of management. This has yet to be proven.

The measurements project has concentrated its efforts on exploring the eight key result areas under Operational Measurements, and therefore little has been done to formulate functional measurements other than those which come about through the day-to-day operations of any of the various functional components. Basically, General Electric has concluded that one way of getting at the answers is to analyze each function along these lines:[212]

1. What are the objectives of the function in terms of the business as a whole, or what should the General Manager expect from each function?
2. What are the objectives of each function in terms of the other functions, or what should the General Manager expect each function to contribute to the other functions?

What is expected by General Electric is that each function should be analyzed to see how it relates to other functions; this analysis of each function should be made by functional specialists working with representatives from the other functions.

It was anticipated by the measurements project team[213] that measurements of functional work will be and are highly qualitative in nature. Subjective evaluation--or, more bluntly, "guessed at evaluation"--is the method

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[212] *Measurements Project, Part I, op. cit.*, p. 37.

[213] *Ibid.*, pp. 37-39.

of measuring functional effectiveness. In advancing this viewpoint of functional measurements, it might appear that the measurements project goal of better measurements has not progressed significantly because of the suggestion to rely heavily on the exercise of judgment. Robert Lewis' team replies,

> In our opinion, measurements are designed to supplement judgment, not supplant it. They help to ask the right questions but seldom give answers in themselves. By thinking through the objectives of the functions and establishing for ourselves what we expect a given function to do for the General Manager and for the other functions, we will develop measurements that are just as valid as numerical indexes. We should continue our efforts to develop quantitative measurements but always with the recognition that even quantitative measurements require the exercise of judgment.[214]

The hand that guides the pen of objectivity is most subjective.

Budgets

The method of planning and budgeting and the means for measuring and controlling are considered by many as keys for seeing the difference between "real" decentralization and "lip service" decentralization. John Flowers, Manager of Business Analysis and Cost Accounting Consulting, sees decentralization from the point of view of how industrial budgets are set and measured. He reports that during Swope's reign and by the early '30's, an Appropriation and Budget Committee was organized which consisted of the President and six staff and seven department heads.[215]

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[214] *Ibid.*, p. 39.

[215] Interview with John Flowers, Manager of Business Analysis and Cost Accounting Consulting, General Electric Company, New York, New York, August 5, 1969. These figures may not be correct since in 1947 the firm had four staff vice presidents and six operating vice presidents.

This committee reviewed the operations of all staff areas and operations of the firm. Flowers claims that the firm had little documentation of internal finances other than what the committee might give out from what each department, line and staff, would report to the committee for review purposes. There was no regular required reporting; reports came only when requested. He says there was no detailed breakdown by accounting--at least in the modern accounting sense. During the '30's and '40's, each foreman was given an expense budget broken down by month and by account--this budget did not include items received from central purchasing. Flowers claims the budget was developed at the top of the organization in the Appropriation and Budget Committee and handed to the various Vice Presidents. They broke it down by departments, and each department manager could break his budget down to his subordinates, and so on, until it reached each foreman. This is known as centralized or top-down budgeting. "Foremen were handed a budget; they had to live within it," says Flowers, "and they had to explain variances."[216]

Decentralization changed top-down budgeting. In 1953, position guides or position descriptions began to be written and formulated for all managerial jobs within the organization. These guides stated the responsibility by defining the job, and therefore made the job holder accountable for results. It was now possible to use bottoms-up budgeting. The budget became a joint effort between the manager responsible for results and his supervisor. Total acceptance and implementation of bottoms-up budgeting took about five years, according to Flowers. Bottoms-up budgeting was a great change and allowed decentralization to become a reality, as well as a philosophy.

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[216]Interview with John Flowers, New York, August 5, 1969.

Under bottoms-up budgeting, each manager working with his supervisor developed his own budget, and, because it was his own budget, it was expected that he would try harder to live within it. The manager was held accountable for the results of his own designed budget and any variances would be carefully scrutinized. He was graded on the proper fit of his output against budgeted output, taking into account why a variance occurred; sometimes managers even had to explain why they were on the budget in instances where the environment had changed more than anticipated.

The department level is the corporate level which is evaluated on a profit-and-loss basis; a department is the profit center. Therefore, the manager of a department must budget so that he can produce the best profit or least possible loss. When purchasing was centralized, the Vice President of Purchasing was considered to be a very strong person. Under centralization and top-down budgeting, there was no profit-and-loss evaluation at the department level. These budgets did not include allocations for centralized purchases--which means that items from central purchasing were not budgeted for and were not charged against the department nor its lower level managers. Consequently, if two items were needed from central purchasing, three would be ordered. The desire to have extras ready was rationalized by the fact that the extra, and often unused material, did not "cost" the manager or foreman, but if his workers ruined some of the material and were held up waiting for replacements, the budgeted time allowed for completion of that job would be higher than expected and would cause a variance.

In 1949 the Vice President of Purchasing retired and was not replaced. Purchasing then became decentralized with each department making its own purchases. This gradual takeover by departments of purchasing became

complete by 1953.[217] With the decentralization of purchasing came the concept of "profit centers." Each department, being a "profit center," was evaluated on its profit or loss. This meant that purchasing at the department level could greatly affect the profit or loss of each department. No longer could a department manager allow his foreman to "over-purchase" materials just to play it safe. Now when two items were needed only two items were ordered. Each foreman now was evaluated, among other methods, by how effective or efficient he was with the goods with which he had to work--including what he ordered. Consequently, department managers wanted to hold down unneeded purchases to raise profits or lower losses and foremen could not over-budget because it would make them look inefficient with their inputs.

The concept of bottoms-up budgeting means that budgeting became an operating function rather than a staff function. When budgeting was top-down, budgets were developed by the Appropriation and Budget Committee, a staff organization. With bottoms-up budgeting, budgets were developed by each manager starting at the foreman level, and these budgets were integrated into the budget of the next higher level. This is budgeting being initiated by the operating personnel, and in each case having the authority commensurate with the responsibility.

For clarity, it must be added that when each department level was considered as a profit center (in 1953), each department was naturally given pricing responsibility. It would have been irrational to consider a department as a profit-and-loss center without pricing responsibility.

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[217]Interview with John Flowers, New York, August 5, 1969.

John Flowers notes that from 1950 to 1958 all budgets were proposed in constant dollars.[218] In 1957-58, budgeting changed to current dollars to enable a more realistic figure to be presented.

The budget is the prime control mechanism for day-to-day operations. It allows the rapid identification of any variances in plans which must be explained. Thus, quick adjustments may be initiated.

Most department budgets are derived ultimately from sales forecasts. Managers in manufacturing can figure their production from sales forecasts, thus being able to budget their needs. Of course, this is not the only method of budgeting nor should it be implied that all budgets are in dollars alone. A look at the eight key result areas makes it obvious that managers at General Electric use numerous types of budgets and are measured against each of these budgets. Some of these budgets are less quantitative, and therefore require more subjective judgment than do some other types of budgets.

Flowers, as Manager of Business Analysis and Cost Accounting Consulting, made the following observations as to the role of the Accounting Department. The Accounting Department recommends formats to be used by each department. It makes these recommendations with the aid of each department and can make recommendations as to how and what records to keep only because of the thorough knowledge in the function of record keeping which the Accounting Department possesses, compared with the accounting knowledge within a normal product department. These recommendations, however, are not requirements. How the information is gathered and interpreted is a function of each individual department. The Accounting Department might have, of course,

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[218] Interview with John Flowers, New York, August 5, 1969.

some broad requirements for particular information, such as that needed for Federal income tax and Federal securities regulation reporting. Other than these few needs for centralized accounting procedure, each department develops an accounting system designed for its particular peculiarities. Above the department level in the division and group level, information is in summary form, and therefore much conformity may be detected as there are only about a dozen groups in the firm. Each group Vice President may require his own type of information, but for practical purposes they all end up asking for about the same records.[219] Flowers again emphasizes that budget control is in the line, not in staff. The Accounting Department only helps, it does not dictate; it gathers information which the line tells it to gather. Therefore, budgeting control and reporting is really performed by those who have line responsibility for individual products. He claims that in the 1940's the Accounting Department only kept general ledger information. Today, cost accounting, data processing, information systems, and auditing are all functions of the Accounting Department. These are areas by which the Accounting Department must lend assistance to any operating department which requests help.[220]

The budget for each department must be prepared by April of the previous year. For instance, the 1970 budget is finished by April of 1969. At the same time that next year's budget is being prepared, a four-year budget is also prepared. Thus, General Electric requires each department to budget up to four years ahead.

Capital budgeting is centralized which is to say that commitments over $500,000 could not be made at the

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[219]Interview with John Flowers, New York, August 5, 1969.

[220]Interview with John Flowers, New York, August 5, 1969.

Operating Department level by general managers.[221] The Policy (No. 20.6) for Investments in Facilities lists the following dollar expenditure which may be made without higher approval, as follows:[222]

Dollar Appropriations	Lowest Sole Authority to Grant Approval
1. $500,000 or more	1. Board of Directors
2. Below $500,000	2. Group Executive, Chief Executive Officers, President, Chairman of the Board
3. Below $250,000	3. Division General Manager or at equivalent level, Services Officers
4. Below $100,000	4. One level above the delegated approval for operations meeting criteria

The consensus, as stated by John Flowers, is that bottoms-up or true decentralized budgeting was started about 1953, and this was a reversal of centralized top-down budgeting of earlier years. It was also a change from staff budgeting as practiced by the Appropriation and Budget Committee to line budgeting as practiced by each department. Paul Mills, who had over thirty years' service with General Electric (part of this time as Manager--Finance for the Air Conditioning Division, and twelve years as Manager of Organization Consulting Service), believes that most of the above information is more

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[221] Cordiner, *New Frontiers for Professional Managers, op. cit.*, p. 61.

[222] "General Electric Organization and Policy Guide, No. 20.6, 'Investments in Facilities,'" 6/15/69, p. 2. The area of appropriations must meet criteria set out for each section of the organization. For the criteria in level four, the six-page policy guide lists a broad outline for determining the criteria. A recent policy on investments is reproduced as Appendix Exhibit 3-12.

propaganda than fact. He says, "As far back as 1930-1932, I had a job in General Expense in Headquarters disbursements to help company budget officers put budgets together from all over the company. The underling work was done by departments--those responsible for results."[223]

Conclusion

> Large organizations can be managed not by a single brain, but through coordinated decisions made by many. Just how decisions are to be thus delegated and the resulting actions coordinated is the central question in organization design,[224]

says William T. Morris, in his *Decentralization in Management Systems.* So it is with the design of decentralization in the General Electric Company. Before 1951 General Electric was centralized in the common meaning of the word with committees as the central means for coordination. After 1950 decentralization became the gospel and committees for decision-making were eliminated.

Cordiner did not feel, after his organization study, that General Electric's basic problem was in its huge size, but rather in the diversity of its products.[225] He once said, "General Electric may well be the most diversified company in the world."[226] Therefore, Cordiner

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[223]Interview with Paul Mills, Glen Ridge, New Jersey, August 7, 1969.

[224]William T. Morris, *Decentralization in Management Systems: An Introduction to Design* (Columbus, Ohio: Ohio State University Press, 1968), p. 3.

[225]Rocco Carzo, Jr., and John N. Yanouzas, *Formal Organization* (Homewood, Ill.: Richard D. Irwin, Inc., The Dorsey Press, 1967), p. 59.

[226]Cordiner, *New Frontiers for Professional Managers, op. cit.,* p. 32.

decentralized or fragmented the company into product departments. Each department has relative independence in decisions. Although this plan, in theory, solved many day-to-day operating problems, the decentralization into product or operating departments could have created a coordination and long-range planning problem. The development of the Executive Office with the chief executive officer, group vice presidents and services executives has filled the function of coordination and long-range planning. In terms of control, the executive management, above the operating department, has authority to review and appraise the performance of the Operating Departments.

At the time of the firm's reorganization, Cordiner thought through the philosophy of the new organization over a period of several years, and had its management philosophy documented in book form long before completing his implementation program. Few large firms, even to this day, have attempted to think through and record their corporate philosophy. Paul Mills saw that General Electric, before the philosophy became organized, was moving dangerously toward "an organization without sense of common identity, without a recognition of common objectives, and without a sense of mutual responsibilities and purposes."[227] General Electric, or more specifically, Cordiner, wanted to organize the firm to find out where it was going, to give it common identity, common objectives, and a sense of mutual responsibilities and purpose.

The corporate philosophy is not fully developed. General Electric claims it is still doing "pure research" on management theory and practice. The philosophy

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[227]Paul E. Mills, "Making Decentralization Work: One Company's Experience," *The Management Review*, Vol. XLVI, No. 6 (June, 1957), p. 70.

thus far organized, is a foundation on which the firm operates. The philosophy is a structure to give direction; it is not final, for it is still being tested and redefined. It has proved to be a successful philosophy in terms of the fact that the company has been highly profitable throughout the period in which the philosophy was developed and practiced. The point is that the firm has been actively thinking of the theory, for, as one distinguished writer said: "The man who says he has no time for theory is either using a theory someone else has developed, or even a theory someone else has discarded."[228] The central point is that each company should study its environment so as to evolve a philosophy and structure that is appropriate for each individual company.

The decentralization philosophy was not adopted capriciously, but only after deep debate, long consideration, and extensive research. It was the Special Planning Committee inside General Electric that concluded in 1943 that the firm was going to grow very large after the war and that a complete reorientation of thinking regarding the organization, the structure, and the philosophy of the company was necessary. In 1945 Cordiner, with President Wilson's endorsement, concluded that it was vital that General Electric develop and then adopt a philosophy of decentralization which embraced not only physical decentralization, but also decentralization of authority, responsibility, and decision making. "In addition," notes Smiddy, "it was necessary to develop a top physical structure within the Company's organization which would preserve the Company as a corporate entity,

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[228]Quoted by Harold F. Smiddy, "Actually Doing 'The Work of a Professional Manager,'" (Crotonville, N.Y.: Advanced Management Course, February 21, 1956), p. 13.

assure its future progress and growth in established businesses, and enable it to move forward into new areas of technological, economic, and sociological advancement."[229] The philosophy may seem somewhat obscure, but the result has been to put the responsibility for operational decision-making into the hands of hundreds of managers in the third and fourth level of management, instead of in the hands of a few top executives.

This chapter has attempted to discuss the three-part structure which distinguishes between Operating work, Services work, and Executive work. It has also tried to explain what is meant by decentralization at General Electric, and what is meant by claiming business decisions are made in the line at the product department level.

The last half of the chapter discussed the various measurements developed to control the many managers provided for under the decentralization plan. Chapter IV will discuss problems encountered with these measurements as control mechanisms as they are transformed from theory into practice.

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[229]Harold F. Smiddy, "Basis for the Development of General Electric's Management Philosophy." Remarks to conference at Waldorf Astoria, New York, February 18, 1956, p. 4.

CHAPTER IV

SOME PROBLEMS WITH ACTUAL ORGANIZATION AND CONTROL

This chapter covers General Electric's organizational evolution from a centralized functionalization to a decentralization by product lines, both in theory as well as in practice. The chapter is organized into three sections, but such a structuring is not intended to imply that each section can stand as an entity by itself for each is, in practice, intertwined with the other, forming what might be termed "the General Electric environment." The three sections are used to enable an easier understanding by dissecting the system and allowing a look at some of its components. Although there is a chance that synergism will be lost by this method, it does help research and presentation and, hopefully, comprehension. Section I is "The Organization Structure" as it influenced the people in the organization. Section II, "Control" focuses on the use of: (A) Measurements, (B) The One Result Area, (C) Management By Objectives. Section III, "Appraisal," focuses on the evaluation of the individual and is divided into the following subsections: (A) Measurements, (B) Measuring Services, (C) Appraising the Individual. Under this section the work of Dr. Herbert Meyer will be discussed.

The theoretical foundation upon which the General Electric Company's management and organization philosophy

was established was firmly laid down in documents prepared by its Management Consultation Services. Although the philosophy was thought through and painstakingly implemented, the course followed by the organization was not without problems. For it is people who man, organize, and run an organization. A human organization is never perfect and an organization the size of General Electric has to reckon with the considerable differences of ability, temperament, and integration among people. Charles E. Wilson, who was President of General Electric before the decentralization philosophy was implemented, is said to have had an outstanding personal charisma which enabled him to run an $800 million company. Ralph Cordiner is said to have had "as much charisma as a cold fish,"[1] yet he ran the firm at five times the size. The stated philosophy and organization structure of the firm was of necessity styled to give the individual as much leeway as possible. This allowed the idiosyncrasies of individuals oftentimes to play havoc with the system. Frequently, it has been found that some of the philosophy itself does not seem to reflect the goals of the organization. For instance, it can be stated that General Electric goals are long-range--profit in the long run--yet the control mechanisms employed tend to force managers to emphasize the short run. This point will be expanded in this chapter.

Philip D. Reed, who was Chairman of the Board under both Wilson and Cordiner, says that the two men were quite different, and the type of organization structure required by the company during their reigns had, in consequence, to be greatly dissimilar. "Charley Wilson was an old-time operator who had never been in a truly

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[1]Interview with Thomas A. Gouger, retired Consultant, Management Consultation Services, General Electric Company, Rye, New York, August 24, 1970.

decentralized operation (lamps was the only truly decentralized area before 1950). "This was all right for the 1920's and '30's," says Reed, "we weren't so damn big and complex. We could work with reasonable effort that way (highly centralized)."[2] Cordiner, on the other hand, was termed "a student of organization theory"[3] by Reed. The organizational problems did not seem too serious in the period before World War II, but Reed remembers,

> . . .as we emerged from there the fact we were going to be a billion dollar company overnight struck us. We both (Wilson and Reed) could see a major management problem, not only in dollars but in products--chemical, aircraft, and so forth. We had to do a major job of breaking down an amorphous organization. An organization whose top men were split between New York and Schenectady. We needed a major study of organization and Ralph Cordiner was the best man for that. He spent at least two years doing nothing else other than study the General Electric organization."[4]

Cordiner brought Harold F. Smiddy to New York to plan the new organization. Smiddy came to be, perhaps, the most feared and hated man in the company, while at the same time considered by most who knew him as the most brilliant management theorist in the corporation. As Tom Gouger, Consultant--Management Consultation Services, observed, "you either liked him or hated him; there was no middle of the road. You had to respect his brilliance."[5]

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[2]Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

[3]Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

[4]Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

[5]Interview with Thomas A. Gouger, retired Consultant, Management Consultation Services, General Electric Company, Rye, New York, August 24, 1970.

Smiddy formulated the basic concepts and the organization building blocks about 1951, but few claim that the concept was really working effectively until 1958 or 1960. Smiddy confirms that true decentralization was only beginning to take place at the time of his retirement in 1960.[6] One major reason for this slow attainment of goals was the fact that General Electric had an enormous number of strong charactered managers at the Vice President level. These men blocked many changes and usually didn't want "to give up the business"--that is, they did not want to let go of the reins--the rights to personally direct those profit centers which were removed from one level to two levels below them in the department. These strong men did not willingly release power to their departments, and thus held up true decentralization in practice. Yet Drucker, sounding like the realist he is rather than purist, believes some managers must buck the rules of decentralization once in a while, although perhaps not to the extent found in General Electric. He says,

> For decentralized management to be efficient, it must contain at least a sprinkling of executives who pay very little attention to the rules of decentralization and are inclined toward a rather autocratic "do-this-or-be-damned" attitude. . . .High-handed, arbitrary, even dictatorial behavior may thus be not only no contradiction to decentralization but a prerequisite for its functioning, provided only that such behavior is seen and understood by everybody. . .as an exception and as a deviation from the norm.[7]

Unfortunately, in General Electric the old guard outnumbered

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[6]Interview with Harold F. Smiddy, retired Vice President, Management Consultation Services, General Electric Company, Cincinnati, Ohio, August 23, 1969.

[7]Peter F. Drucker, *Concept of the Corporation* (New York: John Day Company, 1946), p. 75.

the disciples of the new philosophy and were more than just a sprinkling.

General Electric decentralization required an explosive increase in the size of middle management.[8] In 1953, the firm predicted that by 1962 the total employment of the company would be 300,000 employees, of which 108,000 would be salaried people, and 192,000 hourly employees.[9] In 1962, employment actually was only 258,000 workers.[10] The 1953 estimate was 20 percent over the actual requirements of the firm. The error in estimating projected employment for 1962 was caused by the underestimation of future productivity. It had been assumed that the company would produce $5 billion in sales in 1962, and this estimate was very close to the actual sales of $4.8 billion.[11] This means that the productivity per employee was far greater in 1962 than had been planned for 1962.

In the early years of decentralization, sweeping reorganizations of the company were accomplished, but not without a great deal of turnover in employment. With new prime responsibility pushed down on lower level managers, most of whom had not experienced such a burden, many were found not qualified to handle the responsibility, either because of inability or lack of desire to accept

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[8]Edward M. Currie, "The Importance of Human Relations in Decentralization: A Study of GE," unpublished Master's thesis, Iowa State University, 1965, p. 10.

[9]*Manager Development Study, Appendix V, Findings On Quantitative Needs* (Management Consultation Services Division, General Electric Company, April, 1953), pp. A-8, A-9.

[10]*General Electric Company Annual Report 1962*, p. 33.

[11]*Ibid.*

such responsibility. The first years from 1954 to 1958, immediately following the delegation of authorities demanded by the decentralization structure, were disrupted internally because of this high turnover rate. The turnover rate for managerial jobs at this or any other period has not been released, but Vice Chairman Jack S. Parker says the turnover rate was high then but asserts it leveled off after 1958 and is currently not a major problem.[12]

It took quite a few years and much friction before General Electric evolved from a centralized functional organization to one structured on decentralized product lines. When Cordiner was asked why this was so, he replied:[13]

> For one thing, I thought that a lot of the fellows we took from functional jobs and made general managers would respond to the challenge of being measured. I was wrong. I should have realized that you can't expect a fellow who has been running just a part of it to, all of a sudden, be accountable for the whole thing.
>
> In fact, to my surprise, a lot of people who looked good in functional jobs actually asked to be passed by. They didn't want to stick their necks out. A lot of these people and some others came to me and said, "See all the troubles you've caused and the heartaches." Okay, but if I hadn't the company couldn't have gone from $2 billion to $5 billion--and now it's $7.2 billion.

I. The Organization Structure

The picture usually painted by present and past employees of General Electric is one of outstanding

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[12]Interview with Jack S. Parker, Vice Chairman of the Board, General Electric Company, New York, New York, July 1, 1970.

[13]"As I See It: An Interview With Retired General Electric Chairman Ralph Cordiner," *Forbes*, Vol. 100, No. 8 (October 15, 1967), p. 31.

achievement in the organizational areas. Yet some dissent is found among practitioners when they are pressed to describe what changes occurred in the actual day-to-day operations as opposed to what was changed on paper. Paul Mills, who was Manager--Organization Consulting Service when he retired in 1962, when asked what really changed in terms of control, said, "I don't think a damn thing changed. They (General Electric) never lost centralized financial control; it was there before and is there today."[14] Mills had an excellent vantage point to see the control mechanisms in the firm. At the time of his retirement, he was the highest paid non-vice president in the company. His boss, Harold F. Smiddy, was Vice President of Management Consultation Services, and it was the Smiddy team which engineered the organization restructuring from 1950 through 1961. Mills began his association with General Electric in the early '30's and concentrated in Finance, Legal, Engineering Services, and Chemical Manufacturing, along with Management Consultation Services.

It is Mills' opinion that Cordiner and Smiddy failed to make any real control changes, other than the reorganization of the lines on the chart. He believes they "failed because of the internal power struggle wherein about a quarter of a million workers were led by powerful executives in four or five of the main areas (both operational and functional areas)."[15] These strong leaders chose and developed their own select group of extremely loyal, highly intelligent managers. Their loyalty was not to the Company as was hoped for by Cordiner and

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[14]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

[15]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

Smiddy. Mills did not say but others, being assured of anonymity, did emphasize that Cordiner feared most of these strong "characters" who headed up the larger operational groups and functional areas, such personalities as Henry Erben, head of Major Apparatus, and Robert Paxton, Large Transformers, and Walter Baker of Radio, Television and Electronics. Many claim Cordiner had hoped to break down the internal power structure of these men but he failed to do so. Cordiner, it must be remembered, was considered an outsider. He did not come up through the ranks in General Electric. Cordiner came from Edison General Electric Appliance Company in 1932 and left in 1939 to become President of Schick. After war service he again went to work for General Electric as Assistant to the President, at a considerable decrease in pay,[16] and he headed up the Wilson organization evaluation.[17] At 570 Lexington Avenue (head office of General Electric) he was referred to as "the undertaker"[18] or "hatchetman."[19] He was also considered by those at the top of the organization as a loner. Mills believes Cordiner used Smiddy to head the reorganization because Smiddy was a powerful figure by sheer personality and knowledge. But Mills comments,

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[16] Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

[17] "Mr. Wilson at Work," *Fortune*, Vol. XXXV, No. 5 (May, 1947).

[18] *Ibid.*, p. 168.

[19] Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

> Cordiner failed because the reorganization could not break up the loyalty (to particular managers) within the areas. He was unable to redirect this loyalty which had developed over many years to a new managing philosophy called professional management.[20]

Having managers think of themselves as "professional managers" was one goal of the decentralization; the firm's famous four books on management are called *Professional Management in General Electric*. Cordiner's own book is called *New Frontiers for Professional Managers*. There was great effort to try to make the work of managing objective oriented and to break away from past loyalties and narrow viewpoints both in the operational and functional areas.

In a move to destroy much of the power structure found in the Comptroller's Office, Cordiner made Harold A. MacKinnon (head of the powerful Auditing component in Comptroller's Division) Manager of the Component Products Division in 1952, and in 1953 he moved the Comptroller, Donald Millham, to manage the Lamp Division. This allowed Cordiner to place a hand-picked ally, Gerald L. Phillippe, as head of the highly feared and powerful Comptroller's Department. Much later, Cordiner promoted Phillippe to President (1961), and at Cordiner's retirement, Phillippe became Chairman of the Board. It is interesting to note that these moves did not lessen or change the built-in loyalties of the Comptroller's staff, merely shifting their allegiance to Phillippe and not to the philosophy.[21]

To see how and why the Comptroller's office was so powerful and exercised such tight control, we must look

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[20] Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

[21] Interview with Thomas A. Gouger, retired Consultant, Management Consultation Services, General Electric Company, Rye, New York, August 24, 1970.

at its role in the firm. Traditionally in General Electric the Comptroller is head of Accounting Services and reports to the President. The Treasury Department is a totally different organization and throughout the '50's the Treasurer reported to the Chairman of the Board. Within the last five years the Accounting and Treasury Departments have been combined to form Corporate Finance reporting to the Corporate Executive Office. However, before the combination the Comptroller and his Accounting Services were, in company lingo, called the Financier and Finance Department. These titles did not refer to the Treasurer and were not used for official language. It was the Comptroller rather than the Treasurer who planned and determined many of the control mechanisms. The Finance Department, as a service component, had the right and obligation to audit its counterpart in each of the operational groups and divisions. That is to say, the Comptroller's office as a staff or service organization would audit the financial statements and financial component of each product or line group. The Financial Department had this right, from the early 1930's, as far as those interviewed could remember and most likely well before that. At least during the early '30's the Financial Department sent out teams of traveling auditors to every department, visiting once a year and more often in the larger areas. Therefore, it can be stated that from the 1930's forward General Electric had two financial departments, one was the Comptroller's Department with its traveling auditors and the other was the financial staff attached to each product group or line. It must be reported that the financial staff attached to each product group or division was responsible to the manager of the product line and not to the Comptroller and his accounting organization--at least this was the stated structure. It was hoped that the two financial organizations would be

independent of each other and serve as double checkpoints, each checking the product department figures and conformance to accounting policies and practices. But this was not how it worked in practice.

In the '30's and '40's the audit staff from the finance area as well as the audit staff from the product groups would compare the budgeted or planned expenditure with the actual. More will be said on how this budget was developed shortly. Any variances from plans, when discovered by the Comptroller's staff, would be duly noted and filtered to top-level management through the Comptroller's office. Thus, the financial fraternity was respected for ability and feared for results stemming from their visits. The Comptroller had the ear of both the President (Swope, Wilson, or Cordiner) and the Chairman of the Board (Young or Reed). This is one method by which the Comptroller exercised control and power.

The Financial Fraternity

A second source of control and power came through what most call the "financial fraternity." The Comptroller and his associates had the right of appointment (before 1951) or veto (after 1951) of *any* financial manager in any department to assure that the prospective financial manager did meet the standards of the Comptroller. Unfortunately, these standards were not always explicitly stated. One standard was that the manager be a graduate of the firm's Schenectady, New York, Business Training Course, known as BTC. The course is a three-year study of accounting and is considered by General Electric to be the toughest accounting program in the country. Mills says, "Ninety-nine percent of the financial managers in

departments were BTC students (graduates)."[22] Graduates of BTC had been indoctrinated with one accounting philosophy, that of the Comptroller's Department. Graduates found kinship through this common accounting philosophy and BTC. They are, therefore, acting more as a second team of financial auditors for the Comptroller rather than acting for their departments. It is also Mills' opinion that this practice has not been altered in recent years. The centralization to decentralization reorganization did not change this type of control. According to Mills, "Nothing changed, the same guys with the same background, BTC graduates, ran the financial end of the business, no matter if they were found in the corporate staff or department staff."[23] It should be noted that when Cordiner moved Donald Millham to lamps in 1953, he replaced him with a man considered to be in the Cordiner camp, Gerald Phillippe, who was also a BTC graduate. "It (the financial fraternity) was a tight little lodge," comments Mills, "you got into it by being recruited and got out by not keeping your nose clean."[24] You could also be forced out for incompetency as the standards set by the Comptroller were extremely high.[25]

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[22]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

[23]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

[24]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

[25]It should be noted that Mills, himself, was a BTC graduate and had become a key financial manager prior to his promotion to Smiddy's staff.

Soon after Cordiner introduced the first moves toward implementing his reorganization plan in 1951, a conference was held in Atlantic City. It was here that the concept of the separation of "Service" work and "Operating" work was introduced to managers just below the executive vice president level. The managers in attendance were totally unprepared for any such development. It was explained to them that the six components, where the overall responsibility for profits was then found, were to be restructured and that profit responsibility was to be assigned to approximately 100 departments and a few sections well below the executive vice president level. It was specifically put forth that the new organization required an obviously broader understanding that the operating unit was to be the Product Department, with its designed product field, its own personnel, its own shops, its own marketing responsibility and its own requirements to "finance" and control its business, facilities, payroll, and related programs, procedures, and activities.

Similarly it was explained, but "considerably less clearly in many quarters and many respects," says Smiddy, that

> there was developing appreciation that the work and personnel of each Services Division should increasingly be organized and sub-divided to provide specialists and skilled services in each of the principal subfunctional areas, which together comprise the fundamental kind of work in which a particular Services Division is expert.[26]

It was late in 1951, after this Atlantic City conference, that the principles of decentralization began to be applied in practice. But decentralization or

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[26]Harold F. Smiddy, "Decentralization--Next Stage?" unpublished notes, New York, October 24, 1951.

reorganization of such a huge complex organization took time. When Wilson abruptly left General Electric, Cordiner was faced with the choice of slowly implementing decentralization or quickly implementing it. He chose the latter approach--the quick overhaul. This means he expected that the application and acceptance of the principles of decentralization would take only five years.[27] Five years, although considered the shortest possible time for reorganization, is a long time to keep an organization "hanging." It was during this period that many managers could and did complain that they heard one philosophy (namely that of "decentralization") expounded from top management but saw and felt a different concept (that of centralization and tight top control) from the same top level. The older managers, many of whom were found at upper levels of the new Services components, had grown up under a centralized, functionalized structure. Because of the backgrounds of many managers they acted contrary to the requirements of the corporate written policies. Lower level managers, found in the Operating components, could rightfully believe that the real intent of the Services managers was

> not to let the decentralized manager act with discretion and judgment but really to recapture a piece of his delegated function as a "manager" and bring it back into a centralized Services Division area either for decision or for performance.[28]

Because of this type of action, thousands of intelligent middle supervisory and managerial men concluded that there was a lot of double talk going on.

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[27]Interview with Harold F. Smiddy, Cincinnati, Ohio, August 25, 1969.

[28]Interview with Harold F. Smiddy, Cincinnati, Ohio, August 25, 1969.

When Cordiner first tried to delegate the authority for so many acts to the Department General Managers, he tried to do it before written policies on the subject were developed. Thus, in the early stages of decentralization, there were no written rules stating when and what authority was delegated to whom. Smiddy was assigned the responsibility to see to it that such policies and badly needed position descriptions were written. This project was to take about five years before it was reasonably completed (it is a continuing project). Smiddy relates that at the outset of the project many of the executive vice presidents did not want to put on paper their job descriptions, their authorities and responsibilities. They were reluctant to formulate the guides and policies into written statements, but decentralization would have been impossible in General Electric without the scope of each position understood properly. Smiddy tells one story about one particular executive vice president who was extremely powerful because of his position and personality. This man, with forty-odd years' service, could and did manage by the "seat of his pants" and was strongly against the formulation of written organized policies and position guides. After much discussion between Smiddy and this man, the executive vice president became so mad at the whole thing that he sat down--and must have said, "I'll show Smiddy"--for he wrote the most detailed and most complete position description turned in by any manager, leaving nothing out and making sure that he got on paper all of his authorities and responsibilities. Smiddy added that it needed no change, while the position descriptions of other managers in favor of the project took many months and many drafts to complete in accordance with the requirement.[29] The early position descriptions were

[29]Interview with Harold F. Smiddy, Cincinnati, Ohio, August 25, 1969.

intentionally "too detailed" because of the need to convey the philosophy while it was concurrently being formulated. Many managers refused to believe that they had the responsibilities and authorities intended and that the position description was one vehicle used to indoctrinate them.

One of the reasons for decentralizing the company was the hope to lessen costs by sharpening communications. Cordiner felt that the corporation was too big to allow communications to operate through centralized organization channels. Decentralization would, he felt, free up communications between those who have information and those who need it. Without doubt, one of the biggest obstacles to effective operating management was, and still is, the imperfect status of human communication. Cordiner believed that communications should not follow the lines of an organization chart and centralization encouraged that practice.

Clash of Cultures

The first decade of decentralization (1951-1960) produced a clash of cultures. General Electric had the "old school" managers whose automatic reactions to situations were developed into habit patterns long before decentralization started. These people were on one side of the cultural clash and usually found in the "power" positions of upper level management. The other side of the clash was comprised of the younger middle management people who were schooled in the human relation movement which was very much a fad during the decade of the '50's. This latter group was more dedicated to the new philosophy of General Electric as pronounced from the office of Cordiner. Many of these people devoted hours of deep thinking and posed many penetrating questions on the real meaning of the "new philosophy." It became increasingly

difficult for these young crusaders in the new philosophy to communicate effectively with the "old school" managers whose habits were generated prior to decentralization. Smiddy, recently reflecting on those years, said that Cordiner had expected that decentralization could be complete on paper within five years after he initiated moves to reorganize, but Cordiner did not expect the incumbent top managers ever to really accept it in practice and believed that a thorough education program directed at middle management was needed to lay the groundwork by which the philosophy would slowly become accepted. Cordiner believed that only when the then middle managers accepted a true decentralized philosophy and they in turn filtered to the top would real decentralization of decision-making become a reality within the company. Smiddy adds that this was beginning to take place at the time of his retirement in 1960, nine years after the Atlantic City conference.[30]

This clash of cultures during the 1950's often "split right across an Operating Department, separating one layer of management from another or one part of a management team from the rest of the management team,"[31] says Don Webb, a member of Mills' staff and one who could be termed a member of the younger pro-Cordiner side of the clash. In those departments so torn, a period of inefficiency and high overhead costs must have resulted, caused in part by the fact that communication costs must have risen.

John Flowers, looking back on company history, believes it took five years to implement (1951-1956)

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[30] Interview with Harold F. Smiddy, Cincinnati, Ohio, August 23, 1969.

[31] Donald R. Webb, Management Consultation Services, unpublished notes written in 1957 (from a carbon copy), p. 5.

decentralization into the company.[32] Ralph Cordiner, in 1956, said, "I personally felt in 1951 that five years would be required to evolve the new structure and have it implemented with understanding and enthusiasm. The program appears to be just about on schedule."[33] Therefore, 1957-58 should have been a period by which decentralization was firmly established. Donald R. Webb, who began his General Electric career in 1951 and spent many years as a manager reporting to a Department General Manager, was able to comment in 1957,

> If, in keeping with the new philosophy, we are to establish high standards of performance against which we can measure our progress, it is evident that we still have a very long way to go before we can say that decentralization is working in a truly satisfactory manner.[34]

The control function, as Paul Mills understands the term, is a regenerative cycle of planning, organizing, interpreting, measuring, and leading. Each manager does this and summarizes the work performed below him, and in turn this is repeated on up the hierarchy. "In some areas," he says, "it worked, they believed in it (decentralization of work), others paid lip service to it."[35] Unfortunately, there is no non-authoritarian way to force a manager to modify or avoid authoritarian practices, and authoritarian management has no place in General Electric's decentralized management philosophy. "(Only) through training over time will a boss see that the authoritarian

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[32]Interview with John Flowers, Manager of Business Analysis and Cost Accounting Consulting, General Electric Company, New York, August 5, 1969.

[33]Ralph J. Cordiner, *New Frontiers for Professional Managers* (New York: McGraw-Hill Company, Inc., 1956), p. 54.

[34]Webb, *op. cit.*, p. 2.

[35]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

way is wrong," says Mills. "(Only then will) they learn to lead with authority of knowledge rather than lead with authority of position--it is a new way of life."[36]

The conflicts generated by the many pressures on managers, especially those in operating departments which were the profit centers, and also generated by the fact that authoritarian managers existed side by side with those dedicated to the new philosophy caused a practice by some of giving lip service to the new philosophy without, in fact, adopting it. Acceptance of the new philosophy had the backing of most of the corporate leaders--being the main thrust of the Advanced Management Course at Crotonville--and was coupled with a vigorous campaign in the Professional Business Management Course within all the departments of the firm. The new philosophy had to be either adopted in fact or the manager must give lip service to it. Giving lip service to decentralization of control, of authority, of decision-making, without actually practicing the philosophy was used by many of the "old school" managers who did not believe in giving up authority, did not understand how it worked, or could not believe that they acted differently from what they preached.

As late as 1957, Donald Webb, then a manager in an operating department, made the following notes on this problem:[37]

> A manager is confronted with the conflict between Operating business pressures and the requirement for low overhead costs on the one hand and he must demonstrate that his department is appropriately equipped with position guides, functional charts, structural charts, and other similar paper work symbolic of the new philosophy. An enormous amount of paper work is then generated by lifting verbatim

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[36]Interview with Paul E. Mills, retired Manager, Management Consultation Services, General Electric Company, Glen Ridge, New Jersey, August 7, 1969.

[37]Webb, *op. cit.*, p. 7.

> phrases and paragraphs from the Services functional charts, generic position guides for Operating Division General Manager, Operating Department General Manager and even the position guide for the President. The phrases and paragraphs which are lifted are applied in wholesale fashion to organization components and positions through the departments regardless of the real meaning or intent of these phrases. Since the phrases are lifted from sources of unquestioned authority their very application to the lower level components and positions is presumed to bring a form of sanctity like sprinkling with holy water. It is hoped that by this magic the organization will "meet the criteria," appropriate delegations will be given for making all future decisions not more than two layers above the place affected and from that time on the department will live in a new utopia of complete freedom.

The writing of position guides for every position in General Electric was under the direction and coordination of Harold Smiddy and the Management Consultation Services. Position guides or the narrower written job descriptions were *not* found in written form before this 1951 project was started. The basic underlying principle of a position guide is to have a complete and thorough understanding between man and manager of the requirements of his position and how its performance is to be measured. It is imperative that every work and phrase in the position guide have a meaning significant to that man and his manager, a meaning that is fully understood by them and one which they believe most precisely describes the responsibilities of the position. The position guide was designed to be a working document between man and manager. But,

> many of the position guides existing in operating departments today, however, are not working documents,[38]

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[38] *Ibid.*, p. 8.

says one manager reporting to a department general manager after about a decade following the reorganization. He went on to say, "

> They (the position guides) are supposed by both man and manager to be full of some kind of magic gobbledygook. When it becomes necessary for them to sit down and agree on what the man is supposed to be doing, they both find it necessary to discard the position guides and start afresh in an entirely different language.[39]

Donald Webb claimed that the same problem which occurred with position guides plagued the functional organization charts. Webb made his claim in 1957, but it has been repeated by managers to this day.[40] Webb said,

> Many of the functional organization charts (were). . .prepared to "meet the criteria" and it is pathetic to observe that much of this paper work has been generated solely for the principles of meeting criteria and has never become the working document in the actual organizing process that it is intended to be.[41]

The principal purpose of a functional organization chart is to show the functions and subfunctions necessary to accomplish the objectives of the overall function or business of the organization. Thus, the functional organization chart brings together the functions of all positions in the organization, and as such may be considered as a condensed, topical summary of the position guides for all of the positions in the organization, thus producing an overall "picture" of the functions and work of the organization. Hence, any complaints issued against the position guides would naturally be applicable to the functional organization chart.

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[39] *Ibid.*

[40] Reported from recent talks with various General Electric Managers in interview by William J. Greenwood, Vice President, Chase Manhattan Bank N.A., Darien, Connecticut, September, 1970.

[41] Webb, *op. cit.*, p. 8.

In general, while the chart shows enough information to increase the understanding of all people within the component as to the relationship of this work to the whole organization structure, it also is useful to a manager external to the business, in enabling him to understand the work of each principal component and position in the organization depicted by such a chart. The functional organization chart summarizes the position guides to determine what the objectives and the work or contribution expected from a component, activity or position really are. From the functional organization chart, General Electric believes one can determine if there are any major gaps in the structure and to the extent if there are any overlaps.[42]

The work of human relations researchers has for years demonstrated the power of the informal organization to effect the formal operation. The "financial fraternity," the "strong characters," and the "cultural clash" were strong influences on the practice, structure, and operations of General Electric. Also influencing the operating practices is how people interpret written policy. The next section will concentrate on one of the major problems found in General Electric in this area.

II. Control

A. Measurements

Judging from the memories of those men interviewed and from attempts to read between the lines of various company publications, there seemed to be, prior to 1960,

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[42] William J. Greenwood, "Organization Tools," unpublished talk to Advanced Management Course, Crotonville, N. Y., January 30, 1956.

in General Electric the widespread belief that the only real measurement of performance of the operating department manager was in short-term profit dollars. If this were true, then there was need for some strong motivation of managers to have them make any decisions which would decrease their short-run profits and yet might be necessary to meet the long-range goals of the company.

By 1970 enough material had been circulated on the eight key result areas of measurements, as covered in Chapter III, dating back as early as January, 1954,[43] and enough discussion about these key result areas, so that all managers were fully knowledgeable of each of the other seven areas. Despite this knowledge of the other seven areas of measurement, many managers were skeptical about the practicability of their application to the daily work. Donald Webb described it this way,

> The general feeling is that it is all good theory (eight key result areas) but when the chips are down and their bosses are actually making a determination affecting their compensation or their survival, there will be only one measurement that counts and it will be the figure at the bottom of their profit-and-loss statement.[44]

As a result of this feeling that short-run profitability was the only real measurement, many department general managers took "selfish action," in terms of the component or department, in order to add profitability to their particular departments at the expense of the overall interest of the General Electric Company. All members of management were acquainted with the corporate policy on this subject as laid down by Cordiner, Harold Smiddy, Robert Lewis, and others, as to the unprofessionalism of department

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[43] *Measurements Project, Part I, The Overall Project* (Schenectady, N. Y.: Budgets and Measurements Services Department, General Electric Company, January, 1954).

[44] Webb, *op. cit.*, p. 24.

selfishness. Yet when challenged by people (colleagues and other managers) as to the correctness of pushing for profits at the expense of other areas, a typical comeback might have been:[45]

> When I see some actual signs of somebody measuring my performance or my department by my contribution to the Company as a whole, I may act differently; but as long as I am being judged by the figure on the bottom of that profit and loss sheet, I am going to make it just as big as I can and to hell with the rest of the Company.

Component selfishness caused by the short run one key area measurement caused rifts between different components of the company. If one department can take action increasing its profitability at the expense of another department, then a rift between the top departments naturally will result. This happened on more than one occasion.[46] Once the rift took place, the two components could not get together objectively since discussions were now subjective in nature. Two rival camps thus developed, two rival teams with the objective of "beating out the other unit." Much of the effort devoted to teamwork for the purposes of furthering the interests of these new opposing camps turned out to be non-productive effort with respect to the over-all company objectives. This then injured the competitive position of the company with respect to efficiency, costs and often found its negative way into customer and public relations.

Since product departments are the profit centers and the focal point at which product decisions are to be made, there developed a problem on how to resolve

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[45] *Ibid.*, p. 25.

[46] Webb, *op. cit.*; Interviews with William J. Greenwood, Darien Connecticut, September, 1970; Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969; and others.

interdepartmental product scope conflicts. A product scope conflict is the problem of determining what products belong to which department. A newly developed product might easily fit the product areas of more than one department. Such overlapping products may look extremely promising, as potentially highly profitable, and therefore department managers vie for the right to produce and sell these products. It would seem that such conflicts are properly the jurisdiction of Division General Managers and/or Group Executives. Such is usually the case, but frequently such conflicts are left to be fought out at the department level. There is a widespread feeling that product responsibility will be assigned to the department which already has the product activity well in hand. This works well for products developed within a particular department, but fosters open warfare when a product is developed in the corporate research division. Thus, "product grabbing" has occurred from time to time. There appears to have been a distinct reluctance on the part of Division General Managers to take action in the direction of settling product disputes within their own divisions.[47] There also has been even greater reluctance to bring product disputes to the attention of Group Executives when the disputes involve a department outside of their divisions. Although this reluctance is not fully understood, it is believed that some of it stems from a sincere desire to use "Management by Persuasion." When persuasiveness does not work, the problem is allowed to remain unsolved rather than to resort to stronger methods or to refer the matter to higher authority.[48]

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[47]Interview with William J. Greenwood, Darien, Connecticut, September, 1970.

[48]Interview with William J. Greenwood, Darien, Connecticut, September, 1970.

The practice of product "grabbing" stems from the philosophy of decentralization taken to an extreme which is the underlying belief that a department has responsibility for products which it successfully makes and sells; that if two departments are involved in an overlapping product responsibility, favor will ultimately accrue to the department most successful in that product area. Therefore, it is better to present top management with an accomplished fact, a well developed product, with an on-going profitable new product line rather than bringing up questions prematurely by letting management in on the early stages of a development. It has been observed[49] that some departments in which the practice of product grabbing was the most common went to all kinds of extremes to protect the secrecy of their activities from other departments with product claims when beginning to exploit a new product possibility. This was often the case between the Hotpoint Division and the General Electric branded division producing the same types of products before the two were combined under one division in late 1965. "Such protections have on occasion gone to the extreme of establishing a conspiracy with a customer for the purpose of maneuvering into a position of accomplished fact and thus get the jump on another competing department,"[50] says Webb. It would seem that such maneuvering of sales organizations of competing departments must have had an adverse effect on the company image and prestige with the particular customer who was the focal point of the competition.

The belief that product grabbing may encourage healthy internal competition has not been accepted as valid by most of General Electric top management and it is

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[49] Webb, *op. cit.*

[50] *Ibid.*

not the purpose here to evaluate the company's feelings on this matter, but the discussion is offered only to present how this practice affected the measurements used by the firm. Webb went on to condemn corporate practices in a paper which did *not* receive wide circulation. He said:[51]

> It is believed that product grabbing practices have seriously impeded the clear definition of product scope for departments, that the persistent belief in the practice of product grabbing on the part of some Department and Division General Managers has given them reason to oppose and delay the clarification of product scopes; and that product grabbing stems from component selfish actions, very largely, resulting from the "one measurement" concept. The real solution lies in making very clear the relationship between over-all company interests and measurement of a department and a department manager and making this clear with respect to determinations of salaries and Incentive Compensation.

From the Webb report and from other sources it can be assumed that product grabbing was a serious and widespread problem resulting from a more widely accepted view that profitability was *the* measurement and that the other seven were only secondary measurements, if in fact these seven were of any importance at all.

A second problem noted as far back as 1957, caused by this one measurement outlook by some managers, and also caused by older managers who gave only lip service to the new philosophy, was that dedicated managers could see a discontinuity between what the company was preaching and what was being done. The management education program was well developed: extensive courses at Crotonville; departmental education programs; three of the four *Professional Management* books were published and well circulated communicating the overall objectives of the

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[51] *Ibid.*

company; the eight key result areas of measurement were well publicized; and the high integrity and character of the company (this is before the price-fixing scandal broke) was much discussed. Yet the younger, lower-level manager who had been weaned on this new philosophy began to see through the one measurement concept, which developed into division or department selfishness. They wondered whether the new philosophy was hollow or whether the company (top management) really believed in it.

If it were just a question of a particular manager, such as a Department General Manager, who took these "component selfish" actions contrary to the philosophy of his own manager and group executive, it could have been written off as a failure of a particular department manager which could have been corrected by measurement and counseling and, if necessary, by replacement. Unfortunately, this component selfishness in many instances seemed to be acting in complete harmony with the philosophy of his division manager and in harmony with the philosophy of his group executive. At least this was the picture as seen by a number of present managers who have asked to be anonymous.[52]

B. The "One Result Area" Concept

The incumbent Vice Chairman of the Board, Jack S. Parker, admits that during most of the decade of the '60's, General Electric's top management through the Group and Division levels placed a disproportioned emphasis on profitability.[53] Deemphasizing the importance of the other

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[52]In fairness to those executives who expressed this opinion in confidence, these judgments can be easily concluded as truthful and obvious from the speeches made inside the company which were attacking this problem.

[53]Interview with Jack S. Parker, New York, July 1, 1970.

seven key result areas was caused by errors in forecasting and legal problems which taxed the company for working capital and hence the need for current results dominated the situation. Although 1971 is again a year of tight financial needs, Parker expects an upgrading of the other seven areas so that shortly there will be eight equally balanced key result areas on which every operating department manager will be measured.

Parker said, "From '61 to '64 we paid out about two hundred million in the anti-trust mess and we were looking for money to pay this and the shareholders."[54] At about the same time the computer business began to drain cash at a much faster rate than anticipated. "Here is where we made a major mistake," said Parker. "We planned too low on the computer business; we were low key and we fell behind. To make money in this area you have to be number one, two, or three. IBM is one, and we should have aimed for two, but we didn't. In retrospect, we should have developed a specialty, computers for banks, and we would have been very successful. We put a lot of money into this area. We will be successful, not as planned and a lot longer into the future than previously anticipated. This Honeywell deal will save us a lot of money, keep us in the field, it's what we needed all along."[55] The computer area did cost a great

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[54]Interview with Jack S. Parker, New York, July 1, 1970.

[55]Interview with Jack S. Parker, New York, July 1, 1970. The Honeywell deal to which Parker was referring was the May, 1970, agreement between General Electric and Honeywell to form a new computer company in which General Electric would own 18-1/2%. *Dun's* reported incorrectly that all the computer operations of General Electric were sold to Honeywell (See Alvin A. Butkas', "The GE Puzzle," *Dun's Review and Modern Industry*, Vol. 96, No. 1 (July, 1970), pp. 34-37 and p. 3). Actually, General Electric's time-sharing services, computer communication equipment and process computer business were not included in the negotiations with Honeywell (see "GE, Honeywell Announce

deal of money and was never out of the red, admits Richard Shoemaker[56] of the Computer Division (General Electric does not issue financial statements by division). *Dun's Review* estimates that the computer business "has bled conservatively $400 million from profits (equal to $4.44 a share before taxes per year) over the past fourteen years."[57] Philip Reed said, "This is the first one (business) I know of, of any magnitude, that we pulled out."[58]

Another capital drain mentioned by Parker was the nuclear power business. He said, "In the nuclear thing we got in deeper than we thought."[59] Currently, General Electric has about 45 percent of the nuclear power market and has invested between $150 and $250 million and has yet to turn a profit.[60] Phil Reed said that, "Chuck Rieger (currently president of Ebasco and at one time head of General Electric's Nuclear Energy Division) took on many jobs under "guessed costs" and he guessed low."[61] Alvin Butkas of *Dun's Review* says, "Losses are clearly

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Computer Agreement," *Monogram*, General Electric Company, Vol. 19, No. 3 (May-June, 1970), p. 17, and W. David Gardner, "Anatomy of a Merger," *Datamation*, Vol. 16, No. 15 (November 15, 1970), pp. 22-31).

[56]Interview with G. Richard Shoemaker, Manager of Marketing Planning, Computer Division, General Electric Company, New York, New York, July 30, 1969.

[57]Butkas, *op. cit.*, p. 34.

[58]Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

[59]Interview with Jack S. Parker, New York, July 1, 1970.

[60]Butkas, *op. cit.*, p. 38.

[61]Interview with Philip D. Reed, retired Chairman of the Board, General Electric Company, New York, New York, August 4, 1970.

narrowing, and analysts believe the venture will contribute to profits in 1972. . .but it is still questionable whether General Electric will make any big money in nuclear generation before 1980."[62] General Electric scientists had advised management as early as 1945 that it would be at least forty years before nuclear energy could be used to produce electric power commercially.[63] Nevertheless, General Electric decided to enter the field to avoid the risk of being left out should atomic generation of electricity become feasible. As Drucker notes, General Electric entered the nuclear reactor market as a defensive measure rather than as an innovation.[64]

The last major capital drain mentioned by Jack Parker was the jet engine business. He said, "This venture was not so much a capital drain as the others, but some income was needed."[65] General Electric, Rolls-Royce, and Germany all independently developed the jet engine during World War II but General Electric has had a great deal of trouble competing in the field. Some feel this has been caused by neglecting to develop new models as Rolls, Pratt & Whitney and the others have done.[66] General Electric did invest a great deal of money in the engine for Lockheed's C-5A, the Air Force's super cargo, hoping it would be converted into a commercial airliner. Lockheed has yet to start the commercial

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[62]Butkas, *op. cit.*

[63]Peter F. Drucker, *Technology, Management and Society* (New York: Harper and Row, 1970), p. 144. Philip Reed disputed this statement in an interview August 4, 1970. He said, "If all had gone well we would have had profits by 1963-64."

[64]Peter F. Drucker, *The Age of Discontinuity* (New York: Harper and Row, 1969), p. 62.

[65]Interview with Jack S. Parker, New York, July 1, 1970.

[66]Butkas, *op. cit.*, p. 36.

plane. Butkas claims,

> The real irony of the C-5A debacle is that General Electric's financial muscle was strained to the point to where it had to bow out of the bidding for the engines on Boeing's 747, of which 197 are already either delivered or on order.[67]

Thus, through most of the 1960's General Electric had a cash problem which forced concentrating on current returns at the expense of the long term. During the 1950's when the plans were being formulated for the '60's, Parker recalls that they expected these various areas to be losing money before profits were received. "But, we thought they (each cash drain area) would be staggered; they weren't and it put pressure on current results. Sure we had long-range planning going on, both at the top and in the department," he went on, "but we had to put body English on it, because we needed quick results. The bottoms-up plans got cut at the division level, to get current earnings."[68] The implication seems to be that there is much more freedom of decision and truer decentralization during prosperous years for prosperous departments than would be the case during lean periods and less profitable departments.

C. Management by Objectives

In the early 1950's the eight key result areas were agreed upon and feedback mechanisms were designed to be used to control the system. "In theory," says Paul Mills, "the more that can be quantified, the sharper the measurements."[69] Thus, results became an important

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[67] *Ibid.*, p. 37.

[68] Interview with Jack S. Parker, New York, July 1, 1970.

[69] Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

word. "This, I assure you," says Mills, "produced a lot of bitching." Smiddy led the drive to think through and to organize a systematic method for evaluating the appropriateness of goals and the effectiveness of each component toward its goals. It was Smiddy who felt that one of the major education jobs of his Management Consultation Services was to teach objective setting or goal setting to the Operating Departments. Sectional and Departmental objectives were derived from the overall divisions. Divisional objectives were derived from the overall Group and Company objectives. Smiddy expected that managerial effectiveness should be measured by quantitative and qualitative comparisons of actions and results against the predetermined goals.

Management by objectives which Smiddy was advocating before Drucker popularized the philosophy in his 1954 *Practice of Management*, can be found in the literature much before 1950. Yet, students of business policy formulation of today are quick to point out that "management by objectives" as practiced in the 1920's and 1930's is not the same as "management by objectives" as practiced today and that which was advocated by Smiddy and Drucker, as a consultant to Smiddy, as early as 1951.[70] Business policy formulation between the two world wars was basically short-term planning, with the major task of managers, including the chief executive, to plan the adaptation of the organization to the changing conditions. Henri Fayol attributed much of his success as a manager to this type of planning which was based on the "General Survey."[71]

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[70]Frank F. Gilmore, *Formulation and Advocacy of Business Policy* (Ithaca, New York: Cornell University Press, 1968), Chapter I, pp. 6-34.

[71]Henri Fayol, "Administration Theory in the State," *Papers on the Science of Administration*, eds., Luther Gulick and L. Urwick (New York: Institute of Public Administration, Columbia University, 1937), p. 105.

The "General Survey" consisted of sizing up the situation in the economy and industry with respect to: the competitive situation; the financial and operating picture; analyses of sales, production, costs, executive organization, etc. The size-up was followed by recommendations for action. Such General Surveys were conducted when management was faced with major problems. A pioneer consultant, James O. McKinsey[72] followed this method of "management by objectives," although he didn't use the term. Adaptation to changing conditions was the method of teaching business policy formulation at such leading institutions as Harvard. Melvin T. Copeland's landmark article on the subject published in 1940 stresses this concept.[73] Thus, this short-term method of planning was, in fact, practiced by big business, including General Electric. The method of setting objectives was then to decide on a course of action in the light of the situation facing the company at a particular time. Immediate profits and adaptability to meet changing current conditions were of prime importance and were therefore the measurements used to evaluate the past managerial decisions. Cornell's Professor of Business Policy, Frank Gilmore, says, "There was seldom a clear concept of objectives or long-range plans to which management was committed . . .major planning was initiated only when management sensed that a serious policy problem existed. . . ."[74]

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[72]James O. McKinsey, "Adjusting Policies to Meet Changing Conditions," *General Management Series*, No. 116 (New York: American Management Association, 1932).

[73]Melvin T. Copeland, "The Job of an Executive," *Harvard Business Review*, Vol. XVIII, No. 4 (Winter, 1940), pp. 148-1960.

[74]Gilmore, *op. cit.*, p. 7.

At General Electric in the early 1950's it was felt that this type of business planning was unacceptable. Sporadic diagnosis was replaced by constant surveillance. Continuous planning was part of each component and Harold Smiddy informally saw that it was performed. Two years after Smiddy retired, John B. McKitterick was made Manager of Corporate Planning Operation which was a special corporate section. In 1965 McKitterick was elevated to Vice President and his corporate planning was given full-fledged status as a Services component. The change from sporadic diagnosis to continuous reappraisal of corporate policy has been in keeping with Peter Drucker's advice of the early 1950's. General Electric's attention had been focused more on the seizing of opportunities than on the solution of problems.[75]

Mills explains that management by objectives best describes the General Electric system, and one aspect of this system is the measuring stage. If the measuring stage is properly "implemented," he says, "it can go a long way in allowing managers to keep their 'mitts' on the organization."[76] But Mills sadly reflects, "A lot of measurement work was given to clerk types who mechanically grind out comparison of planned versus output, without explanations of why."[77] What he means by "without explanations" is that the "clerk types," who work up comparisons of the planned work against what actually happened, do not

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[75]Drucker, *The Practice of Management* (New York: Harper and Row, 1954). For an in-depth analysis of this closed loop or modern objective setting, see Frank F. Gilmore and Richard G. Brandenburg, "Anatomy of Corporate Planning," *Harvard Business Review*, Vol. 40, No. 6 (November-December, 1962), pp. 61-69.

[76]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

[77]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

explain the variances, when found, nor do they explain why the planned and actual results did match when the environment changed tc make this result unnatural. Without the explanations, he says, "Variances are meaningless."[78] When you have management by objectives, you expect control by exception. But Mills notes, "Control by exception is spoken about, but what the financial people are doing at General Electric, are managing by patterns. If something doesn't fit a pattern, it pops out."[79] As a long-time manager in the financial area, Paul Mills adds, that even when patterns look good to the financial analysts you "may have a pattern which could run you to bankruptcy."[80] This may happen when patterns become so dominant for decision purposes, that management may become blind to the objectives it has set for itself.

Mills spent his last three years as a manager in the highly dynamic chemical industry. He had the right to spend up to a quarter of a million dollars if he wanted.[81] He says,

> I couldn't get figures which estimated the percent of project completion versus real completion. I couldn't get what was done ahead of schedule. When you don't know what work is completed ahead of schedule, you may look at your financial statement and think you are overspending.[82]

Unhappily, he protests,

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[78]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

[79]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

[80]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

[81]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

[82]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

> Most budgets aren't worth a damn as control documents. Budgets are made five, six, eighteen months ahead of the period to be controlled. In the chemical industry (of which General Electric is no small part) the dynamic prices can change overnight, so a budget is not worth much as control.[83]

Turning to the power construction field, where Mills worked at one time in General Electric and also when he was Vice President of Ebasco Services, Inc., he said that he tried to use an eighteen-month rolling forward total--

> So that I was looking ahead of the average time (18 months) it took from receipt of orders to the time we could put the plant on stream; here budgets for control are for the birds. I tried min-max budgets; I've tried them all. One thing for sure, a fixed budget is almost worthless in many industries.[84]

He included in the meaning of that last sentence much of the electrical and chemical industries.

The belief that profitability was *the* most important measurement of a man's ability, and the desire to protect oneself, as evidenced by "product grabbing," created a need to find measurements which would encourage managers to concentrate on the goals and objectives of the total organization. The next section will discuss this problem.

III. Appraisal

A. Measurements

One of the major problems found in management, whether it is centralized or decentralized, is how to

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[83]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

[84]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

appraise the collective performance of a group, division, or a department; or the performance of the individual who heads the unit. It is conceivable that the executive's performance might be good even though his department has results which are considered to be poor, or vice versa. The overall determinant of departmental performance on occasion is established based on one criterion; e.g., return on investment, and both the departmental performance and its top executive are judged in terms of this criterion. At the Columbua University Roundtables on Management (1954)[85] an alternate approach was discussed. Instead of judging the executive by the results of his department alone, emphasis would be on how he does his work. His ability to size up competition, to think, to spot and correct weak areas, to work with his people, and so forth, could be used to evaluate a manager. In this approach, attention is clearly shifted from the department to the individual. However, this type of measurement is difficult to apply, yet it is pertinent for measuring managers.[86]

At the Columbia University Roundtables, a comprehensive list of criteria for measuring managers was presented by one member. The list was the eight key result areas used by General Electric as presented in Chapter III.[87] It can be assumed Harold Smiddy presented this list to the conference since he was one of the many distinguished participants which also included Peter Drucker, who helped form the measurement concept, Wallace Sayre

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[85]Columbia University Graduate School of Business, *Round Tables on Management of Expanding Organizations*, November, 1953-March, 1954, Minutes of 4th Meeting.

[86]*Ibid.*, p. 2.

[87]The eight key result areas, it will be remembered (page 148), are: Profitability, Market Position, Productivity, Product Leadership, Personnel Development, Employee Attitudes, Public Responsibility, and Balance Between Short-Range and Long-Range Goals.

(C.C.N.Y.) and William Newman (Columbia) the only academic participants among the twenty conference attendants, most of whom were top business executives and business consultants. After the General Electric list of eight key result areas was presented, William Newman reported,

> The list was recognized as needing further definition of sub-factors, adaption to specified operations, and other refinements. Nevertheless, it does provide comprehensive coverage within a manageable number of factors.[88]

Further discussion brought out a number of areas needing refinement or reevaluation, the same problems with which General Electric managers have wrestled over the past seventeen years. It was noted that along with this multiple factor approach to management appraisal for control purposes was the need to vary the weights of the various areas according to a particular situation. The product research which effects profitability and product leadership must be given much more weight in a department producing computers than one producing electric tape where the growth prospects are much more modest. This problem falls under the eighth key result area--balance of long- and short-range goals--and it still is a most difficult problem to solve in practice.

In planning the eighth key result area a most subjective factor is how to assign weights to the factors considered important by top management. Since each operating department produces different products, each at different stages of product life and each somewhat unique, then it holds that each product will require emphasis to be placed on different factors with different weights. "Tomorrow's breadwinners," to use a Drucker expression,[89] would require planning emphasis looking

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[88]Columbia University, *Round Tables, op. cit.*, p. 5.

[89]Peter F. Drucker, *Managing for Results* (New York: Harper and Row, 1964), Chapter IV.

toward the long run, while "today's or yesterday's breadwinners" require a control measurement to reflect today's cost and contribution to profit. Thus, while it is most difficult to compose the quantitative and qualitative measurements in the first seven key result areas, the subjectivity of the eighth area almost negates any comparison of products. What the key result areas can help do is to measure past performance against expected results. This type of organized measurement allows better use of management by objectives, but it does not make management by objectives any less subjective. There is a danger that if the subjectivity of the eighth key result area is not appreciated and managers improperly read more objectivity into the measurements than exists, this approach will be reduced to a formula. It is doubtful with the state of the art that any formula could be flexible enough to reflect what has happened, to properly measure the management, and to fit all situations and products. Subjective judgments involved in such measurements used for control purposes open the way for clashes of opinion between top management and operating executives.

A cursory look at the eight key result areas in GE gives the impression that a series of detailed operating standards are used to appraise departmental performance and also executive achievement. But once the subjectivity of the standards is understood then it can be readily seen that the eight key result areas when used to evaluate the departmental executive actually emphasize "how he does his work," e.g., how does he size up his product and competition; how does he think; how energetic is he in correcting weak spots; how does he treat his men; how does he plan; and so forth. Since the measurements are subjective and there is no "one best way" of managing, these measures used as a control device are most difficult to apply. The more objective the evaluation superiors believe the

measurement criteria to be, the more these measurements become a method of domination by the superior. That is, they become strict standards needing little interpretation and thereby become control devices in a negative sense.

Control can have two meanings in management. The positive meaning for "control" is the ability to direct oneself and one's work. The negative meaning is domination of one person by another. With management by objectives being the central theme in General Electric's philosophy of control, the negative meaning of the word has no place, i.e., where the control becomes domination of one by another, there is a breakdown between corporate philosophy and corporate reality. Drucker notes, "One of the major contributions of management by objectives is that it enables us to substitute management by self-control for management by domination."[90] Because of the possible negative connotation of the word "control," Smiddy dropped its use to describe a function of management in favor of "measuring" at the time he introduced Hopf's elements of the leadership function into the corporate professional management blue books.

The concept of self-control is certainly not new with General Electric; it is plainly found in the writings of Follett, L. Gilbreth, Hopf, and others. It underlies the managing philosophy of "pushing decisions down to the lowest possible level." Self-control requires a manager to know what his goals are and to be able to measure his performance against the goals. It does not require exact quantitative measurements but it does require relevant and simple measurements. Relevant in that the efforts are directed toward the correct goals or objectives; simple so that they are understandable to the manager in question.

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[90]Drucker, *The Practice of Management*, *op. cit.*, p. 131.

Drucker adds:[91]

> Each manager should have the information he needs to measure his own performance and should receive it soon enough to make any changes necessary for the desired results. And this information should go to the manager himself, and not to his superior. It should be a means of self-control, not a tool of control from above. . . .
>
> General Electric has a special service--the traveling auditors. The auditors study every one of the managerial units of the company thoroughly at least once a year. But their report goes to the manager of the unit studied. There can be little doubt that the feeling of confidence and trust in the company that even casual contact with General Electric managers reveals, is directly traceable to this practice of using information for self-control rather than for control from above.

Drucker's statement does seem to conflict with the previously reported "financial fraternity" concept. The fact that the traveling auditors send the report to the manager of the unit studied does not prevent informal information passing to other members of the so-called "fraternity." The real conflict between Drucker and the "fraternity" concept lies in "the feeling of confidence and trust" found by Drucker. Evidently, various people have perceived the situation differently. It should be noted that Paul Mills, who was cited earlier in the discussion of the concept,[92] spent about thirty years as a GE employee and some of that time was spent in finance. Drucker, as an outside consultant, was very involved with GE for about five years when he was assisting Smiddy in the reorganization in the early 1950's.

The foregoing discussion does not imply that reports are not sent to top management, those above the

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[91] *Ibid.*, pp. 131-132.

[92] See subsection "The Financial Fraternity" in this chapter.

manager being measured, for they are and should be. Successful managers, those who have made it to the top levels of organization have normally received their promotions because they initiated work, they got things done and done right. Although they talk delegation and perhaps even believe they practice it, truly letting go of the reins is a most difficult thing to do on the part of those who have been so successful by being action-oriented production managers of operations close to the movement of products. Creating the proper climate for decentralization to work is extremely difficult. The need to know what is being done below is strong. The urge to meddle in the affairs of subordinates once a manager receives information about his subordinates is sometimes overwhelming and all the philosophy to the contrary will not alter what may occur in practice. But with properly trained leaders, a greater percent will overcome the strong desire to "take charge" and entrust subordinates with full responsibility for certain assignments if they know what is happening and that the risk entailed by failure on the part of the subordinate is not of excessive magnitude. Raymond Villers, in *Harvard Business Review*, concluded that:[93]

> The high-ranking executive who is responsible for the operations of large sections of an industrial organization and who is not in a position to make use of effective controls, tends to be tyrannical because he is worried. He will give much greater independence to his subordinates if he knows that their mistakes will be detected before any irreparable damage results.

The evaluation of workers is closely tied to the controls used to assure that the organization is continuing

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[93]Raymond Villers, "Control and Freedom In A Decentralized Company," *Harvard Business Review*, Vol. 32, No. 2 (April-May, 1954), p. 96.

along a proper path. The eight key result areas are categories of measurements used to ascertain the relative position of a product department. Some of the measurements quantify particular aspects of the job performed by a product department; most compare one aspect of the department against predetermined standards. Some measurements are quantifiable and objective; others are less easily visualized and are very subjective. Measuring non-product department managers is very difficult and presents a problem which the company philosophy has yet to solve. Even evaluating or measuring a whole division is difficult, especially if it is a Services division. Before you can really control an organization, you must be able to evaluate and measure it by objective and/or subjective means. Some of the objectives and goals for service organizations and managers have fruition periods of fifteen to twenty years. Measures made of the effectiveness of an initial decision might be easily designed but the manager initiating the course of action usually is no longer around, having either been promoted or retired. Lemuel Boulware, retired Vice President of Employee Relations at General Electric, believes that evaluation and the measuring of managers is "the toughest problem in business management--at every level and whether in operations or services."[94] Even when figures are available for evaluation of product department managers, the subjective evaluation still commands the central position in the evaluation. Remember, it is only the product department manager who heads a profit center; all other managers are either above, below, or outside (such as in Services divisions) the company's profit centers. So it is only the product department managers who can be

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[94]Letter from Lemuel R. Boulware, Retired Vice President--Employee and Community Relations, General Electric Company, dated March 10, 1970.

measured by the eight key result areas, and there are less than two hundred of these managers in the company. But, even if much quantitative information is available on a manager's work, the subjective evaluation still determines the overall appraisal of the manager. Boulware, in a recent letter, says:[95]

> When sitting in judgment on a manager for bonus or promotion purposes. . .the quantitative information available does not show the causes behind the figures. The qualitative enters as the finally determining factor most every time. How much of the manager's "results," as shown in the figures, was due to the way he drew on his own inner resources, and how much was due to factors beyond his control such as a surge in the industry market or a mistake or strike suffered by a competitor? Was an advantage in volume temporary, and could competitors be expected to. . .get back their share?

B. Measuring Services

The task of measuring the performance of Services components and their managers is even more difficult than judging decentralized operating managers and their components. The output of Services is largely intangible and this leads to difficulties in comparing costs with results.

General Electric's philosophy is based on management by objectives. Thus, Services are measured and controlled by the setting of an evaluation of progress toward objectives. These objectives are set once a year at the time the budget is established. The objectives are reviewed by members of the Executive Office--that is, by all the Services Officers together with the Operating Group Executives. One past executive called it "our day

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[95]Letter from Lemuel R. Boulware, March 10, 1970.

in court" when the budget and objectives were presented. He said,

> We would go down through the objectives specifically and explain what Management Consultation Services, let's say, was going to do for each one of the other components, and in this meeting agreement was made on how much money would be budgeted for each objective. Such things as writing the philosophy books, what we were going to do to management development, plans for the Crotonville school, what organizations we were going to look at, why and how, and so forth, were discussed in specific detail.[96]

Measuring Services is very subjective. The Chief Executive Officer, whether it was Cordiner, or today Borch, meets with the executive office once a year for the executive review of budgets and objectives. This executive review should not be confused with the business review which is a review of each operating department made twice a year.[97] Although this formal executive review occurs once a year, there are numerous monthly progress reports from each Services and Group to the Executive Office. These monthly reports state what each component is doing against what was planned at the beginning of the budgeting period. Objectives can change during the year based upon the need, but always with prior agreement. The Chief Executive Officer, sitting above the Services Vice President is able to judge from the reaction of the other corporate executives as to what and how each Services is doing and if any changes are warranted.

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[96]Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

[97]Business Reviews are conducted by the Group and Division Managers over a department, along with the Services heads to evaluate operating departments along the lines laid down by the eight key result areas. They are frequently called with less than a week's notice. See *Business Week*, April 19, 1952, p. 123.

A difficulty in measuring Services is that frequently Services projects would not have results forthcoming for about twenty years. It must be remembered that at General Electric the word "Services" covers a wide range of activities, some are short termed, some long termed, and some activities are more closely associated with operating work than the traditional concept of staff work. For example, one Services activity at General Electric which is closely associated with operating work is union negotiations. This type of work is not looking twenty years ahead; it's taking care of today's needs. In this case, the New York office directs all the bargaining. The General Engineering Laboratory, where General Electric has designated capital for research, is in a sense doing operating work. When Engineering Services is "training" engineering people for operating work, then that really is not Services work as much as it is operating work on a pooled basis. This would be easier to measure than when one is dealing with the pure Services function, such as what is going to happen sixteen to twenty years in the future. In that case, the measurement must be subjective and it must be on "how is a manager doing today in getting operating people ready for tomorrow."[98] Measuring Services is not unlike the evaluation of skating, diving and gymnastics in that all judgments, even for the "expert," are subjective. But in athletics the event is evaluated as it occurs; in Services the evaluation takes place long before results from actions are expected.

Most of the personnel found in Services have been promoted out of Operations. It should be understood that

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[98]Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

the establishment of the Services organization came as part of the 1951 reorganization and it was at this time that Cordiner and Smiddy decided that Services people would get their reputation and strength based on an "authority of knowledge." Therefore, Smiddy scoured the various line departments for highly authoritative people to be put into Services. In order to attract them the Company had to give them a higher salary than they were earning and many of these people were the highest-paid men within the Operating Departments. It was felt by Smiddy that the line people would come to Services for guidance because of their tremendous reputations as successful operating people and these were the types that were attracted to Services work and were highly successful. One problem was evident, even at the early stages--that the Services expert often felt the time spent on long-range planning less tangible and more frustrating because, as Arthur Vinson, retired Executive Vice President, noted,

> There are no quickly obtainable evaluations of progress. . .he feels at first as though he is not earning his pay; that he is unable to get his teeth into the problem; that the work that others (line people) are doing is more important.[99]

Another problem somewhat related to control of Services personnel, which was not handled by the philosophy or the practice of the Company is how to handle Services personnel after they lose some of their "authority of knowledge." While the managers who had been promoted into Services were searching and teaching better methods of work, some of the line people began to have even greater knowledge than their Services advisors through their own

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[99]Arthur Vinson, "General Electric's Services Division," *Planning, Managing, and Measuring the Business* (New York: Controllership Foundation, Inc., January, 1955), p. 10.

advancements within Operations and being right on the firing line. It was in the mid-1950's when Smiddy and Cordiner discovered a tremendous problem, because Services work had always been considered of higher status and higher compensation than Operating work.[100] It became necessary to send Services people back into Operations. Through time some Services people lost some "authority of knowledge" to Operating people and it was concluded by Smiddy that these men must go back into Operations, but to go back to Operations meant that they had to keep their higher Services salary because these men were not being reprimanded for poor work; they were going back for a "refresher course" in Operations with the expectation that they would soon return to Services. Unfortunately, the higher salary commanded by the shifted Services people wasn't in the structure--the pay scale of Operations would not accept such high salaries and the fairness of these high salaries compared to the salaries of Operating men who did not have a Services background doing the same work was questionable. This posed a tremendous problem for Cordiner and for the salary evaluation group in the Compensation Service, which was under Lemuel Boulware for the decade of the 1950's. William Greenwood remembers:[101]

> To my knowledge, I don't remember any who made the complete switch from line to Services to line and back to Services. Several were sent back for the so-called "refresher courses" but they became so ingrained with their first love, Operations, that they themselves didn't want to come back into the very difficult kind of Services work where measurements were so subjective and so difficult to understand.

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[100]As previously noted in Chapter III.

[101]Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

> They obtained greater pleasure in seeing things go out the door than they did in looking at research studies and thinking through corporate philosophy.
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> As a result of all this, I feel that Services today possibly are weaker than they were in the 1950's and that something will have to be done to get people to come into Services out of the line and to stay in Services using "refresher courses" on the basis of a loan or something like that to various Operating Divisions. I don't think this has been done since the new structure was inaugurated in 1951. One opinion, reinforced many times, still remains, the best Services people are those who have had on the line experience in rough managerial situations.

Lemuel Boulware, however, known for his "hard" approach to labor relations and the 1958 recipient of the SAM human relations award, does not think the qualitative measurements used for Services organizations make for any more formidable a problem than measurements for Operations. He said:[102]

> In operations there is a presumed luxury of positive figures on volume, profit, percentage of profit to sales, return on investment, inventory turnover, market performance, and percentage of the industry's actual sales. But this quantitative information frequently is as inaccurate as (subjective) judgments. When profits are substantially overstated because of inflation and when allowable depreciation is far too little for replacement in kind, this quantitative information without careful restructuring can be and often is basically inadequate. Even if accurate, it is very misleading if taken by itself.

In his book, *The Truth About Boulwarism*,[103] he

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[102]Letter from Lemuel R. Boulware, March 10, 1970.

[103]Lemuel R. Boulware, *The Truth About Boulwarism: Trying To Do Right Voluntarily* (Washington: Bureau of National Affairs, Inc., 1969), especially see pp. 92-96.

spells out very plainly the requirements of his Employee and Plant Community Relations Services Division. All nine departments under Boulware were engaged in persuading operating personnel in some aspect of work. Boulware, in a letter, recently said:[104]

> The big problem was to get operating people at each level to recognize the need to make room for new work added besides the old "metal cutting and paper shuffling," and to become both sufficiently competent and sufficiently active in that work. This work did not *come* to them automatically as in the case of operating duties. Rather it was an *investment* ahead of time in "prior homework" that would yield increased cooperation and productivity constantly as well as providing insurance against periodic disasters.
>
> Because of our being constantly in the field, it was not hard to observe who was going at which parts of our program in earnest. This was a sure clue both for our discussions with superior operating authority as to further pressure by them on which of their subordinates, and for my own judgments as to which of my specialized departments were being acceptable *persuasive*.

Boulware admits that the control function is complicated in Services by the fact that the Services have to engage in a very sizeable and unpredictable amount of "fire fighting work in addition to meeting. . .(the) main responsibility for fire prevention."[105]

The eight key result areas are used to measure the approximately two hundred departments in General Electric. But Services and, on the Operating side, the levels of Division and Group are not measured or controlled by the eight key result areas. These top level managers are measured very differently. The philosophy of the company concentrates on the profit centers--the departments.

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[104]Letter from Lemuel R. Boulware, March 10, 1970.

[105]Letter from Lemuel R. Boulware, March 10, 1970.

The measurements project, which has yet to complete its almost twenty-year search for operational measurements at the department level, has done almost nothing to develop organized thinking on measurements in other areas. The measurements study team has stated that they can consider how to approach the problem of formulating functional measurements only after the operational measurements have been substantially completed and that further development on the measurement of the work of a manager (at all levels) is contingent upon the measurements developed in the operational and functional areas.[106] Thus, the philosophy of the firm in this most important control area has yet to be organized and unified. When asked, "How do you evaluate the Group Vice Presidents reporting to you?" Vice Chairman Jack S. Parker began by saying, "We (the Corporate Executive Office) all have our own method and we each are looking for different things."[107] Thus, emphasizing that the firm has not researched this area well enough to develop guidelines for evaluating managers such as it has done for the operation departments.

The measuring of the work of a manager is most difficult. The type of measurement used, that is, what is looked at or considered to be important, may vary with each level of the hierarchy. This is not to imply, which may or may not be the case, that leadership and management are not fundamentally the same at all levels. It is saying that the information received and methods of measuring the effectiveness of a particular manager may be altered with the level of the hierarchy and with the particular job performed. At lower levels more quantifiable

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[106] *Measurements Project. . ., op. cit.*

[107] Interview with Jack S. Parker, New York, July 1, 1970.

measurements may be found. A marketing manager, for example, responsible for sales could be evaluated using such yardsticks as: actual sales to quotas; accounts received over sixty days, over ninety days; expenses versus budget, etc.[108] As we ascend the hierarchy other measures must be considered. Professor Ronald B. Shuman notes, "Broadly speaking, the higher the hierarchy of command, the less factually measurable the accomplishments of the manager."[109] In his book, *The Management of Men*, Shuman notes,

> The quality of top-level management varies over a wide range and is not easily measurable by objective standards. . . .Proper selection of executives. . .is severely hampered by lack of quantitative measurements for the more important but intangible of human qualities.[110]

Drucker seconds this thought by saying that managing is a process and

> No matter how much we can quantify, the basic phenomena are qualitative ones: change and innovation, risk and judgment, growth and decay, dedication, vision, rewards, and motivation.[111]

It seems that management is searching for a method to measure and control other managers and, particularly, at what may be termed the "command level." The measuring of Services Managers and of managers above the department

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[108]Frank Greenwood, *Casebook For Management and Business Policy: A Systems Approach* (Scranton, Pennsylvania: International Textbook Company, 1968), p. 144.

[109]Lecture by Ronald B. Shuman, in "Principles of Management" course, University of Oklahoma, Norman, Oklahoma, April 24, 1967.

[110]Ronald B. Shuman, *The Management of Men* (Norman, Oklahoma: University of Oklahoma Press, 1948), pp. 182, 184.

[111]Peter F. Drucker, *Landmarks of Tomorrow* (New York: Harper and Row, 1959), pp. 90-91.

level in the line, i.e., Division and Group, is most difficult and highly subjective. The hope by some is for a method of measuring these managers the same way, with the same validity used to quantitatively measure the manual worker. This is, in the state of the art, a vain hope indeed. Those raised in the scientific management school can plainly see and measure what constitutes "productivity" for the manual worker. But Services people are not manual workers; they are knowledge workers and Drucker has correctly noted, "Knowledge work is not easily defined in quantitative terms, and may indeed be incapable of quantification altogether."[112] Frederick W. Taylor asked what constitutes "productivity" for the manual worker. He never asked the same question for the industrial engineer, the man who was applying his "Scientific Management."[113] Productivity for the knowledge worker is not as yet definable and therefore must be measured primarily on subjective qualities.

Measuring Services seems to be a most difficult process and much more thought is needed in order to develop measurements which will be effective in establishing the achievements made in working on the right problem of the organization. Because measuring Services is difficult, it should not be implied that measuring the individual manager or individual contributor in the line is any less difficult. The next area of this chapter discusses this aspect of the appraising problem at General Electric.

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[112]Drucker, *The Age of Discontinuity*, *op. cit.*, p. 288.

[113]Drucker, *Technology. . .*, *op. cit.*, p. 37.

C. Appraising the Individual

Appraising the individual manager or individual contributor is an integral part of the measuring or control function. Appraisal of employees has different goals in different organizations. In General Electric the purpose of appraisals is to aid the individual to become better in his position, to develop and aid in his self-development and not to determine whether or not he should get a raise in pay. This is a very significant part of how General Electric proposes that managers be measured effectively. The appraisal plan in General Electric, which was initiated about 1953, required that at least once a year a man write down what is required in his position in a self-development book. His boss would also in a separate duplicate book write down what he thought was required in the same position. The reason that the "job duties," "job requirements," or "job scope" was written down each year by both the incumbent and his supervisor is that, as Norman F. Maier has pointed out,

> Until the two agree on the. . .job areas there is bound to be disagreement in appraising or rating performance. The use of job descriptions and previous experience of the superior on the subordinate's job does not remove the discrepancy.[114]

Each incumbent then would rate himself against what was required, that is on each one of the so-called functions of the position. The superior would do the same thing. Later they would exchange books, discuss each one of the differences and come to an agreement. The differences may be that the incumbent of a position failed to work on one of the "functions" but that did not mean he was a failure,

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[114]Norman F. Maier, *Psychology In Industry*, Third Edition (Boston: Houghton Mifflin Company, 1965), p. 256.

but rather, it may have been with the full knowledge of the boss because of the urgency of some of the other factors of the position. This is a justifiable reason why a particular part of a function had not been fulfilled. A new incumbent in a position might be at a variance with his manager in what is required of a position after the first year--it must be remembered that position guides are fairly comprehensive but even a six to thirteen page position guide cannot and should not detail the job into a straight jacket. However, it should define the scope and purpose of the position adequately. The second, third, and fourth years should find the incumbent and boss quite close in their evaluation of the factors of the position, unless the position has changed. In terms of recording the requirements of the position, the first part of the appraisal could have been quite repetitious since each year the process is repeated and both the manager and the man retain their books.

The appraisal continues with recording how the incumbent performed with respect to other factors other than his specific function targets. In other words, if he were a manager, how did he do with planning for his component, how did he do with the organization of it, how did he do with the measurement of it, how did he do with promoting teamwork or integration. Each one of these aspects is sub-divided down into sub-groups. Then there was a summary with respect to each of these categories. Both the incumbent and his superior had to determine and record the strengths and weaknesses of the incumbent. The formal writing of the report in terms of strengths and weaknesses was important so that a person was able to capitalize on his strengths and could either aid himself by concentrating in the future on his weaknesses or seek to avoid his areas of weakness.

Another part of the appraisal dealt with whether the individual feels that his present line of work is the kind of work he should be in permanently or for how long in the future. If he decided that this is not to be his permanent kind of work, then what steps should he as an individual take in order to get himself out of this particular position into the kind of position where he thinks he would be better qualified or which he would like better. The superior had to record for future reference what he as a manager would do to aid that individual get out of that position, for, if the individual were still in the same position a year or two later, these statements might not only become very embarrassing to the supervisor but also they might be spotlighting a problem.

Another important part of this appraisal system was that each one of the books written by the incumbent and his superior was not only a performance and development review, but the comments pertinent to each were signed and sent to the common boss or the second level boss above so that he would sign and take note of the appraisal. This, then, became a permanent record, not in the company files, but rather between the three people--the incumbent of the position, his manager and his manager's manager. These books are returned to the employee when he leaves the company because the sole purpose of these appraisals is to make a person a better manager or individual contributor.[115]

William Greenwood remembers:[116]

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[115]A more detailed explanation can be found in General Electric's *Manager Development Study* booklets, especially *Appendix I*, "Appraisal Plan for Manager Development" (1953) and *Appendix II*, "Manager's Appraisal Guide" (1953).

[116]Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

> The appraisal was done quite religiously from 1954 to 1958, after that I really don't know (he left General Electric). I don't know how widespread that procedure was except that I do know that Cordiner reviewed each one of the people reporting to him in this way. And I do know that he demanded that they in turn do the same thing with their incumbents because he, Cordiner, had to sign those books. As to how far down the line it really went--it was supposed to go down to the lowest level of managing--I don't know.

Jack S. Parker implied that he did not adhere strictly to the above appraisal plan. He spends much effort in evaluating the group executives reporting to him. This does not mean he does not also appraise them. In evaluating these Group Vice Presidents, Parker says he first looks at the executive himself in terms of "what is this fellow worth to the General Electric Company and how do we feel about him as an officer of the Company." He says, "If I have any doubts here, I ask what strengths would I look for in a replacement."[117] The second area Parker evaluates is the contribution of the incumbent to his operations. There he claims to look toward the future contributions and the present trade-offs between long-range and short-range contributions which the incumbent has programmed. Thirdly, he looks to see how does the customer like the way this man is managing. He says, "I check that independently, myself."[118] And, lastly, Parker evaluates the personnel under the executive "to see to it that better men are coming along--that is a matter of personnel and it means the future of the organization."[119] What Parker is subjectively doing is evaluating

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[117]Interview with Jack S. Parker, New York, July 1, 1970.

[118]Interview with Jack S. Parker, New York, July 1, 1970.

[119]Interview with Jack S. Parker, New York, July 1, 1970.

the executive in terms of what he thinks the man is worth and will be worth to the organization in four areas--Company, component, customer, and personnel development. This evaluation is formalized in a report once a year to the executive office as a whole, of which Parker is a part. The above is a subjective evaluation or appraisal; it should not be confused with the reports issued measuring progress against budgets which are issued monthly.

Lemuel Boulware explains why it is so difficult to appraise managers and knowledge workers. He believes luck and intangible factors play such important roles. He says years of experience

> . . .would indicate some intangible is the determining factor in one manager having a high percentage of decisions that prove to have been good ones, while another manager of apparently equal ability and access to information would have a lower percentage.[120]

It was Boulware who originally asked to have Smiddy organize the Measurements Study project in which Borch and Robert Lewis were to play such important roles. Yet, Boulware has stated:[121]

> My opinion has always been that the extra performance (of one individual over another) was not due to any superior instinct or intuition but rather to some unsensed combination of such factors as greater diligence, extra concentration, keener observation, a longer or more pertinent experience on which to draw even unknowingly, paying special attention to those facts and recommendations have proved more likely to be trustworthy, a disciplined tough-mindedness about one's own wishful thinking, and/or some other such positive ingredient whether consciously or subconsciously injected.

Smiddy insisted that "management by objectives," which centered on the assessment of performance by comparison

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[120]Letter from Lemuel Boulware, March 10, 1970.

[121]Letter from Lemuel Boulware, March 10, 1970.

against predetermined goals must be practiced. The often negative attitude which Douglas McGregor developed toward many managerial practices was not aimed at this type of management. He wrote that "management by objectives" offered "an unusually promising framework within which we seek a solution (to human problems of industry)."[122] McGregor cited General Electric as one company exploring different methods of appraisal based on the assumptions of Drucker's philosophy.

At the time McGregor was complimenting General Electric on its methods of appraisal, and about eight years after Cordiner had begun decentralization, Donald Webb wrote of General Electric's performance appraisals, "There is strong evidence that many Division General Managers have never carried out effective discussions with their Department General Managers in this area and it is believed that this resistance exists at all layers."[123] Webb went on to claim that in his seventeen years' experience with the company he had never had a discussion with any of his superiors which carried out "the spirit of the new management philosophy."[124] Dr. Herbert Meyer, Consultant in Behavioral Research Service, who has studied performance appraisals for the company and has been eighteen years in a department which requires performance appraisals, claims to have had only two in all that time.[125]

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[122]Douglas McGregor, "An Uneasy Look at Performance Appraisal," *Harvard Business Review*, Vol. 35, No. 3 (May-June, 1957), p. 91. Also see McGregor, *The Professional Manager* (New York: McGraw-Hill Company, Inc., 1967), Chapter 8, especially p. 131.

[123]Webb, *op. cit.*, p. 9.

[124]*Ibid.*, p. 10.

[125]Interview with Dr. Herbert H. Meyer, Consultant, Behavioral Research Service, General Electric Company, Darien, Connecticut, August 25, 1970.

The philosophy referred to by both Donald Webb and Herbert Meyer is found in the *Professional Management* series dating back to 1954:[126]

> An individual who is not performing up to expectations in a particular position should be told so frankly and kindly by his manager. The individual himself should know sooner than anyone else if he is not performing up to the standards he has set for himself, or up to the requirements of the job which he has undertaken. He should be given all possible encouragement and guidance if he is trying realistically to improve his own abilities and to stretch himself toward adequate performance. He should be removed from the position if, after a fair trial and after receiving help and encouragement, he continues to fall short of expected accomplishment.

McGregor describes the possibility that there may be a sound foundation behind the widespread reluctance of managers to conduct such discussions with their employees and that this might be tied in with the manager's reluctance to "play God." McGregor argues that the "management by objectives" approach lessens the burdens of "playing God."[127] The question is not so much "playing God," but one of leading and managing. A good manager must of necessity "play God" in choosing people for promotion, in giving assignments to people and in making many of the other choices that must be made by a manager. The problem is, can the manager do this face to face with the employee or only behind the employee's back. In terms of management by objectives, it must be done face to face with the employee.

The main thrust of the General Electric philosophy is contained in this tenet, "Individuals. . .are motivated

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[126]*Professional Management in General Electric Book Three, The Work of a Professional Manager* (New York: General Electric Company, 1954), pp. 59-60.

[127]McGregor, "An Uneasy Look. . .," *op. cit.*, p. 90.

principally by. . .inner drives rather than by someone else's directions."[128] It is based on the contention that the company and he supervisor must set up a work situation which enables an individual to motivate himself. It is not a new philosophy, nor is it claimed to be, for it is shared by McGregor, Mayo, Hopf, Follett, and all of the human relations philosophers. As Robert Townsend points out, "You can't motivate people. The door is locked from the inside. You can create a climate in which most of your people will motivate themselves to help the company reach its objectives."[129] The foundation for this belief is the premise that employees do not need to be controlled or commanded if they clearly know what is to be done, why it is to be done, how they are to be measured and paid, and what their advancement opportunities may be. The General Electric philosophy says,

> This is the way in which strong inner urges and individual self-motivation, self-direction, self-adjustment, self-education, self-development, self-discipline, self-control, and the desire for self-realization are geared to the business enterprise.[130]

It is the company's philosophy that a healthy managerial attitude encompasses a willingness to submit to unifying direction and to work in a spirit of cooperative concern for the work of others, while at the same time seeking personal achievement and recognition. A decentralized manager must be free to cope with such problems as maintaining or improving the competitive position of the product line by improving profits without unbalancing pressures

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[128] *Professional Management in General Electric Book Three. . ., op. cit.*, p. 73.

[129] Robert Townsend, *Up the Organization* (New York: Alfred A. Knopf, 1970), p. 142.

[130] *Professional Management in General Electric Book Three. . ., op. cit.*

from above. The desired atmosphere was suggested by Dr. Harry Hopf:[131]

> Practically every act of management requires for its consummation that cooperative relationships be maintained between two or more persons . . . .The problem is to determine the best method of bringing about these relationships . . . .The existence of cooperation depends primarily upon the setting by top executives of an example which may be found worthy of emulation by other members of the organization.
>
> The acid test of the existence of true cooperation is the presence of a two-fold relationship of loyalty--loyalty to his superior on the part of the subordinate and loyalty to his subordinate on the part of the superior. If this relation of mutual confidence exists, the result, in practical terms, spells the finest type of cooperation.

According to Mary Parker Follett, this desired managerial attitude involves "participation" which is obtained in three ways:[132]

> By an organization which provides for it, by a daily management which recognizes and acts on the principle of participation, and by a method of settling differences, or a method of dealing with the diverse contributions of men very different in temperament, training, and attainments.

One way of evaluating the Company's philosophy of decentralization is to analyze the separate contentions by one of the Company's critics, Professor Edward M. Currie, University of Hawaii, who held a responsible position in the company during the Cordiner years. Currie says,

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[131]Harry Arthur Hopf, "Business Management and the Scientific Point of View," *The Engineering Journal* (Canada), Vol. XX, (December, 1937).

[132]H. D. Metcalf and L. Urwick (eds.), *Dynamic Administration: The Collected Papers of Mary Parker Follett* (New York: Harper and Brothers, 1941), p. 213.

> GE's weakness lies not so much in the lack of insight as in its inability to implement. Its use of the integration concept encourages self-knowledge and te. m efforts. It clearly exposes the managerial attitude of participation in decision-making.[133]

He goes on to say, though, "The emphasis is clearly on the encouragement of self-development, but there is also an implied equating of judgment with appraisal, and a de-emphasis on the manager's responsibility to develop subordinates."[134] Currie believes that when appraising a man you should not use judgment as it will hurt self-development. Should not judgment be one of the methods for appraisal? To answer in the negative, as Currie does throughout his article on General Electric, assumes appraisal to be made solely on facts. But Drucker has noted only opinions give facts value.[135] Currie's attack on General Electric's self-development program stems from his belief that judgment should not be used as part of the total appraisal of employees. For a man to self-develop he must be able to measure himself--which is part of the corporate philosophy. Most individuals want to know how his self-evaluation compares against the evaluations of others, especially against those in power positions in relation to his own position. As part of the esteem need, people want to know that others respect them and appreciate them. Appraisal by a superior may fulfill this need. Appraisal by superiors will also help direct the activities of subordinates so that they fit the needs of the superior and team and thus allow the subordinate to work in areas which will enable him to be more productive

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[133]Currie, *op. cit.*, p. 16.

[134]*Ibid.*

[135]Drucker, *The Effective Executive, op. cit.*, Chapter 7.

to the organization and receive higher appraisals. Ray E. Brown points out,

> Criticism is hard to take, but people do want to know where they stand. Nobody likes to play a game and not know the score. . . .If the administrator is to get improvement rather than antagonism, he must be able to demonstrate disapproval without demonstrating hostility, and to do this he must be able to reserve a sufficient margin of personal detachment to permit him to be emotionally casual in expressing disapproval.[136]

People want to know how well they are doing as perceived by others. Currie goes on to explain that General Electric did not have effective human relations when he was in the company because the company philosophy and the practice suggests that the following be common to corporate managerial action:[137]

1. Achieve understanding, including using the "tell and sell" approach.
2. Lead by "suggestion and persuasion" rather than by participation.
3. Listen, rather than understand and accept.
4. Fit the man to the job rather than tailor jobs to fit man's needs.
5. Hamper the delegation of responsibility and accountability with a mandatory pattern of obedience "at all costs," requiring the manager to "accept the decision as though it were his own."
6. The insistence upon standards being set by higher echelons.
7. The reservation by upper management of the right to reject the planning results (e.g., a budget) of a decentralized component on the grounds that it is too low, or any other grounds.

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[136]Ray E. Brown, *Judgment in Administration* (New York: McGraw-Hill Company, Inc., 1966), pp. 65-66.

[137]Currie, *op. cit.*

The second point made by Currie, leading by suggestion and persuasion rather than by participation, is contrary to the philosophy of the company. If managers did not practice participation, these managers would be acting counter to the philosophy. Participation *and* persuasion are both often mentioned as requirements for good leadership in General Electric teachings. Philosophy *Book III* in the company's *Professional Management* series plainly states, "LEADERSHIP by suggestion, persuasion and participation on the part of managers and supervisors and other professional employees, at all levels, (in General Electric) has truly supplanted command, domination, or coercion. The professional manager thus leads by the authority of knowledge, and not by the authority of rank or position."[138]

The degree to which this concept is increasingly being clarified is perhaps best emphasized by quoting a little footnote from the firm's chart, "The Work of a Professional Manager," which is used in General Electric to explain the thesis where the philosophy is not fully understood. The footnote says:[139]

> It is recognized that there may be emergency conditions where Persuasion has failed, and results of continued effort at Persuasion--in the judgment of the Manager--would be worse than temporary use of "Command" to get on with the job. In so doing the Manager is acknowledging temporary failure as a "Professional Manager"; and hence resorts to such course as an expedient only and takes requisite steps to identify and correct the root causes of the failure in order to prevent subsequent similar failures.

The fourth Currie point, fitting the man to the job, rather than tailoring jobs to fit man's needs, is

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[138] *Professional Management in General Electric Book Three. . .*, *op. cit.*, pp. 199-200.

[139] "The Work of a Professional Manager" reproduced in numerous places such as in *Professional Management in General Electric Book Three. . .*, *op. cit.*

absolutely a company belief. Currie says, "If the candidate is not prepared to accept these conditions willingly and even enthusiastically, then he should seek another position more to his liking."[140] He sees this as a negative point, for he sees the issue as an either/or approach. General Electric sees the job, although dynamic, as more permanent than the incumbent.

Currie's fifth point is that there is a mandatory pattern of obedience requiring the manager to accept the decision as though it were his own end. The sixth point is the insistence upon standards being set by higher echelons. These are parts of the philosophy of the organization and are used to help goal setting by individuals. Goals are set by mutual discussion between the subordinate and the superior, so that the individual goals will fit the organization objectives. Upper management does have veto power on budgets if these goals do not fit with the organization needs. It's not that the standards and goals are set by higher echelons, but that they are accepted or rejected at higher echelons. General Electric says:[141]

> If, after consideration, the manager decides to pursue a course different from that which was recommended and adequately explained, then the man should act in good spirit in accordance with his manager's decision. This attitude is necessary because, by making the decision, the manager has assumed the responsibility and the accountability for unity of action in his component. Making the final decision is his obligation and prerogative in accordance with his over-all accountability. In such cases the manager has an obligation to the man to explain the reasons for his decision, if at all feasible, and the man should accept the decision as

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[140] Currie, *op. cit.*

[141] *Professional Management in General Electric Book Three...*, *op. cit.*, p. 83.

> though it were his own. This last point is particularly true in subsequent work with those who report to him. Morale and working climate are damaged if a man passes "down the line" such a decision as an edict of his boss which he is required to promote against his own best judgment.

Currie interprets the above quotation as forcing a decision upon a subordinate, and he implies this is common practice. He notes, "Forcing a decision upon a subordinate is never productive of optimal results, except in the most extreme emergency circumstances."[142] Although his use of "never" is overdramatic, the basic statement is largely true, but the general practice of forcing decisions on lower personnel is not a proper interpretation of the above paragraph or any other part of the philosophy of General Electric. It is true that the philosophy is not advocating a "country club" atmosphere or fostering a popularity contest, but it is also true that the philosophy does not subscribe to the practice of having the employees "run off in all directions" at once.

Currie adds, "To further subject a man who has been so treated to the ritual of a performance appraisal by his manager, is to augment arbitrariness with abuse, and is contrary to good human relations."[143] Is Currie advocating that a superior should not question, or appraise, nor remove from office any subordinate? Such a conclusion seems to be a misinterpretation of the concepts of human relations. The appraisal system helps to develop the proper environment needed to foster good human relations. Part of the General Electric philosophy as previously quoted is "An individual who is not performing

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[142] Currie, *op. cit.*, p. 17.

[143] *Ibid.*

up to expectations in a particular position should be told so frankly and kindly by his manager."[144] Currie condemns the corporation on this point, because he says, "A more effective method of dealing with incompetence is to discover it from the employee himself in the process of non-directive counselling."[145] It is the belief of Currie and a number of other human relations writers that employees will "face up" to their weak areas. There are others who believe that people may misinterpret their weak areas as "strengths"; such as when a person is considered stubborn by others, he may see himself as having a strong will. Currie says that the General Electric philosophy either builds an organization of "yes men" or produces an environment where disagreement is stymied.[146] It should be remembered that Currie worked in the financial area for about a decade at General Electric. William Greenwood says this biased picture of General Electric could be expected of financial people, for he claims that the financial organization fought the philosophy and tried to operate as a highly independent, non-GE type function. The financial organization was so tightly organized that "if you didn't fit their mold you were out of luck!", adds William J. Greenwood.[147]

Up to the time of any decision, the philosophy encourages disagreement. After the decision is made by the manager, the corporate philosophy states, "The man should act in accordance with the decision, whether or not

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[144] *Professional Management in General Electric Book Three. . .*, *op. cit.*, p. 59.

[145] Currie, *op. cit.*, p. 17.

[146] *Ibid.*, p. 18.

[147] Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

it agrees with his prior recommendation; because by making the decision, the manager has assumed the responsibility for establishing unity of action to achieve desired results --which is the prerogative and obligation of his position."[148] Disagreements of men close to the situation at hand should be given a careful hearing and will often suggest higher quality decisions than those arrived at by the boss alone. Former Secretary of the Treasury, George M. Humphrey, is quoted as saying, "There are no hard decisions, just insufficient facts. When you have the facts, the decisions come easy."[149] Currie says that with this type of philosophy--that when you have the facts decisions come easy--"overlooks the importance of acceptance, which is required for elegance in decisions as much as qualitative analysis."[150] Here Currie is pointing out the need that once a decision is made the subordinates must act in accordance with the decision. General Electric says, "We are committed to competition as a way of life, and to the doctrine that one should be compensated in accordance with his accomplishments."[151] Currie condemns General Electric here as he says, "Emphasis on competition often leads to absurd artificialities in the development of motivation. Competition can be both superfluous and destructive if the rules are not scrupulously just and the task to be done clearly defined."[152] It is difficult to agree with Currie as

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[148] *Professional Management in General Electric Book Three. . .*, *op. cit.*, p. 180.

[149] *The New York Times*, January 31, 1954, as quoted in *Professional Management in General Electric Book Three . . .*, *op. cit.*, p. 142.

[150] Currie, *op. cit.*, p. 18.

[151] *Professional Management in General Electric Book Three. . .*, *op. cit.*, p. 84.

[152] Currie, *op. cit.*

numerous authors have pointed out that competition is one of the strongest motivators.

Part of General Electric's managerial philosophy is that "the work of managing inherently involves exercising judgment as a basis for making decisions. Judgment, which is in essence appraisal, is in turn a function of the facts and information on which it is based."[153] Currie says, "The General Electric approach overlooks the weaknesses of decisions by the managers which are based on fact, intuition, or judgment, and fails to emphasize the more important aspect of the desirability of obtaining group participation and workable decisions which result from such participation."[154] Participation is the basis of the philosophy as has been previously noted. Currie ends his discourse on GE by stating that it is his "conviction that ineffective human relations represent a major weakness of the General Electric Company."[155] It is interesting to note that while attacking the philosophy of decentralization as opposed to centralization, Currie uses arguments which have no relationship to organization structuring.

In spite of the vigorous implementation of General Electric's procedures for the appraisal of performance during the early 1950's, Currie feels the program has "been notably ineffective" because it involved a "judgment by superior."[156] He goes on to claim that"the use of judgment and the unavailability of standards in appraising renders the process virtually useless."[157] The company

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[153] *Professional Management in General Electric Book Three. . .*, *op. cit.*, p. 110.

[154] Currie, *op. cit.*, p. 19.

[155] *Ibid.*

[156] *Ibid.*, p. 36.

[157] *Ibid.*

philosophy has been and is as taken directly from Peter Drucker:[158]

> Appraisals must be based on performance. Appraisal is judgment and judgment always requires a definite standard. To judge means to apply a set of values; and value judgments without clear, sharp and public standards are irrational and arbitrary. They corrupt alike the judge and judged. No matter how "scientific," no matter even how many insights it produces, an appraisal that focuses on "potential," on "personality," on "promise"--on anything that is not proven and provable performance--is an abuse.

Currie continues to shed light on the reason for his negative attitude toward General Electric's appraisal program for he adds, "There is serious question as to the validity of appraisal techniques, per se (in any corporation)."[159] He also claims the system is without standards. Being an accountant, Currie may be unaccustomed to handling "non-objective" standards or objectives. A standard can be and often is quite subjective. At General Electric the setting of objectives is the first step, then a budget is built to fit the objectives and lastly the budget is costed. So, at General Electric the accounting objectivity of costing is built on the subjective budget and the even more subjective objectives.

Currie has offered some criticism which may have some substance. He believes that a fear of being criticized wells up in many individuals because of appraisal.[160]

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[158] *Professional Management in General Electric Book Four, The Work of a Functional Individual Contributor* (New York: General Electric Company, 1959), pp. 189-190. This is taken from Drucker's *The Practice of Management, op. cit.*, p. 150.

[159] Currie, *op. cit.*, p. 37.

[160] *Ibid.*, p. 39.

Naturally, fear of criticism, and the resulting effort to conceal behavior which would elicit criticism, will usually frustrate the most well intentioned approach to performance appraisals. Fear, the traditional tool used in the motivation of industrial workers has "largely disappeared in the modern West,"[161] notes Drucker. People usually fear appraisal; if they have not done well they fear being found out; if they have done well, they fear misappraisal. However, Currie believes that, "It is not clear. . .that fear has disappeared from General Electric's motivation of management--for a system which emphasizes judgment of performance in intangible areas introduces a very real element of fear."[162] People demand that a manager be competent in his assigned area, be it long-range planning, or handing out work to the secretarial pool. Currie, as many other accountants, would like to develop a number of accounting measures such as rate of return on investment, sales, and so forth, or sales against budget or production against budget, to be used to evaluate a manager. Most managers have jobs larger than can be quantitatively measured. The desire to measure a manager against only the measurements which can be quantitatively or tangibly set will reduce the manager to concentrate on only part of his job. The manager will concentrate on only the measured part of his job and thus the unmeasured will be left to catch as catch can. In order to see to it that the total job is performed, the manager must be measured on a number of intangible items, that is on the total job. As Drucker points out, "how we measure (and what we measure) determines what will be considered relevant, and determines thereby not just what we see, but what we. . .do. . . ."[163]

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[161]Drucker, *The Practice of Management*, *op. cit.*, p. 264.

[162]Currie, *op. cit.*, p. 39.

[163]Drucker, *Technology, Management and Society*, *op. cit.*, p. 145.

On balance, Currie does not, himself, seem to have established a sufficient case for his assertion that GE did not have effective human relations. But, Norman Maier has conducted some pertinent research which offers evidence that appraisal interviewing (which General Electric did before the new philosophy and is now only one part of the new program) and motivating behavior are in conflict. Maier found that an appraiser is almost certain to be led into a behavior pattern which leads to some deteriorating of human relations. His studies indicate that objectives, methods, and skills are interrelated to an extent which precludes analysis of any one aspect separately. Maier suggests that the appraisal interview be replaced by an interview concerned with employee development. If ratings are required for other purposes, he contends that they should be delayed until after the interview and that less emphasis be placed on the fault-finding technique.[164]

During the 1960's General Electric made extensive progress in this area as suggested by Maier. A small group known as Behavioral Research Service became responsible for company leadership in this area. Experiments conducted within the company by Dr. Herbert H. Meyer[165] helped to formulate a new method of appraisal reviews. Meyer studied the traditional annual performance appraisal method by testing it against a new method referred to as Work Planning and Review (W P and R). Studies had been made and are currently being conducted on how much and what kinds of employee participation would be most useful, and under what conditions. That is, what type and how much "participative" management is needed.

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[164]As reported in Currie, *op. cit.*, pp. 41-42.

[165]Dr. Meyer is a Consultant in Behavioral Research Service, General Electric Company.

Meyer worked with Dr. Emanuel Kay, a Research Specialist in General Electric's Behavioral Research Service, and Dr. John R. P. French, Jr., Program Director at the Research Center for Group Dynamics Institute for Social Research (University of Michigan). They were able to develop the following conclusions:[166]

1. Criticism has a negative effect on achievement ("The subordinate reacted defensively about 54% of the time when criticized.").
2. Praise has little effect one way or the other ("Evidence we gathered indicated clearly that praise tended to have no effect, perhaps because it was regarded as the sandwich which surrounded the raw meat of criticism.").
3. A tendency for a subordinate to over-rate his own performance ("only two of the ninety-two participants estimated their performance to be below the average point on the scale.") was reduced by the appraisal process (over 80% of the participants saw their manager's evaluation as being less favorable than self estimates.").
4. Performance improves most when specific goals are established ("the average percent accomplishment estimate for those performance items that *did* get translated into goals was 65, while the percent accomplishment goals estimate for those items that *did not* get translated into goals was about 27!").
5. Critical appraisal produces inferior performance ("improvement in the most-criticized aspects of performance was considerably less than improvements realized in other areas.").
6. Participation by the employee in the goal-setting procedure helps produce favorable results, providing the employee normally worked under high participative levels.

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[166]Herbert H. Meyer, Emanuel Kay, and John R. P. French, Jr., "Split Roles in Performance Appraisal," *Harvard Business Review*, Vol. 43, No. 1 (January-February, 1965), pp. 123-29.

7. Separate appraisals should be held for different purposes ("it is unrealistic to expect a single performance appraisal program to achieve every conceivable need. It seems foolish to have a manager serving in the self-conflicting role as a counselor helping a man to improve his performance when at the same time, he is presiding as a judge over the same employee's salary action case.").

The company's experience with the "W P and R" approach suggests that Work Planning and Review:[167]

> . . .are strictly man-to-man in character, rather than having a father-and-son flavor, as did so many of the traditional performance appraisals. This seems to be due to the fact that it is much more natural under the W P & R program for the subordinate to take the initiative when performance on past goals is being reviewed. Thus, in listening to the subordinate's review of performance, problems, and failings, the manager is automatically cast in the role of *counselor*. This role for the manager, in turn, results naturally in a problem-solving discussion.
>
> In the traditional performance appraisal interview, on the other hand, the manager is automatically cast in the role of *judge*. The subordinate's natural reaction is to assume a defensive posture, and thus all the necessary ingredients for an argument are present. . . .
>
> In general, the W P & R approach appears to be a better way of defining what is expected of an individual and how he is doing on the job. Whereas the traditional performance appraisal often results in resistance to the manager's attempts to help the subordinate, the W P & R approach brings about acceptance of such attempts.

Because of the research by Meyer, Kay and French in 1960-1966, General Electric has changed the method of performance appraisal. The twin objectives of the performance appraisal program--(1) letting a man know where

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[167] *Ibid.*

he stands via ratings and salary action, and (2) motivating him to improve--were not being achieved by the methods used in General Electric. The results of the research "showed that attempts to achieve the first objective frequently produce threat and defensiveness and these reactions, in turn, interfere with the achievement of the second objective," notes the company report.[168] In the study it was found by accident that, contrary to corporate policy, managers generally did not hold performance appraisals unless pressured into having them. In the traditional company method of appraisal, the performance was evaluated and goals were set. Meyer notes, "Performance appraisal is authoritarian. There is no doubt who is boss and who is subordinate."[169] He also noted that the appraisal is highly emotional and managers find it hard to discuss negative performance. It was found that frequently a manager would admit to a third party that he considered a particular employee as poor and desired to eliminate him, yet this would not be transmitted to the particular employee. The manager's appraisal interview often communicated just the opposite of those feelings. Two years of research showed that employees were more sure of where they stood before having the appraisal interview than they were after the interview. In other words, the interview tended to confuse rather than clarify. Research also found that employees not having the interview, which was contrary to company policy but nonetheless common, desired to have an appraisal interview. Also found was

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[168]E. Kay, J. R. P. French, Jr., and H. H. Meyer, "A Study of the Performance Appraisal Interview," (New York: Management Development and Employee Relations Services, General Electric Company, March, 1962), p. 35.

[169]Interview with Herbert H. Meyer, Darien, Connecticut, August 25, 1970.

the fact that rarely was specific improvement discernable as a result of the interview.[170] Thus, the research concludes:[171]

> A merit-pay type of salary plan makes some variety of summary judgment or rating of performance necessary, or at least desirable; but this rating should *not* be expected to serve also as a primary medium for changing performance. Quite separate from this rating activity, the manager can use goal planning discussions, special assignments, and other techniques to achieve improved performance on the part of subordinates.

Since 1966 the company has tried to use two or more interviews for performance appraisal. The first would be the discussion of past performance and the results of this interview were used mainly for salary and rating needs. According to Meyer, this interview must be kept to a very short and not very comprehensive discussion. The other interviews are to deal with the future rather than the past. The function of the future-oriented interviews is to motivate the employee by mutually setting short-term measurable targets or objectives. Meyer, French, and Kay believe that three months usually is a long enough time span for such targets. The study found, says Dr. Meyer, "only in those areas with specific targets were changes in performance observable and the more specific an objective the better."[172] They also believe that projects form better goals than day-to-day work. For instance, in a performance interview with a secretary it

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[170]Interview with Herbert H. Meyer, Darien, Connecticut, August 25, 1970.

[171]Kay, French, Meyer, "A Study of the Performance Appraisal Interview," *op. cit.*, p. 35.

[172]Interview with Herbert H. Meyer, Darien, Connecticut, August 25, 1970.

would be better to place a three-month goal to reorganize the files than to plan to have better daily typing.

The most constructive finding of the study was the fact that work planning and goal setting and subsequent review of progress discussions between managers and their subordinates, which focused on specific short-term plans and goals, yielded much greater returns in improved job performance than did appraisal discussions.[173] Since 1966, the company has tried to implement the goal setting interview separate from the salary appraisal review discussions. Periodic reviews of progress in achieving goals are used to provide a natural opportunity for mutual problem solving and hopefully a less threatening atmosphere than was characteristic of the salary review.

Because of the work by Meyer and his team, and by other behavioral scientists during the 1950's and '60's, General Electric made changes in the way work was assigned, accepted, and measured. The work planning and review process consists of periodic, informal meetings between a man and his manager. There still are a few formal ratings, but the emphasis is placed on an attempt to get together informally to match evaluations and expectations in less quantitative terms. The process centers on helping a man observe and measure himself in terms of how well he is meeting his goals and deadlines. The review with the manager is then just confirmation of his own evaluation of his own performance.

Three basic assumptions underlie the review process in General Electric: (1) an employee needs to know what is expected of him; (2) an employee needs to

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[173] "A Comparison of a Work Planning Program with the Annual Performance Appraisal Interview Approach," (Crotonville, N.Y.: Management Development and Employee Relations Services, General Electric Company), p. 2.

know how he is doing; (3) an employee needs to be able to obtain assistance when it is necessary.[174] The third assumption requires a climate which will encourage the individual to ask for assistance when necessary.

One General Electric study brought out that failures in any one of these assumptions were the causes for unfavorable attitudes held by highly valued engineers who later quit their jobs.[175]

Although the work of Meyer and his associates shows great promise, it has not convinced all authoritative behaviorists. Rensis Likert claimed, as recently as 1970, that General Electric departmental level practices his System I Management.[176] This generalization was made without qualification. He said that the stated philosophy of the firm is his System IV. In summary, from Likert's well-known book, *New Patterns of Management*, System I is a task-oriented, highly structured exploitive authoritarian management style, while System IV is a relationships-oriented or participative management style based on teamwork, mutual trust, and confidence.[177] Systems II and III, benevolent authoritarian and consultative, are intermediate stages. The two extremes, Systems I and IV, approximate closely the managerial styles described by McGregor's Theory X and Theory Y assumptions, according to Hersey and Blanchard.[178]

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[174]Hugh Estes, "The Ethics of Applied Behavioral Science," Speech, Cornell University Conference, New York City,, April 8, 1964.

[175]*Ibid.*

[176]Interview with Dr. Rensis Likert, Director, Institute for Social Research, University of Michigan, Honolulu, Hawaii, March 9, 1970.

[177]Rensis Likert, *New Patterns of Management* (New York: McGraw-Hill Company, Inc., 1961), Chapter 14.

[178]Paul Hersey and Kenneth H. Blanchard, *Management of Organizational Behavior* (Englewood Cliffs, N.J.: Prentice-Hall, 1969), p. 54.

Upon further probing, Likert was unable to present adequate research to substantiate his claim. He was able to note only two points in support of his statement. First, he said that General Electric in 1958 fired sixty managers for not making six percent return on investment. Second, he noted a study, undated, he had heard about covering three hundred or four hundred General Electric engineers who were divided into four quartiles. The quartiles were arranged by subjective evaluation of their potential in the company's future. Likert said that half of all the engineers left the firm, and almost all of these engineers came from the quartile having the highest potential in the company's future. Again, no source, other than rumor, substantiates the evidence. Thus, Likert concluded that General Electric was not practicing System IV Management, but was practicing System I below the departmental level.

The department level is the profit center. As to it being autocratic in management practice, this could be the case at any point in time. If so, it would be contrary to the basic philosophy of the company, but it would not be impossible to conceive this to be the case. Leadership style is an individual attribute. Frequently, those who are autocratic don't even know they are since at the same time they are teaching democratic leadership or leadership by persuasion. With about two hundred department general managers it is conceivable that a number of them could be autocratic, just as it is possible to assume some are democratic. But to make a generalization that the department managers in General Electric were practicing System I Management based on only the two cited studies may be overgeneralizing.

The belief that the departments are headed by autocratic managers is not substantiated by other managers who have worked for General Electric. Realistically, they do admit that some managers were and are autocratic, but these are in the minority and frequently do not last long.[179] Investigating the point that sixty managers were fired for not getting six percent return on investment, this point was denied by Greenwood.[180] He says, "I don't believe it. That many might have been fired, but certainly not for that reason."[181] Greenwood does not deny the point made about three hundred engineers. He says he has never heard of the study. "Of those employees in high level positions, the firm usually lost many whom it wanted to keep because they were the more aggressive ones,"[182] he says. Thus, it is admitted that those lost to the firm frequently are those most wanted by the company. Greenwood, who has spent about eight years in personnel with the Chase Manhattan Bank, N.A., says that most employees who quit on their own volition are usually persons of high quality, while employees of low or marginal quality are forced to resign or are fired. Greenwood goes on to assert that General Electric has a vast pool of capable people, that the quality of professional people remains very high since the weaker ones are continuously removed from employment and the

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[179]Interviews with Harold F. Smiddy, Honolulu, October 1, 1970; Paul E. Mills, Glen Ridge, N.J., August 7, 1969; William J. Greenwood, Darien, Connecticut, January 5, 1970; Hugh Estes, Manager, Organization Planning, General Electric Company, New York, July 30, 1969.

[180]Interview with William J. Greenwood, Darien, Connecticut, April 10, 1970.

[181]Interview with William J. Greenwood, Darien, Connecticut, April 10, 1970.

[182]Interview with William J. Greenwood, Darien, Connecticut, April 10, 1970.

strong ones compete against each other for the top positions.[183]

Donald R. Webb agrees with the sentiments of a number of other people in claiming that General Electric before reorganization was a company practicing good human relations. He said:[184]

> There used to be a widespread belief that General Electric was a Company with a conscience. There seemed to be a spirit pervading the Company--never expressly stated--which above all respected the dignity of human beings and which derived its basic policies, written or not written, from a higher order of principles. It is difficult to say where this spirit originated, but unquestionably it was a reflection of the high moral standards of its leaders. Undoubtedly, it was cemented together and communicated throughout the Company by the pep talks of the Company leaders at Association Island camps.

As some people have classified the business climates in various companies and in various industries, General Electric was characterized by a general climate of "human warmth"--by a "soft" management. It is recognized that the climate varied in different parts of the company. For example, if the old Apparatus Departments were characterized by a "soft" management, Electronics was, by contrast, "hard." These variations were a reflection both of the differences in competition and maturity of the industries in which the various parts of the company competed, as well as a reflection of the personalities of the leaders in the different parts of the company.[185]

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[183]Interview with William J. Greenwood, Darien, Connecticut, April 10, 1970.

[184]Webb, *op. cit.*, p. 10.

[185]These claims are documented from Webb, *Ibid.*, and interviews with Paul Mills, Glen Ridge, New Jersey, August 7, 1969; and William J. Greenwood, Darien, Connecticut, April 10, 1970; and George Chamberlin, Vice President and Controller, Scott Paper Company, Philadelphia, June 30, 1970, all former employees of the General Electric Company.

The new organization and management philosophy that accompanied decentralization gave "scientific" legitimacy to much of this character. "Man-to-man discussions" were begun and were a part of the philosophy of the new salary plan. This is one excellent example of the action required by the new philosophy working in the direction of full recognition of the dignity of the human being and the desire to practice good human relations as understood in 1951 and the years following. Even some of the practices which appear on the surface to be "cold" are upon careful analysis practices which would further the "human warmth" of the managerial climate. For example, the philosophy made obsolete the practice of "kicking a man upstairs" which was actually much more harmful to him and to those around him than the frankness required by the new philosophy.

Conclusion

Although this chapter has not covered a wide variety of subjects, it is hoped that some light has been shed upon the type of organization which is General Electric. The sweeping organization changes of the early 1950's produced shocks felt strongly until about 1960, then the firm experienced new shocks caused by managerial errors in forecasting. General Electric management thought of decentralizing as far back as the 1930's. Former President Charles E. Wilson relates, "My own design and desire, as early as 1930, was decentralization but by the time I became President in 1940 we were on the verge of a world war. . . .When I returned from my duties with the War Production Board in late 1944 I had full realization of the tremendous changes the war had brought about and spent my remaining years as President capitalizing on my

belief in the potentials. . . .By 1949 I knew we finally had to decentralize, and hence, the efforts of Mr. Cordiner. . . ."[186] These past two chapters have offered a history of the organization changes, the philosophy behind the moves, and, hopefully, some flavor of the organization.

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[186]Letter from Charles E. Wilson, retired President, General Electric Company, dated April 14, 1970.

CHAPTER V

PRICE FIXING

One of the most frequently heard criticisms of decentralization in General Electric is based on the price fixing scandal. Therefore, it is important to deal with this widely publicized subject. A number of articles and books have been written on the price fixing scandal of 1960. Implied by some and stated by others is that decentralization was to blame for much of the loss of control by management leading to the company's price fixing mess.[1] Cordiner denied under oath any connection between price fixing and decentralization.[2] It should be noted that the government investigation seemed to bring out the point that General Electric was involved in more anti-trust action before 1950 than after, that is, before decentralization. In 1946, General Electric's President, Charles E. Wilson, issued instructions in compliance with anti-trust laws. The directive was known as Company Policy 2.35, and these instructions were reissued in 1948 and 1950. The instructions stated that

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[1] "Electric's New General," *Time*, Vol. 82, No. 16 (October 18, 1963), p. 106. Also, John Herling, *The Great Price Conspiracy* (Washington: Robert B. Luce, Inc., 1962), p. 278.

[2] U. S. Senate, Committee on Judiciary, *Price Fixing and Bid Rigging in the Electrical Manufacturing Industry*, S. Res. 52, Part 27 (87th Cong., 1st Sess., 1961), p. 17723.

> It has been and is the policy of this Company to conform strictly to the anti-trust laws. . .special care should be taken that any proposed action is in conformity with the law as presently interpreted. If there is any doubt as to the legality of any proposed action. . ., the advice of the Law Department must be obtained.[3]

In 1950, Ralph Cordiner's "new philosophy of decentralized management specifically prohibited meeting with competitors on prices, bids, or market shares,"[4] says one critic, Richard Austin Smith. Under Cordiner, Wilson's instructions on compliance with anti-trust laws remained very much in force and were known as General Company Policy 20.5 which is reprinted in full in Appendix Exhibit 4-1. Cordiner reissued his 1950 Policy 20.5 in 1954, 1958, 1959, and a number of times after the 1960 price fixing cases broke.

Many people point to the fact that if Cordiner had to keep reissuing the 20.5 directive, then it follows that Cordiner must have known of violations. Senator Kefauver, as Chairman of the Senate Subcommittee on Anti-trust and Monopoly in 1961, asked, "Why was it necessary for GE to keep reissuing '20.5'? Once issued, why was it not considered binding Company policy until revoked?"[5] Kefauver did not direct these questions to any individual but used them as a method of pointing suspicion toward top management at General Electric, especially Cordiner. In answer to these questions, which General Electric did not attempt to do, it can be noted that all company policy is issued with an issuing date and must be reviewed and reissued after a predetermined length of time. Some policies run for

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[3]Richard Austin Smith, "The Incredible Electrical Conspiracy, Part I," *Fortune*, Vol. 63, No. 4 (April, 1961), p. 135.

[4]*Ibid.*

[5]U. S. Senate, Committee on Judiciary, *op. cit.*, p. 16510.

three or four years before review; others must be reviewed earlier, depending on their nature, but the next review date is always listed on the policy at the time of issuance.[6] It should also be noted that this particular policy required that the signature of managers be placed on the policy as evidence of having read and understood it.[7]

Collusion did occur under the Wilson directive, and again under the Cordiner 20.5 policy. *Fortune* magazine quoted one General Electric employee, but refused to name him, as saying, "Sure, collusion was illegal. . .but it wasn't unethical. It wasn't any more unethical than if the companies had summit conferences the way Russia and the West meet. Those competitors' meetings were just attended by a group of distressed individuals who wanted to know where they were going."[8] General Electric was convicted of anti-trust violation in 1944 and, because of this, General Electric lawyers put everyone on notice that it was certainly illegal to discuss prices with competitors. After Wilson's anti-trust admonition, the General Electric representatives kept out of formal meetings with competitors, but *Fortune* magazine says that Clarence Burke, a manager in the Pittsfield, Massachusetts plant, admitted that competitors kept the Pittsfield group informed by telephone of their own price agreements. Then, "Word came down to start contacting competitors again," Burke remembers. "It came to me from my superior,

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[6]It may be noted that the version of Directive Policy 20.5, reproduced in the Appendix, was issued June 8, 1964, superseding the issue dated January 4, 1963 (eighteen months earlier); the Procedure issued on September 29, 1965, supersedes previous communications dated May 13, 1964, April 23, 1964, and January 4, 1963, and is itself to be reviewed by August 1, 1966 (thirteen months hence).

[7]Interview with Philip D. Reed, New York, August 4, 1970.

[8]Smith, *op. cit.*, p. 135.

'Buster' Brown, but my impression was that it came to him from higher up. I think the competitive situation was forcing them to do something, and there were lots of old-timers who thought collusion was the best way to solve the problem."[9] Men like Burke ran the conspiracy. Some 650 million dollars in sales was involved, according to Justice Department estimates, from 1951 through 1958. The object of the conspiracy was to rotate business on a fixed percentage among four companies with General Electric getting 45 percent of the market, Westinghouse 35 percent, Allis Chalmers 10 percent, and Federal Pacific 10 percent. Meetings were held every few weeks to determine new moves.[10]

Robert Paxton, who became President of General Electric just before the case broke, quickly resigned because of "health reasons." Cordiner was recalled to the Presidency and to ride out the storm. Paxton was a very close friend of Ray Smith, a Vice President who was later convicted of conspiracy. Judge Ganey, who tried the cases in Philadelphia Federal Court, said that, "I am not naive enough to believe General Electric didn't know about it and it didn't meet with their hearty approbation."[11] Without doubt, there was a serious management failure at General Electric.

It seems that the executive office had not detected the cartels for over a decade, while it was an open secret to the rest of the industry, claims Richard Austin Smith.[12] It turned out that General Electric was involved in nineteen cartels which accounted for ten percent of General Electric's total sales.

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[9] *Ibid.*, p. 136.

[10] *Ibid.*, p. 137.

[11] *Ibid.*, p. 180.

[12] Richard Austin Smith, "The Incredible Electrical Company, Part II," *Fortune*, Vol. 63, No. 5 (May, 1961), p. 164.

On February 16 and 17, 1961, the Federal Court in Philadelphia handed down seven indictments. Forty companies and eighteen individuals were charged with price fixing or dividing the market. General Electric pleaded "guilty" to all the major indictments against it and the other major companies did likewise.

It is plausible to think that Cordiner, as Chief Executive, a man of great experience served by large staffs and service organizations, could actually believe that major divisions within the General Electric Company were waging aggressive campaigns in a competitive market, while, in fact, they were meeting with competition to fix prices as members of a cartel. The United States Anti-trust Division spent over four years seeking to disprove this concept without success.[13] Cordiner twice, in the Fall of 1960, and in the Spring of 1961, asked both internal counsel and an outside counsel to examine Ralph Cordiner, himself, and report to the Board of Directors. It has been implied that the reports cleared Cordiner, although these reports have not been released.[14] Clarence Burke, General Manager of Switchgear, and one of the few managers who pleaded guilty to price fixing, claimed, "Cordiner was sincere but undersold by people beneath him who rescinded his orders."[15] Not only did Cordiner deny the charge that he knew of and condoned the price fixing, but he denied, claims John Herling, "that his lack of knowledge proved him derelict in his duties."[16] John Fuller writes in his

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[13]Peter F. Drucker, "Big Business and the National Purpose," *Harvard Business Review*, Vol. 40, No. 2 (March-April, 1962), p. 55.

[14]Herling, *op. cit.*, p. 273.

[15]Richard Austin Smith, "The Incredible Electrical Conspiracy, Part I," *op. cit.*, p. 176.

[16]*Ibid.*, p. 266.

book, *The Gentlemen Conspirators*, that

> If Cordiner's position is sincere, it stands as a gargantuan monument to flagrant dereliction of duty during the years 1951 to 1959 when all the hidden ball plays were being quarterbacked by the highest echelons immediately under his jurisdiction. Direct, probative evidence is practically non-existent as far as Cordiner is concerned.[17]

Fuller did not explain why he chose to use the word "practically" in the above quote. It implies that some evidence has been found against Cordiner. Neither Fuller nor any other author has brought such evidence to light. The *1960 Annual Report* issued in February of 1961 says:[18]

> The Company's management strongly believes it was diligent and under the circumstances would not reasonably have discovered sooner than it did the deliberately secretive activities in question.

Theodore K. Quinn said, "They would have us believe that a man can be in a top executive position for twenty years, working in an atmosphere of continuing illegality and never know of it. This may sound absurd, but it's exactly what they testified."[19] It has been charged that even if Cordiner did not know of the situation, he should have known. Yet, there is a vast difference between "should have known" and "having the ability to know." "People familiar with large organizations--executives, administrators, consultants--have known all along," says Drucker, "that keeping top management informed is the most elusive administrative problem of the big organization (and not of

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[17]John G. Fuller, *The Gentlemen Conspirators* (New York: Grove Press, 1962), p. 52.

[18]*General Electric Company 1960 Annual Report*, p. 22.

[19]Theodore K. Quinn, *Unconscious Public Enemies* (New York: The Citadel Press, 1962), pp. 24-25.

the business enterprise alone)."[20] Perhaps because of this reason it was implied by Cordiner and Cresap (President of Westinghouse) that the higher one goes in a company, the less they know about what is going wrong.

For information to be usable by top management, it is abstracted and formalized, much of the substantive meaning is lost. Often what is reported are the exceptions from what is expected. Paul Mills, retired Manager at General Electric, calls this "managing by patterns"; others have called it "managing by exception." Mills says, "you may have a pattern which could run you to bankruptcy."[21] Drucker says,

> The GE-Westinghouse debacle supports a hunch of many experienced executives: formal methods of information, such as reports, audits, studies, and business reviews, are not enough. They have to be supplemented by systematic, though informed face-to-face contacts. Top management needs to get the "feel," as well as the "facts."[22]

It should be remembered that Cordiner was called the "undertaker" by those below him. This was in reference to both his personality and his reorganization of the company which shortened many careers. Richard Austin Smith, author of *Fortune's* two articles on the Electrical conspiracy, claims:[23]

> Cordiner has been criticized within the company, and rightly so, for sitting aloofly in New York and sending out "pieces of paper" --his 20.5 anti-trust directive--rather than having 20.5 personally handed to the local staff by the local boss. But this was also a failure in human relations. A warmer man

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[20]Drucker, "Big Business. . .," *op. cit.*, p. 55.

[21]Interview with Paul E. Mills, Glen Ridge, N.J., August 7, 1969.

[22]Drucker, "Big Business. . .," *op. cit.*, p. 56.

[23]Smith, "The Incredible Electrical Conspiracy, Part I," *op. cit.*, p. 176.

> might have been close enough to his people to define what was going on. According to T. K. Quinn. . .Ralph Cordiner was "First class in every aspect of management except human relations."

After the scandal broke, but before the General Electric stockholders meeting in April of 1961, Henry Ford II, a Director of General Electric, made the following statement which seems to be directed toward the company's top management, and is evidence of unhappiness with Cordiner and his "I did not know, I am innocent of any wrong doing or mismanagement" attitude. Ford said:[24]

> At the very least, top operating executives are responsible for establishing strong and explicit policies concerning the conduct of employees under the law and in conformance with high ethical standards. These executives are also responsible for communicating these policies to their employees and making sure they are understood. . . .This is not a simple or routine matter. It must be carried out with the utmost thoroughness and intensity. Employees at all levels must be made to feel in their bones that their company's codes and policies mean exactly what they purport to mean.

Ford went on to lay partial blame on the Directors of the anti-trust violating company, especially the outside Directors (at this time Cordiner was the only inside Director). Ford, noting the trustee function of Directors, said:[25]

> I believe these recent happening should alert outside Directors to the need to be aware of the pertinent codes and policies of the companies on whose board they sit. Normally, the outside Director has only a broad picture of the business and cannot be completely familiar with the day-to-day operating details. But, when serious improprieties occur, all companies, whole industries and individuals, whether legally

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[24]Herling, *op. cit.*, p. 203.

[25]*Ibid.*

> responsible or not, suffer the consequences of an inflamed and properly outraged public opinion.

General Electric has traveling auditors who have a number of functions, one of which is to discover fraud. It can be asked why these auditors didn't detect the anti-trust violations, and/or catch the violators. In answer to this question, one General Electric manager said,

> It would be very difficult for the auditors to catch it. They are charged with the discovery of fraud; there is no question about that. Evidently, it was kept so secret and so close to the vest by such few people, I really believe it was held by a very few people in GE for it seemed to be only practiced by the holder of a certain position and his replacements, that the auditing staff couldn't have any way of catching that secret. I don't see how they could have caught it.[26]

Edward Currie, who was an auditor in the Switchgear Division at the time of the conspiracies, wrote, "Because of the method used to meet with competitors, there was and is no way to catch such violations by looking at the records."[27]

William Ginn, Vice President of General Electric, was the highest level executive in the firm to admit to the knowledge of price fixing. Ginn, as a leader in price fixing, called the few who knew about it "The Club." He said he didn't talk freely about it, "only to the people in the club."[28] Ginn went on to add that the "club" was fairly large, and as he said, "The club grew to beat hell after decentralization."[29] He claimed that "the club was confined only to three divisions."[30] How far back was price fixing a common practice? Ginn knew of it in the mid-thirties.[31] Ray Smith, GE Vice President and one-time

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[26] Interview with William J. Greenwood, Darien, Connecticut, April 10, 1970.

[27] Interview with Edward M. Currie, Assistant Professor of Accounting, University of Hawaii, Honolulu, Hawaii, May 5, 1970.

[28] Herling, *op. cit.*, p. 246. [29] *Ibid.*, p. 247.

[30] *Ibid.* [31] *Ibid.*, p. 246.

traveling auditor, said,

> To my knowledge, during the entire period from 1940 through 1956, it was common practice in both of these areas (transformers and switchgears) to discuss prices and other competitive matters with competitors.[32]

Another General Electric manager convicted of price fixing was Marc deFerranti who worked for much of his General Electric tenure in the Services side of the business, and at one time in charge of the Crotonville School. He was transferred into operations only about four months before the conspiracy broke. deFerranti had never gone to a price fixing meeting. He said that he was invited to such a meeting after being there a couple of months, but declined because it was contrary to the corporate policy. deFerranti says, "I was told that this is the way things have been done. It goes back to the time of 'Buster' Brown in the twenties. I again pleaded that it was still wrong, but my division head (William Ginn, Vice President) to whom I reported, said, 'Well, you have to make up your mind--do you want this job or don't you?'"[33] Having knowledge of the illegal practice, deFerranti sat for about two months wondering what to do. He was debating as to whether he should go to Cordiner or not, because that meant he'd have to go over two levels (Ginn and Arthur Vinson, Group Vice President). Not knowing the attitude of the Chairman of the Board, it was a most difficult position in which to find oneself.

Shortly after the conspiracy became public, deFerranti and the others were offered the right to resign. In fact, if resignation was not given, they would have been fired. So it was tantamount to being fired.

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[32] Smith, "The Incredible Electrical Conspiracy, Part I," *op. cit.*, p. 178.

[33] As reported by William Greenwood, interview, April 10, 1970, who spoke with deFerranti just after deFerranti met with Cordiner in September, 1959.

Most of these men who were let go had spent many years with the firm and were of high caliber executive material. Cordiner felt that they must be removed as they had broken the law and corporate policy. The other companies in the case did not fire their men. Cordiner delegated the responsibility of finding these executives new job--for they were top executives with talent, they had given many years to the firm, and they were broken men, but they wanted to have a chance elsewhere. William Greenwood was given the responsibility to help place these men. William Ginn became President of the Baldwin-Lima-Hamilton Corporation which had $120 million sales in 1960.[34] Lewis Burger was placed with LeTourneau Westinghouse, a subsidiary of Westinghouse Air Brake Company (not related to Westinghouse Electric), and he is now President of that company. Clarence Burke and Frank Stehlik became executives at Philco; one conspirator became the Executive Vice President of Stanley Works, another the Executive Vice President of Yale and Towne, while deFerranti became President of the European subsidiary of the International Telephone and Telegraph Company.

The legal function of General Electric came under much criticism after the electrical industry price conspiracy broke in late 1960. Legal Services had been set up very much like the financial system. Paul Mills, who worked with or for the financial, legal, and engineering functions for much of his thirty-odd years with the firm, says that with respect to operating department legal appointments, the general counsel had veto right and, in reality, made appointments.[35] The legal organization was not as

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[34]Interview with Lemuel R. Boulware, New York, September 9, 1970.

[35]Interview with Paul E. Mills, Glen Ridge, New Jersey, August 7, 1969.

closely united and not as strong as the financial side, but nevertheless the fraternalism inherent in professional fields gave General Services Counsel unusual strength in setting policy for legal managers found in the operating departments. Thus, it was a matter of persuading people, who most likely were already thinking along the same lines. The decentralized philosophy, where Services have only the authority of knowledge and may only try to persuade, was therefore not working well within the legal function. But, until the price fixing case, nobody seemed to mind.[36] By 1961, the question, yet unanswered, was if the operating men were so closely controlled by Services, and if Services was auditing work of its line counterparts, how could the lawyers be ignorant of the conspiracy? It is generally felt, by one high ranking General Electric executive, that the General Counsel did not know of the price conspiracy until the case broke. Legal Counsel was totally unprepared for that eventful September shock in 1960.[37] The price fixing scandal represented a general breakdown of the corporate control function.

The price fixing conspiracy is evidence of improper business ethics and, if Company Policy 20.5 at General Electric was intended to be enforced, loss of managerial control at one or more of the corporate levels. General Electric and the Philadelphia court were not able to fully determine where control was lost and by whom, although a number of managers were fined and "asked" to resign.[38] Blaming decentralization for this loss of

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[36] *Ibid.*

[37] Interview with George L. Chamberlin, former Organization Consultant, General Electric Company; presently Vice President and Controller, Scott Paper Company, Philadelphia, June 30, 1970.

[38] Fuller, *op. cit.*, p. 203.

managerial control does not seem warranted in light of the fact that government evidence indicates that price fixing was practiced more before 1950 than after that date.

The importance of the price fixing scandal, in terms of General Electric's organizational scheme is that the new philosophy of decentralization did not prevent the illegal practice from continuing. According to reporter Julian Granger, Cordiner claimed that the breakdown in enforcement of Policy 20.5 was caused by "the company's teaching, the failure to emphasize the 'personal moral issues' involved."[39] Cordiner was pointing to a weakness in the philosophy.

The setting up of controls strong enough to quickly spot or prevent collusion and price fixing would, of necessity, reduce the amount of decentralization within the company. Whether this would be desirable is not under study in this paper. To increase controls might be admitting that decentralization in General Electric went too far, gave too much freedom, and enabled men to break the law and ethical codes easily, without detection. To increase controls, that is, to change the organization, would be an admission that the Cordiner-Smiddy system had weak spots. Since no appreciable change took place, in terms of control, after the scandal became public, it may be assumed that Cordiner was not about to blame the philosophy or structure. Perhaps Ralph Waldo Emerson has some relevance in his statement, "The presence of the ideal of right and of truth in all action makes the yawning delinquencies of practice remorseful to the conscience, tragic to the interest, but droll to the intellect."[40]

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[39]As quoted in Fuller, *op. cit.*, p. 172.

[40]*Ibid.*

CHAPTER VI

GENERAL ELECTRIC RECOGNIZES WEAKNESS IN ENTREPRENEURSHIP PLANNING

General Electric and all business organizations live within a changing economy and a changing technology. In the group of essays titled *Technology, Management and Society*, Drucker argues convincingly that "up to the seventeenth century it was the purpose of all human institutions to prevent change."[1] Change was a threat to human security. But, he says, "In the business enterprise we have the first institution which is designed to produce change."[2] It is not the purpose here to agree or disagree with Drucker; it is only important to note the dynamics of the environment in which business lives. Because of a dynamic environment a business, in order to survive, must be itself dynamic. It must innovate; it must change to meet the changing requirements of survival. Drucker believes, "An organization structure must be temporary."[3] He says that our environment is in such a state of flux that, "one is committed to changing an organization continuously. It is that dynamic."[4]

After the organization structure was well

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[1]Peter F. Drucker, *Technology, Management and Society* (New York: Harper and Row, 1970), p. 133.

[2]*Ibid.*

[3]Interview with Peter F. Drucker, New York, September 29, 1970.

[4]Interview with Peter F. Drucker, New York, October 19, 1970.

developed on paper around 1953, Ralph Cordiner asked Paul Mills if he thought the General Electric organization structure needed any major revisions. Mills answered,

> I think we ought to continue the study of the impact of "happening" (happening meaning the dynamics of the environment). That so far as major revisions, I can't foresee any for another doubling in size of this company. And when this company doubles, I'm not so sure that this is the organization we should have.[5]

General Electric has more than doubled since Mills' statement, yet there has been almost no major change in the structure or philosophy. Growth has added a number of departments, from approximately 80 to about 200, and the groups have increased from five to eleven.

A student of organization might focus on the fact that today, save for size, GE looks substantially like the same organization structure of Cordiner. Recently, however, the firm restructured the Executive Office. Cordiner in 1951 set up an advisory organization made up of all Group Vice Presidents and Services Vice Presidents. That structure was not altered until 1967 when Borch believed he could not handle this organization alone, so he structured a smaller organization to oversee the Executive Office, made up of four other men, and called it the President's Office (later, with the death of Phillippe in 1968, the title changed to the Corporate Executive Office).[6] In 1970 Borch added more advisory committees, all sub-divisions of the Executive Office. He has the Corporate Administrative Staff which coordinates functions ranging from accounting and legal operations to employee relations. He also has the Corporate Executive Staff charged with

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[5]Interview with William J. Greenwood, Darien, Connecticut, November 23, 1969.

[6]This has been detailed in Chapter III.

investigating the effective use of resources and long-range plans with operating groups. These committees represent a break from company philosophy which rejects the use of decision-making committees. Officially these committees are only advisory, but it is felt that realistically they are policy-making.[7]

General Electric has long been aware that it cannot afford the luxury of the romantics who live by the poetic philosophy "I don't know where I am going, but I'll get there one day soon."[8] Until recently, however, entrepreneurial planning seemed lacking, and in the opinion of many experts,[9] it seemed that the emphasis was on short-range profitability. The natural tendency to try to avoid as much risk as possible has caused the management of the company to look to new methods of forcing the implementation of venture management. The company understands that it cannot be more concerned with avoiding mistakes than it can with taking the right risks. Since "structure follows strategy and not the other way around,"[10] as Drucker notes, the company must find the philosophy and organization to force emphasis on the long range. The research by Alfred Chandler showed that structure is forced on the company by strategy made to fit

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[7]Interview with various General Electric employees who wish to remain anonymous.

[8]Copyright (C) 1965 by Stanyan Music Company.

[9]See Alvin A. Butkas, "The G. E. Puzzle," *Dun's Review*, Vol. 96, No. 1 (July, 1970); Allan T. Demaree, "G. E.'s Costly Ventures Into the Future," *Fortune*, Vol. LXXXII, No. 4 (October, 1970); Interview with Peter F. Drucker, Montclair, New Jersey, December 19, 1970. Also see Chapter IV of this paper.

[10]Interview with Peter F. Drucker, Montclair, New Jersey, November 9, 1970.

the outside.[11] Yet, too, it should be emphasized that organization is not a panacea; it is not a solution to General Electric's venture management problem. "The purpose of organization," as Drucker told this writer, "is not to solve problems, but to put the attention of the people in the organization in the right places, instead of the wrong places."[12] Chandler found, "that the company's strategy in time determined its structure and that the common denominator of structure and strategy has been the application of the enterprise's resources to market demand."[13] He was also able to conclude, "structure has been the design for integrating the enterprise's existing resources to current demand; strategy has been the plan for the allocation of resources to anticipated demand."[14]

Where is General Electric heading? Peter Drucker believes we are entering an era where the emphasis in industry will be on entrepreneurship. He says, "It will not be the entrepreneurship of a century ago, that is, the ability of a single man to organize a business he himself could run, control, embrace. It will be rather the ability to create and direct an organization for the new."[15] The belief is that the new entrepreneurship will be built on top of the present managerial foundation.

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[11]Alfred Chandler, Jr., *Strategy and Structure: Chapters in the History of the Industrial Enterprise* (Cambridge, Massachusetts: The M.I.T. Press, 1962), p. 366.

[12]Interview with Peter F. Drucker, New York, October 19, 1970.

[13]Chandler, Jr., *op. cit.*, p. 383.

[14]*Ibid.*

[15]Peter F. Drucker, *The Age of Discontinuity* (New York: Harper and Row, 1969), p. 43.

Recent articles on General Electric have concentrated on failures of the company in the area of entrepreneurship or venture management.[16] John B. McKitterick, General Electric Vice President--Corporate Planning, believes these failures have pointed up the major problem the company faces and this problem has been caused in part by inadequate development of the requirements needed to encourage venture management in the philosophy of the firm. Equally to blame for the lack of new ventures, claims McKitterick, is that few people truly recognize what real "venture management" means.[17] He realizes that the philosophy which stressed the importance of balancing short-range and long-range goals was not emphasizing anything like "venture management." What happened in the philosophy and what management today sees as long-range planning is really just extending the present into the future. That is to say, the company takes its present products and departments and tries to estimate how they will grow. But venture management is the job of directing resources from today into tomorrow. More importantly, unlike the traditional concept of long-range planning, venture management emphasis is not minimizing risks, but rather maximizing opportunities.

Management literature has concentrated on what might be called the "administrative" part of the job. The emphasis since Taylor and Fayol has been on how humans and materials could be organized and how managers could lead more effectively. Little attention has been spent on

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[16]Butkas, *op. cit.*; Demaree, *op. cit.* Also see Chapter IV of this paper.

[17]Interview with John B. McKitterick, Vice President --Corporate Planning, General Electric Company, New York, October 20, 1970.

the entrepreneurial side of the managerial function. Unfortunately, "the old folklore which says that existing businesses are incapable of doing the really new things has so far been proved," says Drucker.[18] The important point is that if the entrepreneurial function is to play such an important role in the future, as Drucker, among others, believes must be the case, then management must know how to handle this function. McKitterick believes that the management of the entrepreneurial function requires a different kind of organization structure than is presently found in the company.[19] Drucker concurs: "The managerial and the entrepreneurial (functions) are not organized in the same way. They require that, in our minds, we keep them not separate but, at least, distinct."[20] Managerial organizations are responsible for exploiting what is already in existence. That is not to say that they can't extend or improve. Yet, organizations must learn to be entrepreneurial.

McKitterick explains that General Electric has a research staff in each area, but the firm is only beginning to see the need for a methodology for true venture management.[21] He says that to have a truly venture management organization, top management must think totally in terms of innovation and the future. It cannot be tied to any function or group, as it currently is. Venture management is first a state of mind, and managers who are

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[18]Peter F. Drucker, *Technology, Management and Society, op. cit.*, p. 109.

[19]Interview with John B. McKitterick, New York, October 20, 1970.

[20]Peter F. Drucker, *Technology, Management and Society, op. cit.*, p. 110.

[21]Interview with John B. McKitterick, New York, October 20, 1970.

tied to functional areas or groups have to successfully develop the venture management viewpoint. Secondly, he says, the firm must develop different measuring devices for this side of the organization. The present eight key result areas do not work as measurements for innovation--they perpetuate the existing structure of products.[22] McKitterick might be interpreted as saying that the eight key result areas of measurement are aimed at the managerial organizations as opposed to the entrepreneurial side. Drucker was speaking to this point as early as 1950 when he said:[23]

> So far we have practically no measurements and controls in the enterprise. . . .We do not even have a reasonable gauge of productivity; for accounting. . .is by definition focused in the past rather than on the future.

Later, he said, "In the enterprise the management job consists very largely of the management of change, if not of taking the lead in changes. Neither seniority nor the yardstick of a traditional pattern can be applied."[24] Ray A. Killian says one President of General Electric claimed that the executive of the future will be judged largely by his skill in managing change.[25] Yet, this is at present unmeasurable and because other measurements are used to evaluate top executives, they concentrate on other duties. Managers tend to emphasize the part of their job on which they are measured. If General Electric wants to have a select group concentrate on venture management, they cannot be measured by the company's traditional eight key result areas.

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[22]Interview with John B. McKitterick, New York, October 20, 1970.

[23]Peter F. Drucker, *The New Society* (New York: Harper and Brothers, 1950), p. 208.

[24]*Ibid.*

[25]Ray A. Killian, *Managing By Design* (New York: American Management Association, 1968), p. 55.

On May 22, 1970, General Electric organized a committee known as the Corporate Executive Staff[26] which was charged with the responsibility to advise the Executive Office on effective use of resources and to review long-range plans. Its basic responsibility is to promote venture management.[27] The actual functioning of this body is still unclear since the membership is comprised of vice presidents and managers of the staff components, and these men will retain their responsibility in each of their respective components. It would appear that this committee is made up of members who have only a secondary responsibility to entrepreneurship and a primary responsibility to a particular component. As yet, no method of evaluating the work of the Corporate Executive Staff has been developed. McKitterick says, "Our structure is ahead of our ability to think through the use of this new organization structure (the Corporate Executive Staff)."[28] He says that this staff "will think for the future, but top management is not sure what to expect from them."[29] Very little is known about the workings of this Corporate Executive Staff as it has been formed only recently and no literature, save for a few press releases, is available. McKitterick helped to show the need and then organize this venture management planning

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[26]See above.

[27]Interviews with Jack S. Parker, Vice Chairman, General Electric Company, New York, July 1, 1970; John B. McKitterick, New York, October 20, 1970; Melvin Weber, Manager, General Electric Company, Bridgeport, Connecticut, September 30, 1970; also Fred J. Borch, General Announcements, No. 499, General Electric Company, May 25, 1970.

[28]Interview with John B. McKitterick, New York, October 20, 1970.

[29]Interview with John B. McKitterick, New York, October 20, 1970.

staff. He says he is glad the corporation understands the vital need for such an organization; now the requirement is to learn how such a structure should function. McKitterick sees the new staff committee as the best method for keeping GE as dynamic as its environment.[30]

To determine whether or not the new Corporate Executive Staff is a revolutionary change in the corporate structure will take a few years. The staff may end up functioning as another long-range planning organization based on traditional long-range planning methods, or it may truly be a corporate innovation, planning and fostering venture management. Only time will tell.

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[30]Interview with John B. McKitterick, New York, October 20, 1970.

CHAPTER VII

CONCLUSION

Decentralization was defined, in the first chapter, as a word without precise or absolute definition. As it is defined for this paper, decentralization to some extent characterizes all organizations. With such a broad scoped definition for decentralization, most major firms could be termed decentralized as Chandler, Dale, and Koontz and O'Donnell have pointed out. This definition was narrowed when managerial decentralization was introduced as being the development of a number of independent profit-and-loss centers within a larger organization, and further defined as being the process of how authority is delegated rather than how activities are grouped.

Decentralization as a philosophy dates back many years. It became well publicized with the reorganizing of the highly centralized duPont Company into a decentralized unit, and later by the recentralizing of the extremely decentralized General Motors Corporation in the 1920's. The definition of decentralization differs from firm to firm. In Chapters I through IV this author presented decentralization as it is practiced in only one company--General Electric. In Chapter II is found a short history of GE, developing background material to help in the understanding of what was happening inside General Electric which produced a new philosophy and structure. GE is currently the largest firm in the electrical industry,

fourth largest firm in the United States as ranked by sales, and third largest United States private employer. In 1963, General Electric was selected by *Dun's Review* as one of the ten best managed companies, receiving this distinction for its quality in general management.

The General Electric decentralization has been discussed in the literature for a number of years and perhaps only the General Motors organization is discussed more frequently. General Electric decentralized in 1951, at the beginning of the decentralization fad which spread throughout industry after World War II and lasted to the beginning of the 1960's. This was three decades after the General Motors' experiment. Therefore, General Electric had the advantage of studying General Motors, which it did, in depth. General Electric also made a formal investigation of the organization needs of the corporation to develop a plan by which the company could institute decentralization. This formal study lasted from 1943 through 1950 and was headed by Ralph J. Cordiner, then Assistant to the President, and this study was his *only* job. In 1951, he became President of General Electric Company and put into effect the results of this eight-year study.

In the third chapter is found a presentation of the managerial theory and the overall organizational structure. Here the concept of operations, services, and executive office was explained, as was the point that services do not make decisions for the line, but should only advise. It was also shown how GE does not use decision-making committees, and does not consider the Executive Office as a decision-making committee. Here, too, was explained the organization structure which is built on profit centers (departments) and which are combined into divisions, and later into groups. The second half of this chapter detailed how the company

proposes to measure the effectiveness of each area. Almost all of this measurement work is concentrated on the operating departments, and very little has been thought through for anyone other than an operating department general manager.

In the fourth chapter, this author tried to show factual problems as encountered when the theory, knowledge, and concepts of the philosophy were exposed to the day-to-day operation of the organization. During the first decade of decentralization (1950-1960) a conflict occurred between the "old guard" and the "new breed." The "old guard" had developed its managerial habits before decentralization, while the "new breed" became disciples of the new philosophy. A "cultural" clash developed and was only resolved as the "old guard" retired and the "new breed" rose in the ranks of the company. The actual organization structure was implemented by the mid-1950's, but it was only about 1960 before the decentralization philosophy was truly practiced on a wide basis. Also developed in the early 1950's was the belief by many managers that profitability was the only really important measurement. This belief that profitability is a more important measurement area than the other seven key result areas lingers to this day, even though the official voice of the company has for almost twenty years emphatically claimed that all eight key result areas have equal importance. This belief has in recent years been given some impetus by top management's desire to get current profits to cover unplanned financial needs.

Chapter V was a short discussion of the price-fixing scandal which became public in the early 1960's. Many people have blamed decentralization for price fixing. There is only arguable evidence to substantiate their opinion. However, decentralization and all of the philosophy

amassed to back it did not prevent price collusion from occurring, nor was the organization able to detect it.

In Chapter VI a discussion of a recent organizational change, which hopes to insure that entrepreneurship will be encouraged on the executive level, was offered. In 1970 Borch set up a committee with the responsibility to administer the needs GE has in the area of venture management. It is too early to determine whether or not it represents any fundamental change in the philosophy or structure of the firm.

The plan, philosophy, and subsequent organization developed by General Electric for decentralization was the focal point of this dissertation. The thinking that led the company to decide to decentralize is not of major importance, for it had little other choice if we are to believe the writings of Cordiner, Smiddy, and Wilson, as quoted in other parts of this paper. The bureaucracy of centralization had become an overbearing burden for one man to handle, a point which Wilson and Cordiner understood in the 1940's. The significant contribution to management theory was not the decision to decentralize, but what they did after the decision. The massive plan and philosophy, the thinking through of the general scope of management, and the organization theory itself, comprise the contribution which the company has given to the general knowledge of formal organization.

There are a number of points which this study has attempted to communicate. First, decentralization at GE was shown to be the building up of about 200 individual profit centers, each having almost complete authority over production and merchandising of its products. Decentralization at General Electric was shown to revolve around these profit centers.

Emphasis in this paper was placed on the Cordiner years because it was in those years that the foundation was laid, the organization was formed, the theory developed. Speaking of these years and the reorganization, Philip Reed said:[1]

> In 1950, when Ralph Cordiner first did it (decentralized), there was great resistance. But General Electric would never have grown as it has--lacking decentralization. It is just physically impossible, in my judgment, for any man or small group of men. . .smart enough to know intimately all the things you should to make intelligent decisions in the marketplace, in your procurement, in your labor relations, in all the varied industries in which we participate.
>
> The second thing is the decision-making opportunity such a system provides for people. It provides us with a mechanism by which authority can be given and measured. The individual will know whether he has succeeded or has failed.

A second point developed by this paper was that the decentralization philosophy was adopted only after deep debate, long consideration, and after extremely full visible experience with a highly centralized business bureaucracy with which General Electric had to struggle through the decade of the 1940's. General Electric's organization structure and philosophy was thought through, unlike the Westinghouse style which was, according to Chandler, conceived in the 1930's and developed through a certain amount of trial and error.[2] It is important that the company

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[1]"Lessons of Leadership: Part XXXIV: Inspiring Teamwork," *Nation's Business*, Vol. 56, No. 3 (March, 1968), p. 42.

[2]Chandler, *op. cit.*, p. 366.

spent so much time thinking through the theory for, as one distinguished expert said:[3]

> The man who says he has no time for theory is either using a theory someone else had developed, or even a theory someone else has discarded.

The important point to realize about theory, as the company understands it, is that it is not separate from, but really a basic part of, good business practice. In the "Introduction to the Policy Volume" of the *General Electric Organization & Policy Guide*, the following statement is made:[4]

> As will be made clear, what are usually termed policies are in reality definitions of common purposes, which have been mutually agreed upon and accepted for the protection and preservation of the common interests of individuals, components, departments, the company and society in general.
>
> The realization of common interests in free society, under the accepted principle of government by the consent of the governed, has involved the voluntary surrender of certain freedoms by individuals, in return for which they have received guarantees under laws protecting their individual rights. The right to make changes in these laws is assured under constitutional processes. The realization of common interests within the General Electric Company involves similar voluntary surrender by individuals engaged in working in, or responsible for managing, decentralized components. A similar right and responsibility to suggest changes, or make recommendations regarding the nature or impact of common interests, exists within the Company.

The common purposes of the General Electric Company

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[3]Quoted in Harold F. Smiddy's speech, "Actually Doing The 'Work of a Professional Manager,'" February 21, 1956.

[4]General Electric Company, *Organization & Policy Guide*, Tab, "Introduction and Contents," April 8, 1959 (also found in Guides issued July 16, 1954, and April 8, 1961), p. 2.

are very clearly defined in the written statement of company objectives (see Appendix 3-12) and in Volume I, II, III, and IV of General Electric's *Professional Management* series of books, in Cordiner's and Smiddy's speeches which have been reprinted and widely distributed in the literature distributed within the company, and many other similar documents. Most of the philosophy was developed and distributed before Borch became President. If one sifts through this literature and reads carefully, one finds a clear and consistent philosophy behind General Electric that meets all the requirements for defining "common purposes. . .for the protection and preservation of the common interests of individual. . .and society in general."

The thorough and deep thinking that has gone into the preparation of the philosophy described in Chapters III and IV is one of the most significant efforts that has ever been made in defining the common purposes of a large organization.

The organization structure and the philosophy which controls its work are well planned, written, and yet subject to change. Because of the dynamics of the firm, the philosophy must be somewhat fluid, and strongly structured at the same time. The amount of written documents the company has produced to control the system may seem excessive. But it is in these written forms that the company broadens the base of learning in its quest to lead its managers out of confusion. The written policies, procedures and management books and letters represent simplification. Confusion existed in the absence of a written philosophy before 1950 under centralization. The development, teaching, and implementation of the philosophy brought some understanding of the practice and scope of professional management in General Electric. General Electric's internationally famous metallurgist and former Vice President, Zay Jeffries, in a personal letter to

Harold Smiddy, explained the need for this simplification. In 1952 Jeffries wrote:[5]

> It is obvious that life is becoming more complex as our industrial civilization advances. The sum total of knowledge is increasing at a very rapid rate. . . .At the same time human beings are changing very little. There is no positive evidence that the more able men today excel the more able men of yesteryear.
>
> The whole situation would, therefore, get out of hand and become unmanageable if it were not for the fact that, concurrently with the increase in complexity, there is also constant progress toward simplification.
>
> Our progress depends to a considerable extent on seeing to it that the simplification processes move forward in approximate balance with the complicating processes, (so that) individuals do not become casualties of their own complexities.

Harold F. Smiddy frequently quoted this personal letter which, in a practical sense, may have inspired his intense pursuit of developing a sound fundamental approach toward managing and organizing the decentralized General Electric Company.

The investment in talent and time devoted to this research was very great. As to whether it was worth the effort--no one can fairly judge since no comparative analysis covering the same time span is possible. In spite of the tremendous strides made in the overall practice of management, there still is no clear-cut evidence that at General Electric Company the control function is any different or better today than it was prior to the decentralization of the managerial function. Mills may be right when he says, "I don't think a damn thing changed, they (top management) never lost centralized

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[5]Harold F. Smiddy, "The Objectives, Work, Organization and Personnel of Management Consultation Services Division," Speech at the Waldorf-Astoria Hotel, New York, New York, January 7, 1954, p. 10.

financial control; it was there before, and is there today. Although there are sharper tools today and data gathering is easier, its vast size merely balances the scale. Control is still at the top."[6]

A third point which this paper tried to show was that decentralization took years to implement and had many difficulties to overcome. Here it should be noted that the philosophy in written form was developed over a number of years; in fact, it is still developing. The measurement study which began its investigation almost twenty years ago is yet to be completed. The actual organization structure, which began in 1951, was only basically completed in 1955, although a number of changes took place after that, as discussed. It was Smiddy who admitted, although the philosophy was well publicized by 1955, that decentralization was only just beginning to be practiced at his retirement in 1961. The difficulty in putting into practice real decentralization was caused, as presented in Chapter IV, by the cultural clash, the one measurement concept, misforecasting, and failure to have the philosophy completely developed.

A fourth point which this paper hoped to communicate was that GE is a much bigger and more complex organization today than it was before 1950. This is shown, especially by the financial figures in Chapter II and also by a comparison of the organization structure today versus 1947 or 1892.

Also important to understand is the fact that it cannot be determined whether or not decentralization caused the firm to grow faster or slower than if it had not decentralized. The feelings of Cordiner, Smiddy,

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[6]As previously quoted, Paul E. Mills, interview, August 7, 1969, Glen Ridge, New Jersey.

and Phillippe, and so forth, as previously quoted, indicate decentralization has helped the firm financially. The decade of the 1950's, under decentralization, was a period of the greatest growth in the company's history. The period of the 1960's, although the company doubled in size, was not a period of spectacular growth, as indicated in Chapter II.

This investigation was framed basically as a case study; therefore, there are not many independent conclusions to be drawn. Although most of the conclusions are left to the readers, some comments by this writer might be helpful.

Without doubt, General Electric is a bigger and more complex organization now than it was before decentralization. GE has been called the most conglomerate of all conglomerates by Drucker, and it has been described as the most diversified firm in the world by Northrup and Cordiner. In spite of many profit centers, the organization structure does not seem too complicated. In Chapter III is found a description of the three branches--services, operations, and the executive office. It is important to note that in this huge corporation comprising many businesses, that, for the most part, only five to seven levels of management exist, that there are only eleven groups and less than 200 departments.

The depth and scope of the theory behind the structure is, in the opinion of this writer, outstanding and extremely sound. The quality of the theory is not evaluated against those practiced by other firms, such as IBM or General Motors, for that would be subject matter for another dissertation. The discussion of the philosophy as found in the body of this paper is intended to show the wide scope and depth of that formalized managerial approach. It is concluded, by this writer, that the

General Electric philosophy of management is built upon a solid foundation of research. The fact that it has changed very little since it was introduced may be significant substantiation of its conceptual soundness.

On the other hand, it is important to note that all of the managerial theory covered in the philosophy is not practiced. The concept of eight key result areas for measuring an operating department and its manager has, in reality, never been practiced. Profitability still seems to be the dominating key result area. Vice Chairman of the Board, Jack S. Parker, admitted that profitability during the decade of the 1960's dominated the other measurements. There is no evidence that it is not today's primary concern. With all the emphasis on measuring managers on their performance, it is interesting that the only measurements that have been developed to any extent are applicable to operations solely. The measurements of services and the functional areas along with individual contributions above or below the profit center level have not been developed as yet. Therefore, after twenty years of researching and practicing their decentralization philosophy, General Electric has not developed a sound, generally acceptable measurement for any manager, consultant, or high-level individual contributor, other than the manager of a profit center. There are less than 200 of these positions out of over 400,000 employees.

It is generally agreed that the General Electric Company was highly successful before decentralization in the 1920's, 1930's, 1940's, and that since decentralization during the 1950's and 1960's it has out-stripped its nearest competitors. It has more than doubled in sales in each decade after decentralization. If the stock market can be used as a barometer of public confidence, in General Electric's management, including its philosophy

and structure, then its future looks bright. As to whether its control function is better, is worse, is changed significantly or not since decentralization is not clear, except that profitability measurements have been more carefully spelled out for managers of all operation components.

Mary Parker Follett once said, "Business practice has gone ahead of Business Theory."[7] Whether she was correct in 1926 when she made that observation, or if the statement is correct today, is outside the boundaries of this paper. It is important to understand what practitioners have done and what theory they have developed. Through the understanding of what others think and do, it may be possible to advance the general theory of management beyond the present. This paper was written with that hope in mind. Some of the most influential thinkers in the early history of management thought were themselves managers--Taylor, Fayol, Barnard, Towne, Roundtree, to name but a few--but in recent years it seems that most of the influential writers are academicians and consultants--Dale, Drucker, Koontz, Argyris, Likert, and so forth--and perhaps the modern theoretician does not appreciate the quality of the theory being developed by managers themselves. The General Electric philosophy, which this paper presented in part, was developed by managers, managers who read the classics in management and who consulted with many of the most important academic writers, yet the managers who developed the GE structure and managerial theory were men who for most of their lives had been operating managers. These men had acquired

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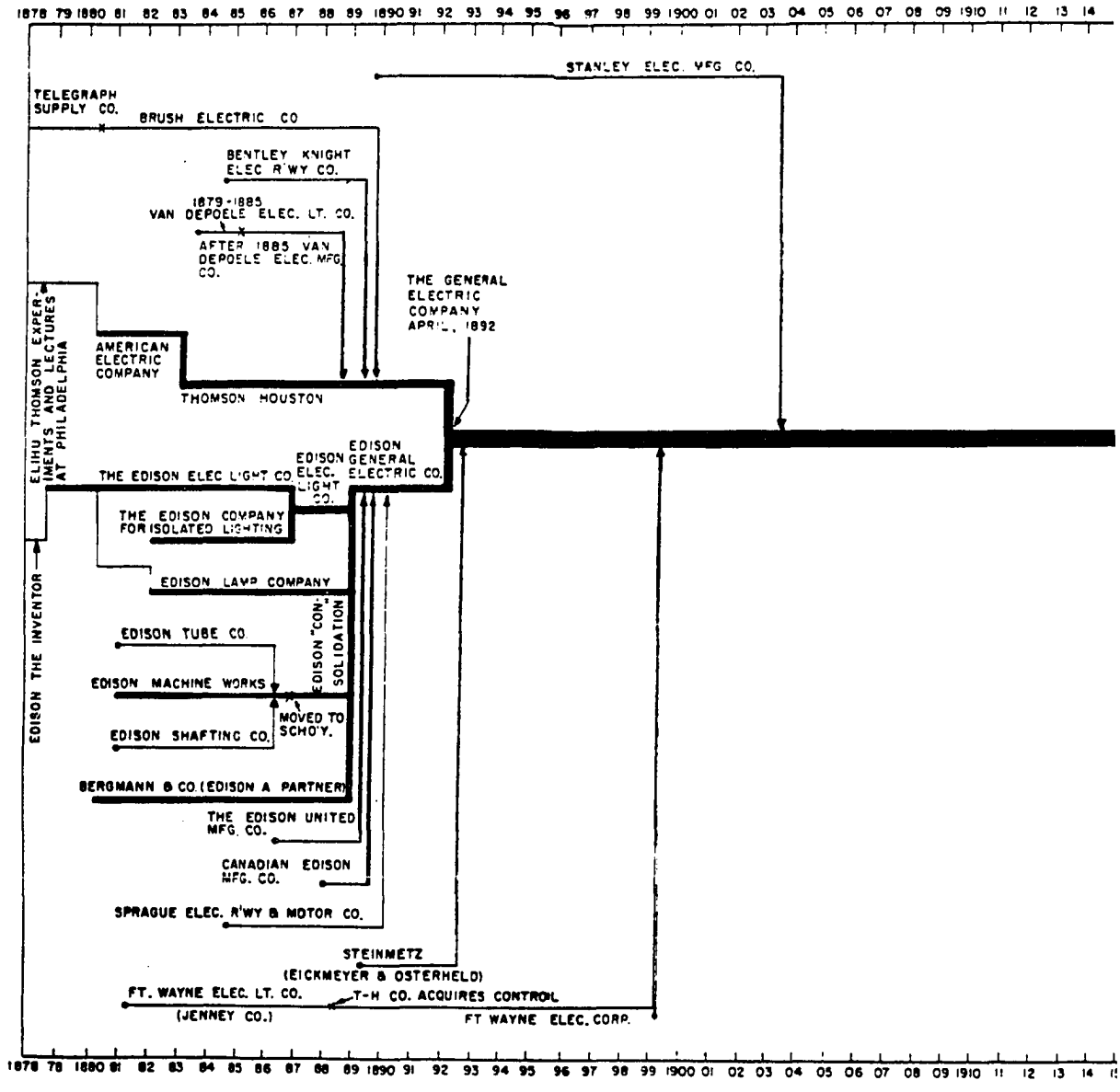
[7]Henry C. Metcalf and L. Urwick, *Dynamic Administration, The Collected Papers of Mary Parker Follett* (New York: Hope and Brothers, 1940), p. 146.

over years of on-the-job experience, trial and error, and formal training, a very substantial reputation as successful leaders, managers and thinkers. Therefore, the deep thought that went into the General Electric organization and philosophy was founded in operating knowledge which may have helped to add insight, but also may have added prejudice to what was the final product.

APPENDIXES

APPENDIX
EXHIBIT 2-1

FAMILY TREE OF THE
GENERAL ELECTRIC COMPANY
1878-1950

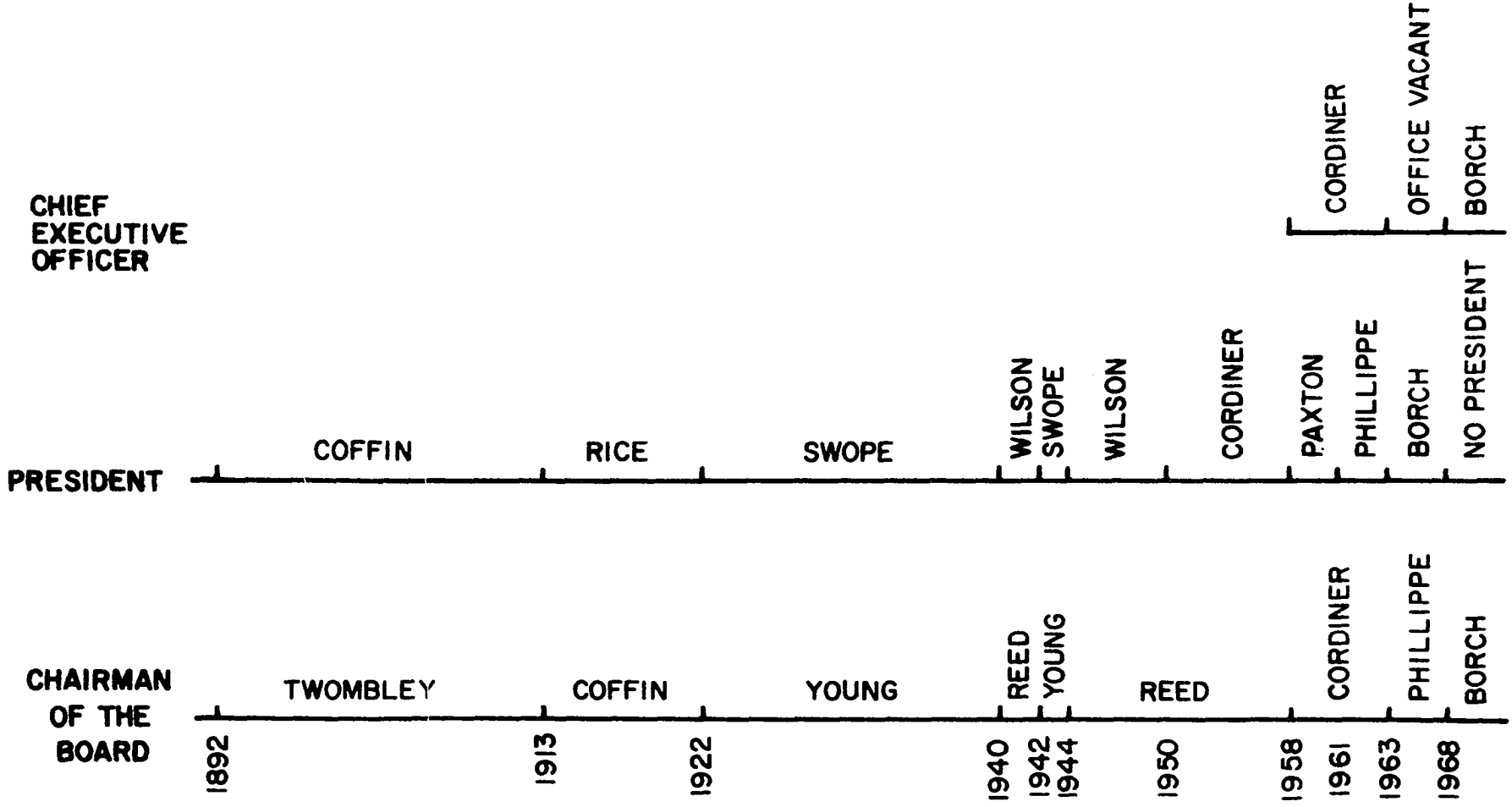


Appendix Exhibit 2-1
Family Tree
of The
General Electric Company

08 09 1910 11 12 13 14 15 16 17 18 19 1920 21 22 23 24 25 26 27 28 29 1930 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49
GENERAL ELECTRIC COMPANY
EDISON ELEC. APPL. CO(HOTPOINT)
TRUMBULL ELEC. MFG. CO.
VICTOR X-RAY CORP.
CANADIAN G E CO.
MONOWATT CORP.
CARBOLOY CO.
LOCKE INSULATOR CORP.
WARREN TELECHRON CO

APPENDIX
EXHIBIT 2-2
GENERAL ELECTRIC
TOP EXECUTIVES
1892-1970

GENERAL ELECTRIC
TOP EXECUTIVES
1892 - 1970

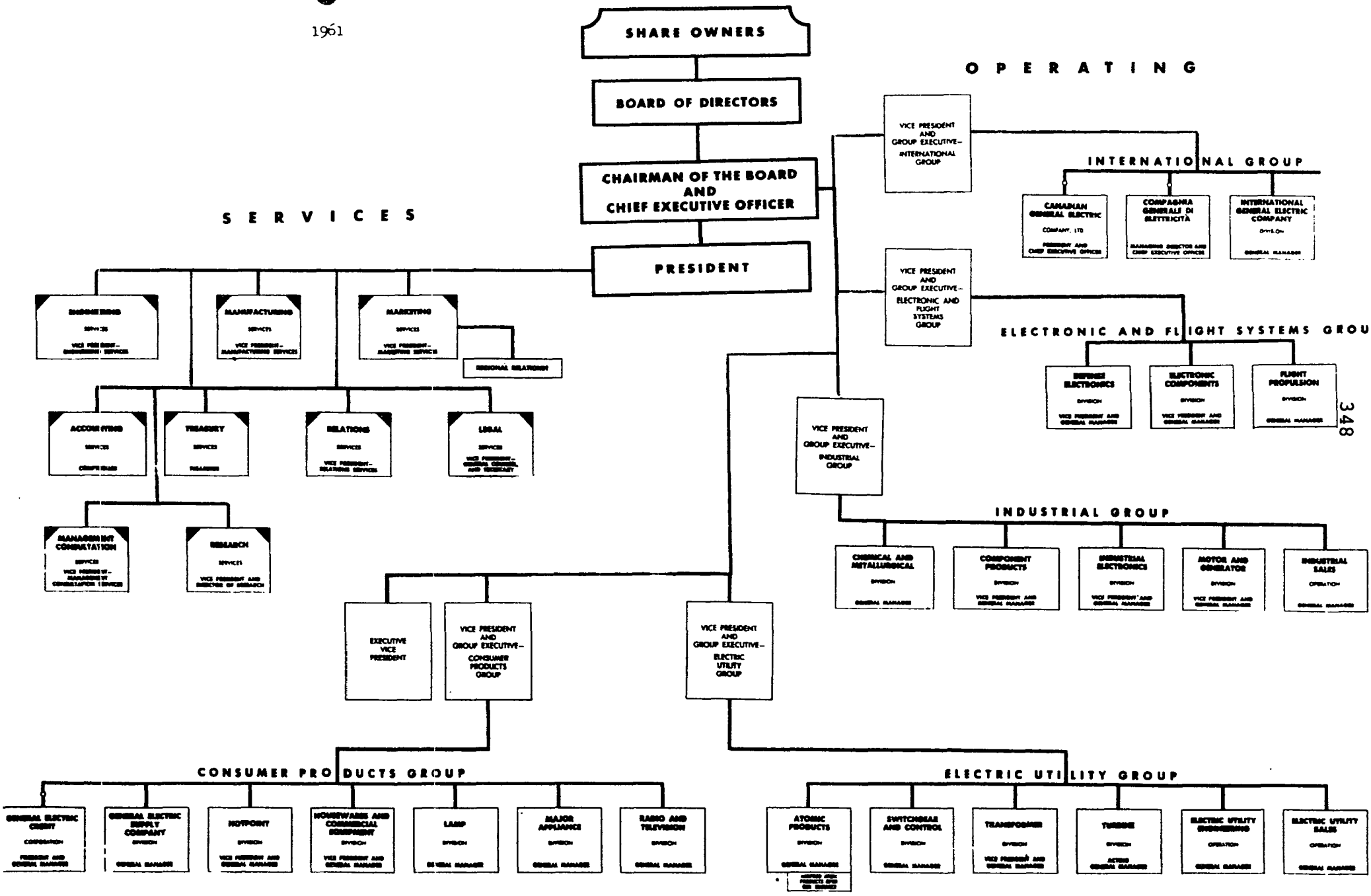


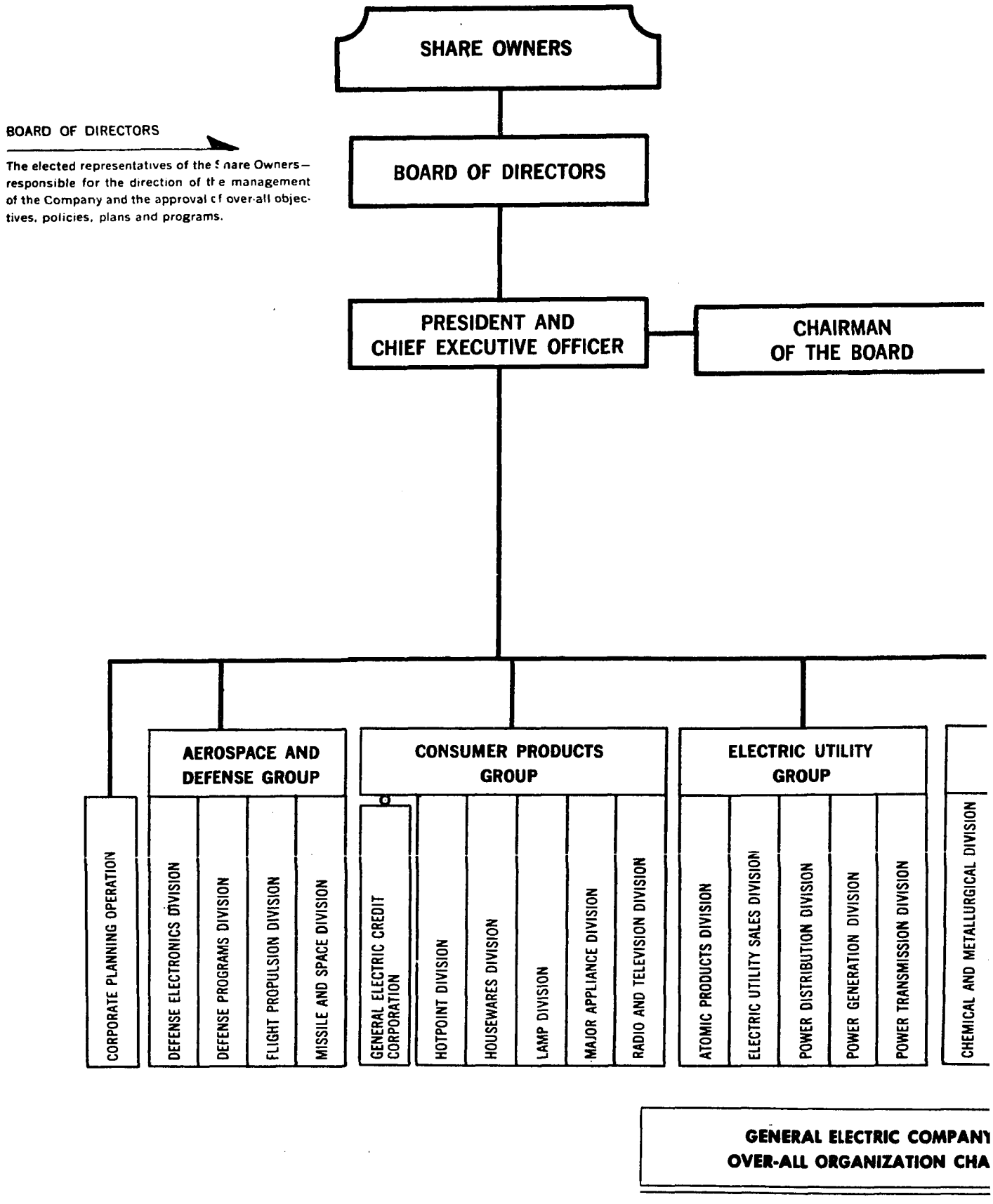
APPENDIX
EXHIBIT 2-3

GENERAL ELECTRIC
ORGANIZATION CHARTS
(various years)

GENERAL ELECTRIC

1961



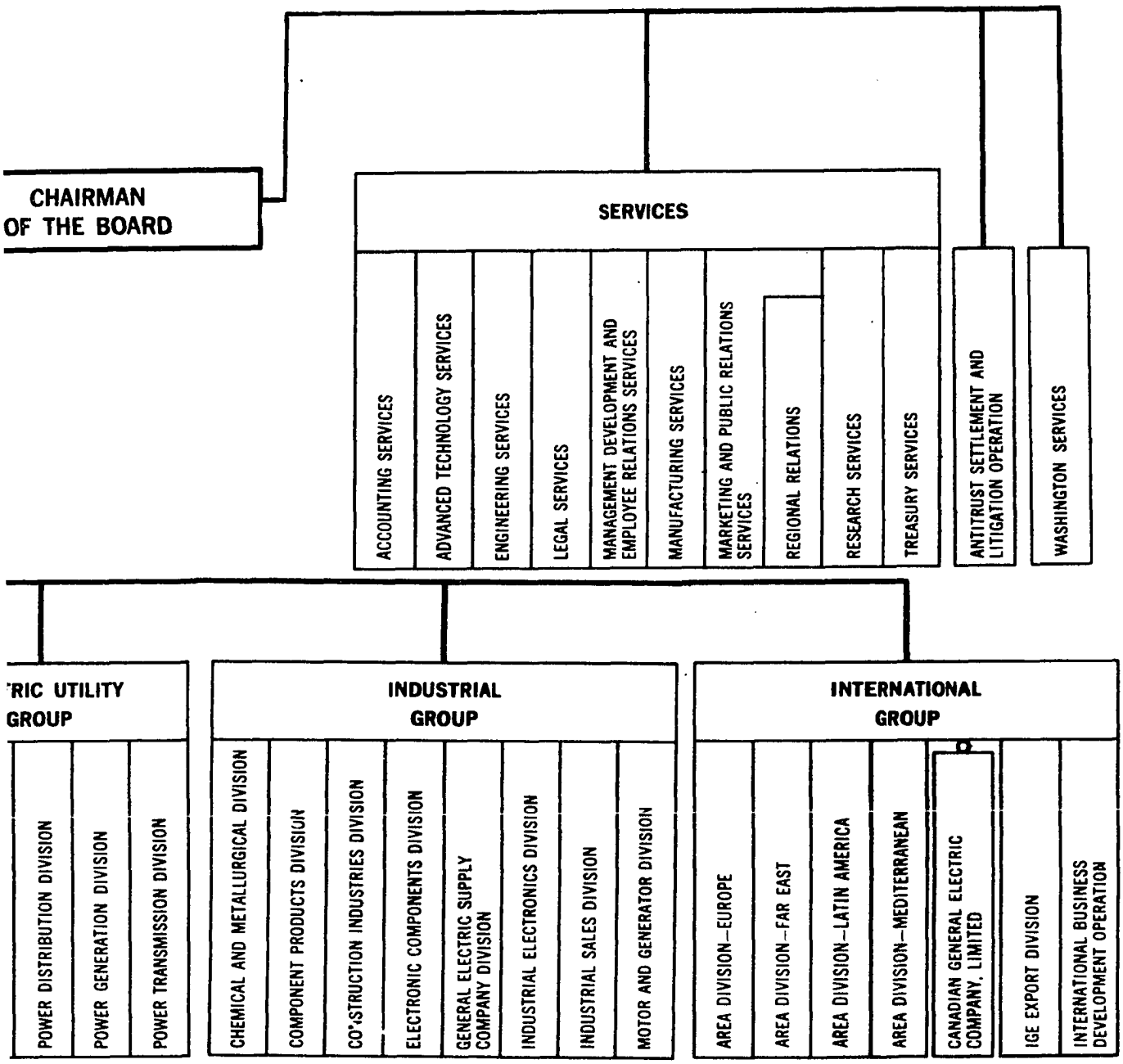


GENERAL ELECTRIC COMPANY
OVER-ALL ORGANIZATION CHA

GENERAL ELECTRIC

DATE ISSUED

9/15/64



IERAL ELECTRIC COMPANY
·ALL ORGANIZATION CHART

O The Vice President and Group Executive has been assigned to represent, and act on behalf of, the General Electric Company with respect to the Company's interest in, and relations with, this subsidiary

GENERAL ELECTRIC JANUARY 1968

PRESIDENT'S OFFICE

F. J. BORCH, President and Chief Executive Officer
G. L. PHILLIPPE, Chairman of the Board

EXEC. VICE PRESIDENTS
W. H. DENNLER
J. S. PARKER
H. L. WEISS

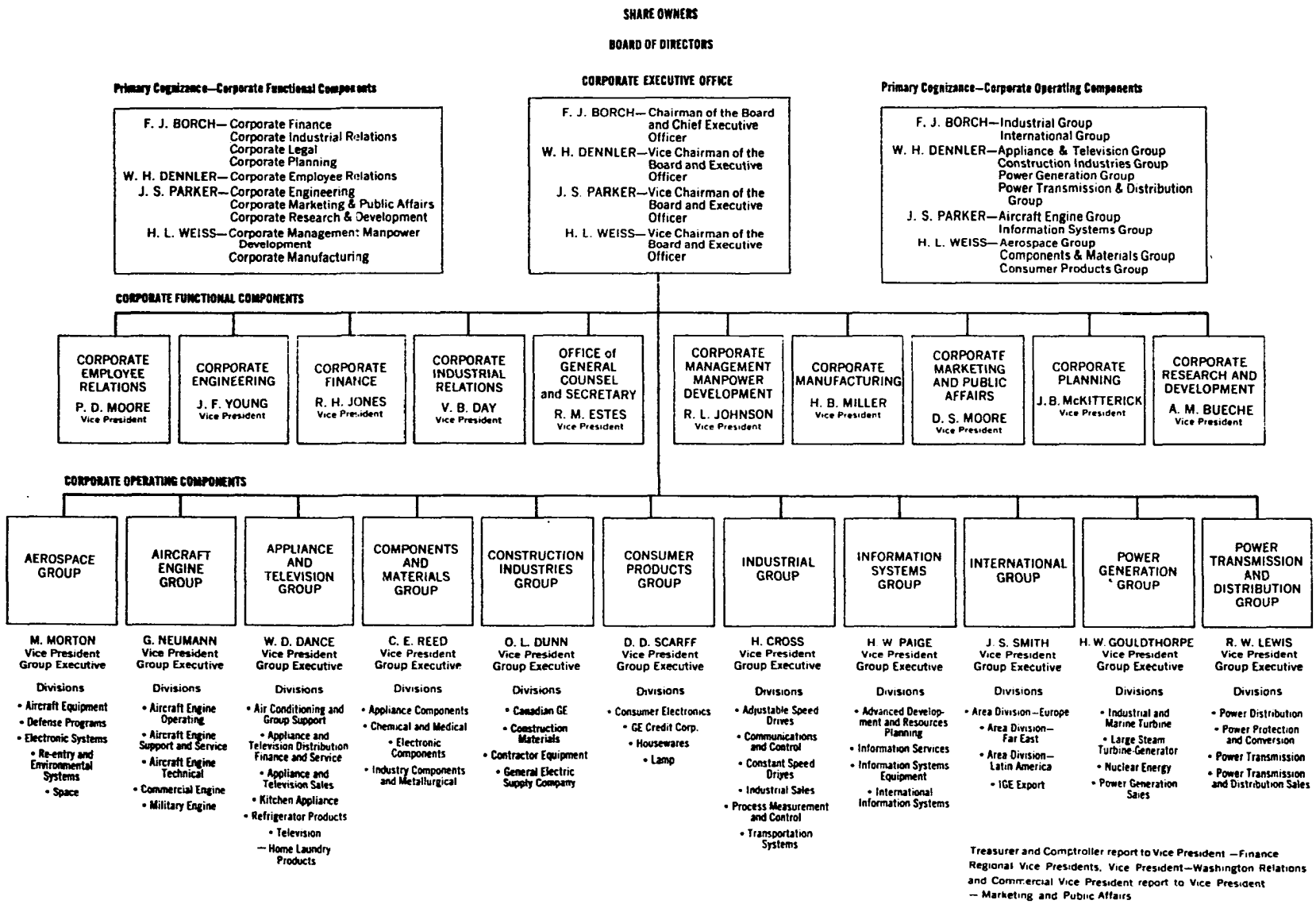
Vice Presidents of Overall Corporate Functional Components

Accounting—R. E. PFENNING, Comptroller
Corporate Planning—J. B. McKITTERICK
Engineering—J. F. YOUNG
Legal—R. M. ESTES, Secretary
Management Manpower Development—R. L. JOHNSON
Manufacturing—H. B MILLER
Marketing and Public Relations—O. L. DUNN
Personnel and Industrial Relations—V. B. DAY
Research and Development—DR. A. M. BUECHE
Treasury—J. D. LOCKTON, Treasurer

AEROSPACE GROUP	AIRCRAFT ENGINE GROUP	APPLIANCE AND TELEVISION GROUP	COMPONENTS AND MATERIALS GROUP	CONSTRUCTION INDUSTRIES GROUP	CONSUMER PRODUCTS GROUP	INDUSTRIAL GROUP	INFORMATION SYSTEMS GROUP	POWER GENERATION GROUP	POWER TRANSMISSION AND DISTRIBUTION GROUP
H. W. PAIGE Vice President Group Executive	G. NEUMANN Vice President Group Executive	W. D. DANCE Vice President Group Executive	C. E. REED Vice President Group Executive	R. H. JONES Vice President Group Executive	D. D. SCARFF Vice President Group Executive	H. CROSS Vice President Group Executive	J. S. SMITH Vice President Group Executive	H. W. GOULDTHORPE Vice President Group Executive	R. W. LEWIS Vice President Group Executive
4 Divisions	5 Divisions	5 Divisions	4 Divisions	5 Divisions	4 Divisions	5 Divisions	4 Divisions	5 Divisions	4 Divisions

The number of departments reporting to the various divisions is expected to grow from 110 to approximately 150, depending on each division's need.

GENERAL ELECTRIC COMPANY
ORGANIZATION CHART
JUNE 1, 1969



35-130-0.

Appendix Exhibit 3-1

SERVICES OFFICER

POSITION GUIDE

The following 13 pages is a copy of the position guide issued April 24, 1958.

GENERAL ELECTRIC

ORGANIZATION AND POLICY GUIDE

RESPONSIBLE TO THE		TAB
Chairman of the Board and Chief Executive Officer	**SERVICES OFFICER POSITION GUIDE**	Services Components

BROAD FUNCTION

The Services Officer has Executive Office and Services responsibilities. He is responsible for Executive, Managerial, and Functional types of work, and for Services Functional and Appraisal work. He is accountable to the Chairman of the Board and Chief Executive Officer for the efficient managing of the Services component, and for the quality of Services Functional and Appraisal work.

The Services Officer has responsibility and commensurate authority for performance of all Services work of the assigned Function:

Services Functional and Appraisal Work

Services Functional work *(as distinguished from Managerial, Operating, and Executive work)* consists of: advancing fundamental Functional knowledge through research, study, and creative development; keeping abreast of current Functional knowledge; preparation of advanced and current knowledge in forms, patterns, designs, etc., usable by organization components; policy guidance in the Functional field; communication, teaching, developing understanding and, by doing so, securing voluntary acceptance and use of advanced and current knowledge; operating a "clearing house" of current practices, experiences, progress, and standards, to facilitate application and also measurement of available knowledge; and appraising the teaching, understanding, and application of such advanced and current knowledge in organization components.

Services Appraisal work consists of establishment of measuring criteria, and review, evaluation, and recommendation with respect to the effectiveness and efficiency of Operating performance and results in the assigned Function, as an aid to the Chairman of the Board and Chief Executive Officer, President, Group Executives, and to Services and Operating Managers throughout the Company, as appropriate and required.

Executive Work

A Services Officer, as a member of the Executive Office, shares responsibility for Executive work as to the Company as a whole. In this capacity, a Services Officer thinks and acts in terms of what is good for the Company as a whole; advises with the Chairman of the Board and Chief Executive Officer and with other members of the Executive Office; supports Company objectives; is watchful for new Company opportunities; and participates in national and international public affairs. He also has responsibility for Executive work—i.e., long-range thinking and planning—as to the assigned Function.

Managerial Work

Services Managerial work consists of managing (that is, leading, through planning, organizing, integrating, and measuring) the organization components and positions required to perform the Services Functional and Appraisal Work, Executive Work, Functional Work (Operating), and Managerial Work assigned to the Services component, for accomplishment of desired performance and results.

Functional Work (Operating)

The Operating responsibility and commensurate authority, as specifically assigned or approved by the Chairman of the Board and Chief Executive Officer, and as determined by the criteria in Part 3 of this Position Guide, consists of: performing Functional Operating work in the assigned Functional field for the Company as a whole; conducting contractor-type Functional Operating work projects for individual Operating Departments; and conducting pooled Functional Operating work, agreed by the Services Officer to be done "for hire" on such pooled basis for some, but not all, Operating components, whose responsible Managers have elected to get such work accomplished in this way rather than by employees on their own payroll or by nonaffiliated consultants or vendors. The nature of all such pooled work is subject to periodic review by the Division General Managers, the Group Executives, the President, and the Chairman of the Board and Chief Executive Officer, to insure to the maximum economical extent that permanent Operating work be done in Operating rather than in Services components, to fulfill profit responsibility of particular Operating components.

The three remaining generic parts of a "Position Guide":

"Principal Responsibilities,"
"Authority and Reservation of Authority for Decision-making,"
"Measures of Accountability"
are delineated for each of the four broad functions, just described:

Services Functional and Appraisal Work
Executive Work
Managerial Work
Functional Work (Operating).

PART 1 — SERVICES FUNCTIONAL AND APPRAISAL WORK

PRINCIPAL RESPONSIBILITIES

The Services Officer is responsible for interpreting and discharging the following responsibilities:

Services Functional Work

Recognition should be attained, both inside and outside the Company, by the Services Officer personally, and by the Managers, Consultants, and Functional personnel of the Services component, as the Company's overall experts in advanced fundamental and current Functional knowledge, and its application and measurement in the Functional field. *This recognition should be achieved by reading, concentrated study, collection, observation, research, participation in affairs of appropriate external organizations and through other means.*

Advancement of fundamental knowledge should be pursued in the Function, including systems for measuring and evaluating Functional work, through bold, imaginative, and creative research and development. This pursuit should be directed toward recognizing and facilitating the Company's short- and long-range needs for such advanced fundamental knowledge.

Prepare advanced and current knowledge suitable for use by organization components and by society in general, as and when appropriate. *This preparation may be accomplished by analyzing, evaluating, translating, condensing, and programming the necessary steps in forms, patterns, designs, and series that may be required to attain the desired results.*

Formulate and recommend to the Chairman of the Board and Chief Executive Officer appropriate Company policies that deal with subject matter in the Function, after securing the views of Operating and Services Officers and Managers. Issue these policies after approval of the Chairman of the Board and Chief Executive Officer, and interpret them, as required, to Executive, Services, and Operating Officers and Managers. Also, aid other Services Officers and the Chairman of the Board and Chief Executive Officer, as required, in the formulation of multi-Functional and over-all Company policies.

Aid the Chairman of the Board and Chief Executive Officer, President, and the Group Executives by providing Functional advice and counsel, as required, in the formulation and determination of appropriate objectives, policies, plans, programs, and budgets.

Secure voluntary acceptance and use of advanced and current knowledge in organization components by communicating, teaching, and developing understanding. Aid Operating Officers, Managers, and other Services Officers and Managers, as requested, to improve their performance of Functional work by learning the principles and fundamentals of advanced and current Functional knowledge, through advising, counseling, teaching, inspirational questioning, and encouragement. *They may then apply this additional knowledge to specific situations, to make greater improvement in their operations at an earlier date than otherwise possible. They may then be encouraged to overcome the current strangeness of new Functional concepts, and to endeavor to learn and apply such knowledge wherever applicable and needed.*

Contribute advanced fundamental and current knowledge to society, on a timely basis, through appropriate selective channels, such as educational institutions, industry, and professional associations of importance to the progress of the Company. *The contribution of such knowledge to society is one of the tangible "plus values" of common ownership of large, diverse businesses, and is one important reason for the existence of such businesses in an Industrial Society.*

Determine current methods and practices, experience, progress, achievements, and failures of others, and measurement standards both within and outside the Company, from surveys, collection, observation, reading, personal contacts, analysis, comparison, etc.

Operate a "clearing house" for collection, analysis, condensation, and distribution of such current knowledge, to facilitate application and measurement of available knowledge by organization components.

Appraise the teaching, understanding, application, and measuring (as distinguished from appraisal of results of such efforts) of fundamental and current knowledge in Operating and other Services components.

The Services Officer, Managers, and Consultants should devote the majority of their personal time, available for Company work, toward building Company leadership in the assigned Function.

Services Appraisal Work

The Services Officer, Managers, and Consultants should constantly be prepared to do Services Appraisal work, as defined in the Broad Function section of this Position Guide. Normally, such work will be done upon the request of an Operating Manager for the whole or any part of his component; and appropriate reports or recommendations will be submitted, in channels, as requested by the Operating Manager.

It is recognized that emergency conditions may develop under which it appears obvious that required effectiveness of the assigned Function has not been obtained in a specific Operating component. Such a situation may result either from failure properly to provide advanced and current Functional knowledge or from failure voluntarily to accept, understand, or use such knowledge. Under such circumstances in a specific component, it is the responsibility of the Services Officer to initiate Services Appraisal work on the basis of his "right to look" on behalf of the Chairman of the Board and Chief Executive Officer.

Relationship Responsibilities—Internal

Work with the Chairman of the Board and Chief Executive Officer, President, Group Executives, other Services Officers, and General Managers of Operating components, as required or requested, with respect to matters of major importance within their respective areas of responsibility, and which are related to the assigned Functional field. Keep them appropriately advised with regard to the major activities of the assigned Services component, and discuss with them, in advance, any contemplated policy, course, and expense-creating task that may be requested by the Services component, or any action which may have a major or unusual effect upon their areas of responsibility or upon the Company as a whole.

Give a realistic appraisal and report of over-all Company Functional performance, progress, and results, at suitable intervals, to the Chairman of the Board and Chief Executive Officer, President, Group Executives, and General Managers of Operating components, as appropriate to their responsibilities.

Aid Managers—especially those of components in the assigned Functional field—to anticipate and define the special requirements of the assigned Function. Recommend appropriate objectives, policies, plans, and programs, and the suggested timing thereof, to meet those requirements most advantageously. Render such Functional advice and counsel and other services without authority to issue directions or orders outside of the assigned Services component, but rather inform, teach, persuade, or recommend. *In general, the Services Officer and all members of the Services components should rely upon the authority of knowledge for results in the assigned Function, well-marshalled and presented, and should rely upon the expertness and soundness of their judgment and advice, except as actually set forth in specific policies which establish or suggest uniform Company-wide approaches.*

Advise and aid Operating Managers and General Managers in the advantageous recruiting, selecting, developing, inventorying, and utilizing of managerial and Functional personnel, within the assigned Function throughout the Company. *This assistance helps to make Company-wide advancement available to all qualified managerial and Functional personnel—especially in accordance with Company Policy on "Promotion or Transfer of Personnel to Manager, or Equivalent Professional or Technical, Positions."*

Request and obtain such information, aid, or cooperation, as may be needed to fulfill properly required Functions and responsibilities and to discharge accountability—respecting organization channels where matters of decision-making character are involved—from the Chairman of the Board and Chief Executive Officer, President, Group Executives, and personnel of Division or Department organizations.

Expect the Group Executives or Operating Division General Managers to refer to the Services Officer for

review and advice, or recommendations of: (a) Functional matters of major or inter-Group importance which affect Operating Divisions and their Departments and other components, or the Company as a whole; (b) openings for proposed appointments of Function or Section Managers (or equivalent) or for higher level Functional personnel within the Operating Departments of each Group, *in order that the Group Executives or Division General Managers may receive the benefit of such Services Officer's knowledge, advice, and recommendations, both freely and frankly, as to qualified potential candidates — particularly those within other components of the Company; furthermore, to ensure that such candidates may have the opportunity to be considered by the Operating Managers or General Managers who are responsible for the selection and appointment of such personnel.*

As required for discharging Services responsibilities, follow, represent, support, and interpret over-all Company objectives, policies, and other interests to Officers, General Managers, Managers, and other employees of Operating components of the Company in the assigned Functional field, and thereby aid them to integrate these interests with their own interests and their own objectives, policies, programs, and budgets. This leadership is to be provided at locations of Functional Operating components throughout the Company.

Contact and work freely with the Manager, or General Manager, of any Operating component, and review with him any problem within the assigned Functional field. Recognize the right of any such Manager (on his own responsibility) to request, accept, or reject advice and counsel as he may deem advisable. Likewise, expect such Managers to respect the responsibility of the Services Officer and other personnel of the Services component to keep all interested Company Officers informed of Services component activities and recommendations in their assigned Functional field.

Work out solutions, primarily at locations of Functional Operating components, through objective review, advice, and counsel.

Make the fullest practicable use of informal "channels of contact," as described in the Company's over-all Organization Chart.

Respect the delegation of Operating responsibility for decision-making and operations. Give the interest of the person who requests Services full consideration, and render Services on a highly professional and, if appropriate, confidential basis. Provide a climate where Functional Managers of a particular Operating business may individually and collectively discuss their plans and problems, and receive advice and counsel thereon, but without relieving them of their own decision-making or other Operating responsibilities and relationships.

Endeavor to reach agreement on any differences of viewpoint at the lowest practicable managerial level, allowing ample opportunity for consideration and for acceptance of, or specific rejection of, recommendations at the level immediately concerned. Should a difference of professional judgment arise between a Services Officer, or a member of his Services component, and an Operating Manager, the Services Officer or Manager may refer the matter to a higher level of Services or to Operating Managers, or to the interested Group Executive, or to the President, or to the Chairman of the Board and Chief Executive Officer, as appropriate and warranted by the situation, after first having advised the Operating Manager involved of his intentions. However, this step should be taken only after a Services Officer, or a member of his Services component, and an Operating Manager have failed to agree after mutual and adequate consideration, and when the Services Officer or Manager considers the disagreement of sufficient importance from the Company viewpoint. Where the current interests of the person who requests Services run counter to those of a person in another part of the Company, or to the apparent over-all interests of the Company's share owners, the Services Officer and Services component personnel who render advice should respect the position, objectives, and confidence of the person who asked for the advice. However, the Services Officer and Services component personnel should urge the broader view, and should give serious attention, not only to the narrower interests, but also to those of other Company components and of the Company as a whole.

Relationships External

Interpret and carry out Company objectives and policies with respect to, and participation in, community, scientific, educational, professional, industry, and other public organizations' activities, as appropriate to the Services' Functions.

RESPONSIBLE TO THE	SERVICES OFFICER	TAB
Chairman of the Board and Chief Executive Officer	POSITION GUIDE (SERVICES FUNCTIONAL AND APPRAISAL WORK)	Services Components

AUTHORITY AND RESERVATIONS OF AUTHORITY FOR DECISION-MAKING

The Services Officer's authority is fully commensurate with his responsibilities in Services Functional and Appraisal work. His authority is complete and final in all matters for which he is responsible, except as decision-making is reserved by Company Policy Guides and reserved in General Instructions, until they are superseded by additional and new Company Policy Guides.

Where decision-making authority is reserved from him in his Functional field, the Services Officer has authority to make recommendations, to secure decisions thereon, and to take appropriate action thereafter.

The cost of Functional and Appraisal Services performed for the Company as a whole will be financed out of Company resources created by the profitability of the over-all businesses of the Company as a whole.

MEASURES OF ACCOUNTABILITY

The primary measures of the Services Functional and Appraisal work are:

The extent of recognition, both inside and outside the Company, of the expertness of the Services Officer and key Services personnel in their Functional field.

The depth of understanding of the opportunities available to, and the obligations of, the assigned Services component, as evidenced by the Services Officer's recommendations, decisions, and actions. *This understanding should coincide with the Company's Services concept, to make basic, important, and continuing contributions to help Managers and other professional personnel themselves to achieve improved Functional performance in Operating components, as well as in other Services components and in the Company as a whole, and for the benefit of society in general.*

The quality, timeliness, and balance between long- and short-range requirements of his Services Functional objectives, plans, programs, and budgets, as evidenced by: the extent to which they represent difficult but attainable achievements; the extent to which they are designed to meet the Functional needs; and the extent to which their projected costs are justified by improvement in performance of organization components, the Company as a whole, and of society in general.

The improvement in performance of Operating components, which can be determined and measured as a result of the application of the assigned Services component. Further, in view of the required use of Company resources for providing these Services, the improvement should be justified by its magnitude in the following areas of Operating accomplishment: profitability, market position, productivity, technological leadership, personnel development, employee attitudes, and public attitudes.

The extent to which its services aid Officers and Managers in developing strong and competently performing Functional organizations; the calibre and improvement in performance of Managers and key personnel in Functional organization components throughout the Company; and the Company's relative position of Functional leadership.

The extent to which the Services Officer understands the purpose, place, and benefits of Company Policy Guides; recognizes the needs for Functional policy; stimulates and conveys understanding as to the need for such policy; and obtains agreement among Operating Managers and General Managers and others who may be affected by the proposed policy. Also, the extent to which the Services Officer is successful in providing necessary guidance during the initiation, formulation, and preparation of the Policy Guides; in securing approval for their issuance; and in the quality of his interpretation of such Guides after issuance.

The quality of performance within the Services component itself of Functional and Appraisal work. *Such Services performance is an important measurement criterion—going beyond the actual contribution of Services work to improved current performance of Operating components—because of the long-time cycles involved in Services work. It is also important because of the extended period which may be required between an individual research project and the date when the advanced knowledge, resulting from that particular research, can contribute to improved performance of Operating components.* Such sub-Functional work is measured by:

The appropriateness of the objectives for fundamental knowledge of research work in the assigned Function; the degree to which well-thought-through

and directed plans for such research are logical accomplishment of established objectives; the extent to which research projects, and increments of research progress within such projects, are in accordance with previously established plans and budgets; and the ultimate benefits of such research work, as evidenced by its contribution to improved performance of Operating Departments.

The effectiveness of the programming and the clarity with which advanced and current knowledge is presented in forms, patterns, designs, series, and steps, and is suitable for use in organization components and, as and when appropriate, in society in general.

The value of the advice and counsel of the assigned Services component, as is evidenced by the degree to which it is accurate, complete, well deliberated, and effectively presented, and will readily fit the necessities of the Chairman of the Board and Chief Executive Officer, President, and the Group Executives in the formulation of appropriate objectives, policies, programs, and budgets.

The quality and effectiveness of communication and teaching activities in developing understanding, and in gaining voluntary acceptance and use of advanced and current knowledge in organization components.

The extent and quality of contributions of advanced and current knowledge, and timing thereof, to society.

The degree to which the Services Officer and personnel of the assigned Services component are cognizant of current knowledge and developments in their respective areas of functional responsibility. The degree to which the "clearing-house" service fits Company requirements for up-to-date and prompt information on current methods and practices, experience, progress, achievements, and failures of others, and for measurement standards, both inside and outside the Company, nationally and internationally.

The extent to which appraisals of Functional Operating work—both of understanding, acceptance, application, and measuring of its effectiveness and efficiency, and results thereof—made by the assigned Services components are accurate, timely, and contain recommendations for improvement which are helpful to, and usable by, the Chairman of the Board and Chief Executive Officer and all others who may request such appraisals.

The calibre of the Services Officer's accomplishment in keeping the Chairman of the Board and Chief Executive Officer informed, as appropriate, on all Functional matters important to the success of the Company; and likewise in serving the President, the Group Executives, as to their respective Groups, other Services Officers, and General Managers.

The quality and degree of the Services Officer's participation, as appropriate, to the assigned Services component, in professional, industry, public, and similar activities at national level.

The extent to which the Services Officer and the personnel of the assigned Services component devote their time to the performance of functional and appraisal Services in the Functional field, and to the building of Company leadership in this field.

The quality and timeliness of the Services Officer's decisions and actions in all responsibilities of the position, including the quality and timeliness of his recommendations where decision-making authority is reserved, and in securing decisions thereon, and in taking appropriate action thereafter.

The depth of understanding and actual practice, on the part of the Services component's personnel, with regard to the professional obligations of Services work in the Company. This includes: respecting the delegation of Operating responsibility for decision-making and operations; working out solutions through objective review, advice, and counsel—primarily at locations of Functional Operating components; endeavoring to reach agreement at the lowest practicable level of organization structure; making fullest practicable use of informal "channels of contact"; respecting the confidential basis of reviewing activities; respecting the position and objectives of individuals being counseled, while at the same time urging broader views and interests of other components and of the Company as a whole; and, when it is the judgment of Services personnel that a situation warrants referral to a higher level in the Operating or Services organization structure, never failing, first, to so advise individuals being counseled.

RESPONSIBLE TO THE	SERVICES OFFICER	TAB
Chairman of the Board and Chief Executive Officer	POSITION GUIDE (EXECUTIVE WORK)	Services Components

PART 2 — EXECUTIVE WORK

PRINCIPAL RESPONSIBILITIES

A Services Officer is responsible for interpreting and discharging the following Executive Responsibilities:

The Company as a Whole

Set aside a measurable portion of time, as a member of the Executive Office, during which the Services Officer acts as one of a group of Officers, working and thinking together, and advising with the Chairman of the Board and Chief Executive Officer, in regard to the Company's long-range character, course, dimensions, and growth, and aiding in establishing its objectives, policies, plans, and budgets.

Represent, support, and interpret over-all Company objectives, policies, and other interests at all times.

Participate, personally, in national and international affairs, in order to extend the Company's influence and leadership, as appropriate.

Create, recognize, and utilize to the fullest extent the "extra values" and advantages of common ownership of diverse, decentralized businesses, for the benefit of the Company's customers, share owners, employees, suppliers, and the public and its representative, Government.

The Assigned Function

Keep informed as to the long-range course, character, and dimensions of the business of the Company as a whole, and of changing trends, conditions, and circumstances, in order to maintain Company leadership in the assigned Function.

Develop, within Company policy, long-range objectives, policies, plans, programs, and budgets for the assigned Function, in order to provide for greater effectiveness of Services work. *Such improvements will contribute measurably to the continued growth and success in Functional performance of individual Operating components and of the Company as a whole.*

Relationships

Refer to the Chairman of the Board and Chief Executive Officer all unusual or major matters that are important to the over-all Company's success, progress, and well-being, for the purpose of securing his advice, guidance, authorization or approval, as may be appropriate.

Work with members of the Executive Office in discussing, both freely and frankly, over-all Company opportunities and problems, as well as Company objectives, policies, plans, and budgets. Aid, to the fullest extent, in the development of the Executive Office into a cooperative, effective team, both from over-all Company and Functional perspective.

Maintain and enhance the Company's good name and social responsibilities in industry, in the community, and in society in general, as appropriate to the Executive work of a Services Officer. Maintain and enhance the Company's reputation for good corporate citizenship and for its favorable relations with customers, share owners, employees, suppliers, and the public and its representative, Government. The General Electric Company will thus be widely and favorably known because of:

Its fair, constructive, and enlightened objectives and policies.

The quality, timeliness, and inherent value of its products and services.

The worth of its securities.

Its fair treatment of all persons with whom it, or any of its employees, comes in contact; and its recognition and regard for the interests of customers, share owners, employees, suppliers, and the public and its representative, Government (and appropriate international publics and governments).

Its contributions to advanced and constructive trends in the physical and social sciences within the Company's field of activities.

Its contribution to an improved standard of living and general well-being of the country and the international field.

Its contributions to the advancement of the American form of democratic society—based upon rights, privileges, and duties with respect to private property, free competitive and profitable enterprise, and the dignity and freedom of the individual.

Represent the Chairman of the Board and Chief Executive Officer in important matters, as appropriate and as required, without diminishing the status or importance of managerial or other employees of Operating or other Services components.

AUTHORITY AND RESERVATIONS OF AUTHORITY FOR DECISION-MAKING

The Services Officer's authority as to Executive work is commensurate with his responsibility. His authority is complete and final in all matters for which he is responsible, except to the extent where decision-making authority is reserved in Company Policy Guides.

The Services Officer has authority to make recommendations as to subject matter, in which decision-making authority is reserved from him in his Executive capacity, to obtain decisions thereon, and to take appropriate action thereafter.

The Services Officer may not delegate his Executive responsibilities, as a member of the Executive Office or as to his assigned Function. In the latter capacity, he may assign certain planning phases to personnel of the assigned Services component, to aid him in the formulation of long-range objectives, policies, plans, and budgets.

The cost of Executive work performed by Services Officers for the Company as a whole will be financed from resources created by the profitability of the over-all business of the Company as a whole.

MEASURES OF ACCOUNTABILITY

The primary measures of a Services Officer's performance of Executive work are:

The Company as a Whole

The depth of his understanding of Company needs to meet successfully the economic, social, political, and other forces which impinge upon, or are likely to impinge upon, the Company.

The soundness, appropriateness, scope, and depth of his advice, as a member of the Executive Office, in regard to the long-range character, course, dimensions, and growth of the Company as a whole, and in aiding to establish over-all Company objectives, policies, plans, and budgets.

The quality of his representation, support, and interpretation of over-all Company objectives, policies, and other interests which are required by individual situations inside or outside the Company.

The quality, degree, and appropriateness of his participation in public affairs at the national and international level through selected industry and public organizations.

The degree of his understanding and quality of his actions in creating, recognizing, and utilizing the "extra values" and advantages which are available in common ownership of diverse, decentralized businesses for the benefit of the Company's customers, share owners, employees, and the public and its representative, Government.

The Assigned Function

The depth of his understanding, as evidenced by his recommendations, decisions, and actions, of the opportunities available for making basic, important, and continued contributions to improved Functional performance in Operating components, in other Services components, and in the Company as a whole, including the timely benefit to society in general, and the leadership thus obtained by the Company.

The quality of his interpretation of the Company's Services concept, and his interpretation of the soundness and appropriateness of long-range objectives, policies, plans, and programs for the assigned Function.

The quality of his interpretation and performance of his Executive work relationships as set forth in Part 2.

PART 3 — MANAGERIAL WORK

PRINCIPAL RESPONSIBILITIES

The responsibilities and measures of accountability of the Services Officer for major objectives and for relationships in the various types of Services work are described in the other parts of this Position Guide. The managing of the Services component itself is accomplished by performing "The Work of a Professional Manager," as set forth in the standard Company chart for this work, Organization and Policy Guide, General Plan of Organization No. 1.G-3. In performing the elements of "The Work of a Professional Manager," as set forth therein, the Services Officer will, with respect to:

Planning

Place emphasis on Services Functional and Appraisal work, directed toward benefiting future operations rather than on current Functional problems of individual organization components. Such components should normally organize to solve their own current problems, either with personnel on their own payroll, or by contractual or other arrangements with other components or suppliers, as may be found best in each particular situation.

Organizing

Distinguish clearly between each of the types of Services work described in these Position Guides, as well as between the sub-functional parts of each. Distinguish clearly between each of these types of work: Services Functional and Appraisal, Services Managerial work, Functional (Operating) work, and Executive work, as well as between the sub-functional parts of each. Select and appoint Consultants and other key personnel who report direct to the Services Officer, and review proposed appointments at lower levels in accordance with Company policy. Give consideration in staffing such positions to managerial and functional employees of components of other Divisions and Services (and encourage such other Divisions and Services to consider employees of the assigned Services component in staffing their components). Also, give consideration in staffing positions to men outside the Company organization, where necessary or appropriate, to develop optimum personnel stature and performance. Remove, after appraisal against performance standards and after proper discussion with the individual, any person who is inadequate in performance or compatibility.

Integrating

Train and develop managerial and functional employees for promotion and transfer outside the Services component, to help meet requirements for continuity, growth, and expansion of the Company.

Devote most of personal time, available for Company work, to building Company leadership through the managing of Functional and Appraisal Services in the assigned function.

Measuring

Recognize the need to measure both the over-all Function and each of its sub-functions in correlation with the over-all Company system of measurement. This over-all system of measurement should provide for selection of results to be measured, broken down into increments of sub-functional work, and should provide for creation of appropriate measuring units to be used. It should not resort merely to such inadequate and ineffective measures as number of employees on payroll, number of Services man-days spent with Operating component personnel, or number of projects in progress.

Relationship Responsibilities

The Services Officer is responsible for review with the Chairman of the Board and Chief Executive Officer: over-all progress and results of Services Managerial performance against previously established objectives, policies, plans, programs, and budgets of the Services component; use of its resources; his management, as well as that of others of the Services component; and major objectives, policies, plans, and programs for the future of the Services component.

The Services Officer works with the Chairman of the Board and Chief Executive Officer, President, Group Executives, other Services Officers, Operating Officers, and General Managers, as required or requested, with respect to matters of major importance which are related to managing the assigned Services component.

The Services Officer exercises his Services Managerial authority through Managers of Functional Services or Services components and individual functional positions of the Services components as may be established in accordance with sound principles of management and organization. *These principles of management and organization should be based on the broad criterion that the basic mission of the Services component is: to have and to multiply the use of expert knowledge in the assigned Functional field; to consider the Company as a whole from the point of view of such Functional knowledge; and generally to organize and to use such primary Functional and sub-functional fields as the fundamental criteria for setting up permanent components and positions within the Services component.*

The Services Officer should develop responsibility in each Consultant, and in other key employees in the Services component, with respect to cooperative and effective organizational relationships at all levels; and they should recognize the responsibilities and accountabilities which rest with the respective individual Executive, Services, and Operating Managers to whom all such work of the Company is assigned.

AUTHORITY AND RESERVATIONS OF AUTHORITY FOR DECISION-MAKING

The Services Officer's authority to manage the work of the assigned Services component is commensurate with his responsibilities. His authority is complete and final in all matters for which he is responsible, except to the extent where decision-making is reserved by Company Policy Guides, and in General Instructions until superseded by Company Policy Guides. Examples of reservations of decision-making authority from Services Officers are:

Policy on Creating and Issuing Company Policies
Policy Guide—General 20.1
Organization Nomenclature
Policy Guide—General 2.1
Planning of Organization Structure
Policy Guide—General 2.2
Promotion or Transfer of Personnel to Manager, or Equivalent Professional or Technical, Positions
Policy Guide—General 0.1
Product Responsibility
Policy Guide—General 20.2
Government Security Requirements
Policy Guide—General 20.3
Salaried Employee Compensation
Policy Guide—P & ER 1.4
Incentive Compensation Plan
Policy Guide—P & ER 1.2
Plant Appropriations
Policy Guide—Manufacturing 3.1
Subscriptions
General Instruction 13.1
Pension Board Functions
Pension Plan; and G.O.A. No. B-18.1

The Services Officer has authority to make recommendations in subject matter where decision-making authority is reserved, to obtain decisions thereon, and to take appropriate action thereafter.

The Services Officer may delegate appropriate portions of his managerial responsibilities, authority, and relationships to any member of his assigned Services component, except as otherwise set forth in this and in other Company Organization and Policy Guides. However, he may not relieve himself of over-all responsibility and accountability for the results of such delegated managerial responsibilities, nor for proper interpretation and conduct of relationships.

Each Services Officer has the authority and the responsibility to prepare and issue a supplement to this Services Officer Position Guide for his particular position, which will describe his work in the assigned Services component in terms of its specific work, and consistent with this Position Guide.

The cost of managerial work performed by the Services Officer, Consultants, and Managers of the assigned Services component will be financed as part of, and in the same manner as, the Functional work which is being managed.

MEASURES OF ACCOUNTABILITY

The primary measures of a Services Officer's performance of Services Managerial work are:

The depth of his understanding of:

The part played by a large decentralized industrial Company in the national and international environments in which it exists.

The problems—amidst the economic, social, government, and competitive forces which continuously impinge upon the Company—to produce optimum profits and benefits to its customers, share owners, employees, suppliers, and the public and its representative, Government.

The opportunity available to the Company as a whole, to take full advantage of improving the functional effectiveness and efficiency of each of its decentralized Operating businesses, by advancing and applying new and existing functional knowledge to their operations. The opportunity for making such knowledge available, on a timely basis, to society in general, *thereby achieving greater and earlier improvements in Operating performance, and*

in the Company's over-all contribution to society than would otherwise be possible.

The soundness of the objectives, policies, plans, and programs for managing the Services component, specifically as they reflect a broad understanding and a determined effort to meet the Services component's managerial challenges and opportunities.

The extent of the successful and timely accomplishment of the objectives of the Services component, and the effectiveness, efficiency, and economy of its operation, considering both the cost thereof and the expenses which Operating Managers and General Managers incur to achieve related benefits.

The degree of success in maintenance of proper balance between long- and short-range managerial and other objectives of the Services component; and between the interests of customers, share owners, employees, suppliers, and the public and its representative, Government.

The calibre of his performance of "The Work of a Professional Manager"; and the calibre and performance of the Services component's Managerial and Functional personnel, in acting as true multipliers of knowledge in the Functional work among Operating components.

The calibre of his interpretation and performance of the Services Managerial relationship responsibilities set forth in Part 3.

The quality and timeliness of his decisions and actions with regard to Services Managerial responsibilities of the position, including the quality and timeliness of his recommendations where decision-making authority is reserved, and in securing decisions thereon, and in taking appropriate action thereafter.

The quality of managerial and functional personnel, developed and made available, for other organization components of the Company.

The degree to which he is successful in utilizing the assigned Services component's resources for Services Functional work, and in promptly accomplishing the transfer of temporary Operating work to appropriate Operating Departments, where it can be performed better and more easily.

PART 4 — FUNCTIONAL WORK (OPERATING)

PRINCIPAL RESPONSIBILITIES

The Services Officer is responsible for interpreting and discharging his Functional Operating responsibilities with respect to:

Company-as-a-Whole Functional Operating Work

This work is performed on an over-all corporate basis, as assigned by the Chairman of the Board and Chief Executive Officer to specific Services Officers, and as defined in individual supplements to Services Officer Position Guide. The Company-as-a-whole Functional Operating work to be performed includes detailed planning and layout of such work; assembling of the human and material resources with which it is to be performed; application of efficient and economical use of such resources to accomplish the work, and final inspection of the results of such work. *Examples are: Company institutional advertising; consolidation of accounting data for corporate purposes; and preparation of corporate income tax returns.*

The responsibility of managing specific Operating work is covered in Part 3 of Services Officer Position Guide.

Pooled Functional Operating Work

This work is performed on a pooled basis for some, but not all, Operating components, as assigned by the Chairman of the Board and Chief Executive Officer to specific Services Officers, and defined in individual supplements to the Services Officer Position Guide. The responsible Managers of Operating components have elected to get such special work accomplished in this way rather than by employees on their own payroll, or by nonaffiliated consultants or vendors. *Pooled Functional Operating work includes detailed planning and layout of such work; assembling of the human and material resources with which it is to be*

performed; application and efficient economical use of such resources in accomplishing the work, and in final inspection of the results of this work.

Services components will not undertake work which Operating Departments can arrange to do for themselves, unless decision to perform specific, limited pooled Functional Operating work in the Services component has been made in conformity with Company Policy on "Planning of Organization Structure"—either indefinitely or temporarily, pending determination on how and where such work can be placed advantageously in Operating Departments which have profit responsibility.

Services components will not undertake to perform Functions—even if in the assigned Functional field of the Services components—which have been assigned to Functional or geographical Operating components on a Company-wide basis. Correspondingly, Operating Departments will not duplicate Services work or Operating work that is performed in the Services component, after determination has been made and during the period when such Functions are being performed in the Services components.

The responsibility of managing specific Operating work has been included in Part 3 of Services Officer Position Guide.

Contractor-type Functional Operating Work Projects

This Functional Operating work may be performed by the Services component on behalf of individual organization components, when the Services Officer who has responsibility for such Functional work agrees that the individual Operating component does not have, and cannot be expected reasonably to acquire, either the skills or the facilities for performing the work within its own organization structure.

The Services component may have such skills and facilities available temporarily for use on such projects, but it may be found impractical to transfer these skills and facilities to the Operating components within its organization structure. Or, it may be that such services do not exist currently in the Services component, or that such nonrecurring work cannot be done reasonably by outside consultants or by other non-Company personnel. In either instance, the undertaking of such work should be accomplished on the basis of a separate and temporary organization component or position; and it should be established in the Services component in accordance with Company Policy on "Planning of Organization Structure."

The responsibility of managing such specific Operating work has been included in Part 3 of Services Officer Position Guide.

Relationship Responsibilities

The Services Officer will review with the Chairman of the Board and Chief Executive Officer over-all progress and results of performance of assigned Functional Operating work against previously established objectives, policies, plans, programs, and budgets; use of the resources of the Services component, and major Functional Operating objectives, policies, plans, and programs for the future of the Services component.

The Services Officer will work with the Chairman of the Board and Chief Executive Officer, President, Group Executives, Services Officers, Operating Officers, and General Managers, as required or requested, with respect to matters of major importance within their respective areas of responsibility, and which are related to the assigned Functional Operating work.

The Services Officer will conduct assigned Functional Operating work through Managers of components, or through incumbents of individual Functional positions in the Services component. *These positions should be established in accordance with sound principles of management and organization, and within the authority delegated to the Services Officer in this Position Guide.*

The Services Officer should encourage each Manager and other key employees in the Services component to exercise individual responsibility and cooperative and effective organizational relationships at all levels in Functional Operating work. They should recognize also that responsibility and accountability for all Operating work rest with the respective individual Executive, Services, Operating, and General Managers, to whom all such work of the Company is assigned.

AUTHORITY AND RESERVATIONS OF AUTHORITY FOR DECISION-MAKING

The Services Officer's authority is commensurate with his responsibility in regard to Functional Operating work assigned to the Services component. His authority is complete and final in all matters for which he is responsible, except to the extent where decision-making authority is reserved in Company Policy Guides.

The Services Officer has authority to make recommendations concerning subject matter in which decision-making authority is reserved, to obtain decisions thereon, and to take appropriate action thereafter.

The Services Officer may delegate appropriate portions of his Functional Operating responsibilities, authority, and relationships to any member of his Services component, except as otherwise set forth in this and in other Company Organization and Policy Guides. However, he may not relieve himself of over-all responsibility and accountability for the results of such delegated responsibilities, and for the proper interpretation and conduct of relationships.

The cost of Functional Operating work, performed by a Services component, will be financed as follows:

(a) For work to the Company as a whole—from resources created by the profitability of the over-all business of the Company as a whole.

(b) For other Operating work—on a "professional fee" basis to the components who require such Operating work.

MEASURES OF ACCOUNTABILITY

The primary measures of a Services Officer's performance of Functional Operating work assigned to the Services component will be:

The quality of his understanding and interpretation of the Company's concept of decentralization, which places responsibility for Functional Operating work in Operating Departments which have profit responsibility; and the quality of his interpretation of the criteria for undertaking contractor-type Functional Operating work projects in the assigned Services component.

The quality and the degree of attainment of objectives that are established for Functional Operating work, assigned to or undertaken by the Services component.

The quality of his interpretation and performance of the relationship responsibilities set forth herein in Part 4.

The quality and timeliness of his decisions and actions as to the Functional Operating responsibilities of the position, including the quality and timeliness of his recommendations where decision-making authority is reserved, and in securing decisions thereon, and in taking appropriate action thereafter.

Appendix Exhibit 3-2

INVESTMENTS IN FACILITIES

This six-page policy statement was issued June 15, 1964 and explains the dollar value that can be spent by managers at various levels without approval from the respective supervisors.

SUBJECT	TAB	NO.
INVESTMENTS IN FACILITIES	General	20.6

NEED FOR A DIRECTIVE POLICY

The continuing progress and growth of the Company will depend upon the success of General Electric people in searching out and taking advantage of the opportunities presented by new customer needs or increased Company ability to serve customer needs. The long-range character and future success of the Company will be determined by the foresight used in selecting among the opportunities available and by the skill and judgment exercised in the development of the business plans based on the opportunities selected. In most instances, these plans will anticipate investments in plant and equipment as well as major expense outlays. Decisions on investments in facilities should be made in the context of total investment opportunities including investment of funds in inventory and receivables and in the development of new products, new processes and new markets. In order to accomplish healthy growth and meet the other objectives of the Company, efficient utilization and operation of existing facilities is also required and the balanced integration of new facilities into the total Company and the individual businesses is of the utmost importance.

A Directive Policy on investments in facilities is needed to ensure the enhancement of the common interests of the corporate enterprise as well as continued progress in searching out, planning and implementing profitable investment opportunities in the decentralized businesses.

STATEMENT OF DIRECTIVE POLICY

Funds for plant and other facilities shall be appropriated with due consideration of the other investment opportunities and requirements of Company components, the availability of funds, and the over-all Company objectives in order to accomplish the common purpose of the most efficient and profitable short- and long-range use of capital. Subsequent sections of this Directive Policy relate to the forecasting of investment, obtaining individual appropriations, applying the expenditure of funds to obtain optimum benefits, and measuring progress and results achieved.

RESPONSIBILITY AND AUTHORITY

Designation of Positions Responsible for Applying the Directive Policy

- Managers and General Managers are responsible for searching out, developing and planning investment opportunities and subsequently preparing proposals for investments in facilities in accordance with this Directive Policy, and for the wise and timely expenditure of funds appropriated thereunder.

- The Officer (other than the President and Chief Executive Officer or the Chairman of the Board) or Manager having authority for approval of requests for appropriation of funds for facilities shall, prior to granting his approval, discuss each project with his Manager for the purpose of obtaining over-all Company perspective and such other applicable information as his Manager may have. Such consultations also serve to bring up to the corporate level, as appropriate, knowledge of individual businesses necessary for integrating the over-all Company interests. However, the Officer or Manager having the authority to approve the proposal still retains full authority and responsibility for the decision.

Reservations of Authority for Approval of Appropriation Funds for Facilities

Appropriations for	Authority to Grant Approval
A. Land or Other Real Property	
1. Purchase of land or other real property for **$50,000** or more and sale of land or other real property for which the first cost (original cost plus the cost of any improvements) was **$50,000** or more.	1. Board of Directors
2. Purchase of land or other real property for less than $50,000 or sale of land or other real property for which the first cost (original cost plus first cost of any improvements) was less than **$50,000.**	2. President and Chief Executive Officer or Chairman of the Board
B. Other Facilities Purchases and All Leases	
1. Investment expenditures and/or lease commitments of **$500,000** or more.	1. Board of Directors
2. Investment expenditures and/or lease commitments up through **$499,999:**	2.
a. Operations—Meeting Criteria	a. Group Executive
b. Operations—Not Meeting Criteria; and Services	b. President and Chief Executive Officer or Chairman of the Board
3. Investment expenditures and/or lease commitments up through **$249,999:**	3.
a. Operations—Meeting Criteria	a. Division General Manager or Manager at equivalent organization level
b. Operations—Not Meeting Criteria	b. Group Executive
c. Services	c. Services Officer
4. Investment expenditures and/or lease commitments less than **$100,000:**	4.
a. Operations—Meeting Criteria	a. Department General Manager or Manager at equivalent organization level*
b. Operations—Not Meeting Criteria	b. One organization level higher than delegated approval for operations meeting criteria
c. Services	c. Services Officer*

* Services Officers and Department General Managers and those holding equivalent positions may delegate authority within these limits to appropriate members of their organizations who, in turn, may delegate authority within designated limits to other Managers, in channels.

Criteria for Determining Approval Requirements

The criteria are based on the premise that (1) components which make adequate plans and carry them out with reasonable performance will be free to invest in facility projects within the delegated authority of plant appropriation approval levels, and conversely (2) components which have not demonstrated reasonable performance in preparing and executing business plans will have less freedom with respect to plant appropriations. Accordingly, the following criteria relate to Department or equivalent component performance and ***not*** to the relative merits of an individual project or a group of projects.

To qualify for maximum authority for approval, a component with profit and loss responsibility (1) should have realized 90% of budgeted residual income for the past calendar year, and (2) shall expect to realize at least 90% of its budgeted residual income for the current calendar year including implementation of the project.

Operating components which do not have profit and loss responsibility and cannot, therefore, be measured on a residual income basis will be considered as qualifying if operating expenses have been less than budget during the preceding and current calendar years and if the implementation of the proposed project will not cause the component to exceed its budgeted expenses for the current year.

Distribution components which have sales responsibility, but do not have profit and loss responsibility, will be considered as qualifying if the ratios of operating expenses to sales or orders have been equivalent to or less than the budgeted ratio during the preceding and current calendar years and if implementation of the proposed project will not cause the component to exceed its budgeted ratio of expenses to sales or orders for the current year.

Responsibility to Obtain and to Supply Counsel Relating to Proposed Facility Appropriations

General Managers and Managers of Operating components and Managers of Services components initiating facility investment proposals are responsible for seeking out and obtaining the most expert advice and counsel available in the course of investment opportunity planning and subsequent preparation of all appropriation requests. In connection with all appropriations involving investment expenditures or lease commitments of $100,000 or more, advice and counsel shall be requested from appropriate Services and a written record of their comments included in the proposal as submitted for approvals.

Services Officers, Services Managers and other appropriate Services personnel have responsibility for providing counsel and advice, upon request, with respect to all facility investment proposals. Such counsel and advice shall be submitted in written form and included with appropriation requests submitted for review and approval. Services appraisals of appropriation requests have the purpose of providing additional information and perspective to component Managers and General Managers for formulation of both business-oriented and over-all corporate decisions, and of supplementing functional competence available within decentralized components. The Manager or General Manager of each component, however, retains full and continuing responsibility not only to plan investment opportunities and facility acquisitions to serve the limited and immediate needs of the component but also to gain from such use of funds the maximum long-range contribution to the over-all Company.

The President and Chief Executive Officer, Chairman of the Board, Group Executives, Division General Managers, and other Managers as specified, are responsible for reviewing facility investment proposals in accordance with the provisions of this Directive Policy.

PLANT EXPENDITURES FORECASTS

To obtain maximum benefit from funds expended on plant facilities, advance planning shall be conducted on a continuous basis. Each Department shall provide for the development of such facilities programs in sufficient detail to itemize every project with investment of $10,000 or more. These plans, continuously maintained and projected, shall serve as the basis for budgets and forecasts of plant expenditures to be prepared periodically.

PLANT APPROPRIATION REQUESTS

Projects for which appropriation requests are initiated shall be within the scope of the organization's Business Charter and shall derive from, support and be compatible with, the business plan of the component.

Authority for Approval

Reservations of authority for approval are based on the amount of investment expenditure plus the lease commitment and expenses associated with the lease commitment. The total amount of the appropriation, however, shall also include all other related expenses which are not capitalized. Anticipated starting costs for which separate accounting records are not generally maintained and which are connected with a project shall be shown as a memorandum. For the purpose of determining the amount of investment expenditure and the level of approval required, it is not necessary to include the cost of equipment manufactured and sold by the Department as a part of its regular product line, if this equipment replaces similar equipment which has been displayed for customers under a plan for regularly converting to equipment of the latest design, and the replaced equipment will be disposed of through regular sales channels at a substantial portion of its original equipment value.

Investment

Investment expenditures under facility appropriations represent amounts which will be capitalized in plant and equipment and leasehold cost accounts. Any facility investment amounting to $10,000 or more, or any purchase or sale of land shall be supported by an approved plant appropriation request before any commitment is made.

Lease Commitments

The approval level for an appropriation covering leasing of facilities will be determined by the aggregate amount of the firm lease commitment (or one year's rental if the lease commitment is for less than one year but plans provide for at least one year's use of the facilities) plus related expenses. For leases covering buildings and other structures, this includes leasehold and relocation costs and costs normally borne by the landlord but which are being assumed by the lessee. For computer and other equipment leases, the level of approval required will be determined by the aggregate cost of the lease commitment plus related expenses including programming and system implementation effort necessary to utilize the equipment to a degree that will economically justify the installation. An approved appropriation will be required before a lease commitment can be made on any project with investment, rent, and related expense totaling $10,000 or more. However, it will not be necessary to prepare subsequent appropriation requests for continued rental of the equipment beyond the first year unless the rental commitment exceeds $250,000 at any one time and covers a period in excess of one year.

Scope of Project

In determining the scope of a project and the amount to be requested, all purchases, costs and activities essential to complete the planned undertaking shall be included; namely, all items of investment and all items of unusual expense. For example, accessories should be included with the main equipment, machines should be grouped for appropriation approval if they are part of an expansion or modernization program, or cost of rearrangement required by installation of new equipment should be considered an integral part of a project.

Change in Scope or Results, Requirements for Additional Funds

After an appropriation has been granted, a change of scope or a significant change in results to be obtained shall receive the same careful planning and correlation of investment opportunities and approvals as the original proposal.

A revised request shall be submitted in accordance with the reservations of authority established in this Directive Policy if (1) investment expenditures and/or lease commitments are expected to exceed approved amounts by 10% or $100,000 whichever is smaller, (2) total expenditures and lease commitments are expected to exceed the total approved amount by 10%, or (3) it is determined that there will be a significant change in the amount or timing of cost reductions, profitability, sales increase or other benefits to be realized from that which was included in the appropriation at the time approval was granted.

Separation into Phases

In some instances, extensive or long-range projects are developed in two or more phases and it is logical to submit individual appropriation requests for each phase. In these cases, the extent of the complete program and total estimated funds required shall be outlined in each of the requests. Approval level for the proposed project shall be determined on the basis of total project estimates including previously approved amounts and estimated future requests.

Feasibility Studies

Projects specifically identified in approved budget and/or long-range forecast exhibits can be carried through the development of preliminary facility design and the acquisition of site options in advance of total project approval. All others should be limited to determination of project feasibility and to the studies and planning necessary to prepare appropriation estimates. Approval of funds for feasibility studies should be on the basis of a separate appropriation request approved by the appropriate Manager as indicated in Reservations of Authority for Approval of Appropriation Funds for Facilities as contained in this Directive Policy. When such amounts are appropriated in advance of total project approval, they shall be shown as previously approved portions of the proposed total project.

Failure to Commit Funds

If at least a partial commitment is not made under an appropriation within a period of six months following its approval, the appropriation shall be canceled by the interested component unless such delay was planned and explained in the appropriation request. It can be resubmitted, however, if and when the project is reactivated.

PLANT APPROPRIATION REPORTS

Status reports shall be prepared periodically on projects covered by open appropriations. These shall reflect and explain revisions from the approved appropriation request with respect to estimates of timing, amount of expenditures and benefits to be realized.

After appropriations are closed and results can be appraised, reports will be prepared which summarize and explain variances between estimated and actual expenditures and benefits.

Above reports will be prepared in accordance with functional procedures as defined herein. Accounting Services will prepare suitable summaries for members of the Executive Office.

FUNCTIONAL PROCEDURES

Functional Procedures issued by Accounting, Manufacturing, and other Services, will delineate from time to time consistent procedures and forms, and reporting as required.

Operating and Services components shall further supplement this Directive Policy in accordance with the internal needs of each component.

Appendix Exhibit 3-3

HYPOTHETICAL ILLUSTRATION DEMONSTRATING
SENSITIVITY OF RESIDUAL DOLLAR PROFIT
AND RETURN ON INVESTMENT INDEXES

APPENDIX EXHIBIT 3-3

HYPOTHETICAL ILLUSTRATION DEMONSTRATING RELATIVE SENSITIVITY OF RESIDUAL DOLLAR PROFIT AND RETURN ON INVESTMENT INDEXES

Assumptions

1. Profit varies directly with changes in sales volume. Ratio to sales remains constant.
2. Investment consists of 40% ($10 000) fixed and 60% ($15 000) variable. Variable portion varies directly with changes in sales volume.

	Sales		Profit		Investment		Return on investment		Residual dollar profit	
	Amount	V%	Amount	V%	Amount	V%	Rate	V%	Amount	V%
Base period	$100 000		$10 000		$25 000		40.0%		$8 750	
80% of base period	80 000	(20.0)%	8 000	(20.0)%	22 000	(12.0)%	36.4	(9.0)%	6 900	(21.1)%
60% of base period	60 000	(25.0)	6 000	(25.0)	19 000	(13.6)	31.6	(13.2)	5 050	(26.8)
40% of base period	40 000	(33.3)	4 000	(33.3)	16 000	(15.8)	25.0	(20.9)	3 200	(36.6)
20% of base period	20 000	(50.0)	2 000	(50.0)	13 000	(18.8)	15.4	(38.4)	1 250	(60.9)
10% of base period	10 000	(50.0)	1 000	(50.0)	11 500	(11.5)	8.7	(43.5)	425	(66.0)
5% of base period	5 000	(50.0)	500	(50.0)	10 750	(6.5)	4.7	(46.0)	(38)	(108.9)

V % = Variance from preceding period.

In this exhibit we have assumed that the business is able to maintain its rate of profit to sales in the face of declining volume and that the variable portion of its investment decreases proportionately with the reduction in sales, both of which are optimistic assumptions. You will observe from the percentages showing the variations between the two indexes from period to period that Residual Profit falls off faster than Rate of Return and thus is more likely to alert the appraiser earlier to the need for remedial action

From: MEASUREMENTS PROJECT, PART II, THE OPERATIONAL MEASUREMENTS KEY RESULT AREA NO. 1: PROFITABILITY, General Electric Company, N.Y., January, 1954, p. 33, Exhibit No. 4.

Appendix Exhibit 3-4

COMPARISON OF PROFITABILITY INDEXES

Illustrations Showing Return on Investment and Residual Dollar Profit Indexes Moving in Same Direction

APPENDIX EXHIBIT 3-4

COMPARISONS OF PROFITABILITY INDEXES - SELECTED OPERATING DEPARTMENTS

Illustrations Showing Return on Investment and Residual Dollar Profit Indexes Moving in the Same Direction

(Amounts in thousands)	Department No. 1				Department No. 2			
	1951	1952	1953	1954	1951	1952	1953	1954
Operating Statistics								
Net sales billed	$36 397	$47 480	$50 990	$41 541	$103 459	$85 570	$101 665	$105 000
Contributed value	27 194	39 249	37 877	31 242	39 930	34 091	42 052	37 916
Average investment	7 953	7 819	4 904	3 890	35 927	23 126	20 402	20 998
Income from sales	910	8 084	10 478	6 661	5 534	4 342	3 480	602
Profitability Indexes								
Net income (after 50% taxes)	$455	$4 042	$5 239	$3 330	$2 767	$2 171	$1 740	$301
% Net income to sales	1.3%	8.5%	10.3%	8.0%	2.7%	2.5%	1.7%	0.3%
Return on investment	5.7	51.7	106.8	85.6	7.7	9.4	8.5	1.4
Residual dollar profit	$57	$3 651	$4 994	$3 135	$971	$1 015	$720	$(749)
% residual profit to contributed value	0.2%	9.3%	13.2%	10.0%	2.4%	3.0%	1.7%	(2.0)%

(Amounts in thousands)	Department No. 3				Department No. 4			
	1951	1952	1953	1954	1951	1952	1953	1954
Operating Statistics								
Net sales billed	$62 305	$57 631	$64 544	$63 406	$66 474	$99 437	$185 596	$197 835
Contributed value	NA	27 549	33 995	33 000	32 976	52 432	89 978	88 149
Average investment	14 271	14 359	14 731	17 550	31 040	42 868	47 490	44 666
Income from sales	10 437	9 996	11 173	6 405	2 229	1 161	13 097	15 955
Profitability Indexes								
Net income (after 50% taxes)	$5 218	$4 998	$5 587	$3 202	$1 114	$580	$6 549	$7 977
% net income to sales	8.4%	8.7%	8.7%	5.0%	1.7%	0.6%	3.5%	4.0%
Return on investment	36.6	34.8	37.9	18.2	3.6	1.4	13.8	17.9
Residual dollar profit	$4 504	$4 280	$4 850	$2 324	$(437)	$(1 562)	$4 174	$5 744
% residual profit to contributed value	NA	15.5%	14.3%	7.0%	(1.3)%	(3.0)%	4.6%	6.5%

From: MEASUREMENTS PROJECT, PART II THE OPERATIONAL MEASUREMENTS KEY RESULT AREA NO. 1: PROFITABILITY, General Electric Company, N.Y., January, 1954, Exhibit No. 5.

Appendix Exhibit 3-5

COMPARISONS OF PROFITABILITY INDEXES

Illustrations of Conflict Between Return on Investment and Residual Dollar Profit Indexes

APPENDIX EXHIBIT 3-5

COMPARISONS OF PROFITABILITY INDEXES - SELECTED OPERATING DEPARTMENTS

Illustrations of Conflicts Between Return on Investment and Residual Dollar Profit Indexes

(Amounts in thousands)	Department No. 5				Department No. 6				Department No. 7			
	1951	1952	1953	1954	1951	1952	1953	1954	1951	1952	1953	1954
Operating Statistics												
Net sales billed	Not available	$39 008	$42 308	$41 627	Not available	$19 440	$17 786	$16 950	$18 154	$20 250	$19 387	$16 620
Contributed value		30 232	32 302	31 817		14 515	13 253	12 445	8 131	10 202	9 834	9 418
Average investment		6 457	5 943	7 050		3 546	2 637	2 850	3 386	4 443	3 372	2 941
Income from sales		8 892	8 668	8 511		3 788	2 860	1 393	2 705	3 099	2 832	1 910
Profitability Indexes												
Net income (after 50% taxes)		$4 446	$4 334	$4 255		$1 894	$1 430	$696	$1 352	$1 549	$1 416	$955
% Net income to sales		11.4%	10.2%	10.2%		9.7%	8.0%	4.1%	7.4%	7.6%	7.3%	5.7%
Return on investment		68.9	72.9	60.4		53.4	54.2	24.4	39.9	34.9	42.0	32.5
Residual dollar profit		$4 123	$4 037	$3 902		$1 717	$1 298	$553	$1 183	$1 327	$1 247	$808
% residual profit to contributed value		13.7%	12.5%	12.3%		11.8%	9.8%	4.4%	14.5%	13.3%	12.7%	8.6%

(Amounts in thousands)	Department No. 8				Department No. 9				Department No. 10			
	1951	1952	1953	1954	1951	1952	1953	1954	1951	1952	1953	1954
Operating Statistics												
Net sales billed	$107 999	$126 169	$142 546	$155 989	$17 755	$19 535	$25 579	$33 926	$224 975	$444 956	$576 525	$418 200
Contributed value	76 395	91 126	100 992	116 418	12 461	12 245	15 440	21 732	147 556	223 497	211 728	190 462
Average investment	25 148	33 428	42 405	42 563	5 195	4 890	3 028	9 010	21 826	52 324	34 193	31 028
Income from sales	25 794	31 110	38 179	46 291	2 023	1 758	3 484	5 906	17 346	37 186	39 959	34 161
Profitability Indexes												
Net income (after 50% taxes)	$12 897	$15 555	$19 090	$23 146	$1 012	$884	$1 742	$2 953	$8 673	$18 593	$19 980	$17 080
% Net income to sales	11.9%	12.3%	13.4%	13.9%	5.7%	4.5%	6.8%	8.7%	3.9%	4.2%	3.5%	4.1%
Return on investment	51.3	46.5	45.0	54.1	19.5	18.1	57.5	32.8	39.7	35.5	58.4	55.0
Residual dollar profit	$11 640	$13 884	$16 970	$21 018	$ 752	$ 639	$ 1 591	$ 2 502	$ 7 582	$15 977	$18 270	$15 529
% residual profit to contributed value	15.3%	15.2%	16.8%	18.1%	7.2%	5.3%	10.3%	11.5%	5.1%	7.1%	8.6%	8.2%

From: MEASUREMENTS PROJECT, PART II, THE OPERATIONAL MEASUREMENTS KEY RESULT AREA NO. 1: PROFITABILITY, General Electric Company, N.Y., January, 1954, Exhibit No. 5.

Appendix Exhibit 3-6

MEASUREMENTS--PRODUCT LEADERSHIP APPRAISAL OF PRODUCT IN COMPARISON WITH COMPETITION RADIO AND TELEVISION DEPARTMENT
(7 Page Exhibit)

APPENDIX EXHIBIT 3-6

MEASUREMENTS - PRODUCT LEADERSHIP

APPRAISAL OF PRODUCT IN COMPARISON WITH COMPETITION

RADIO AND TELEVISION DEPARTMENT

Product: Clock-radio

Function: Normal home usage as both a radio and a clock

Market: (Class of customer and/or price bracket): Broad home appliance market; Anywhere U.S.A.; $39.95 price bracket

Criteria	Measure	Basis of Measurement	Optimum or Standard Measurement	Relative Weighting	Set A			Set B			Set C			Set D		
					Facts	Rating (0 to 10)	Weighted Appraisal	Facts	Rating (0 to 10)	Weighted Appraisal	Facts	Rating (0 to 10)	Weighted Appraisal	Facts	Rating (0 to 10)	Weighted Appraisal
I. Performance																
A. Technical Characteristics	1. Sensitivity	(a) Micro-volts	500 MV @ 1 000 KC	4	500	10	40	500	10	40	500	10	40	500	10	40
	2. Power output	(a) Maximum watts into speaker	1.5	5	1.5	10	50	1.5	10	50	1.5	10	50	1.5	10	50
	3. Tone	(a) Rater's opinion (b) Fidelity curve-response of speaker to audio spectrum (20 to 15,000 cycles)	Excellent Excellent	4	Good Good	8	32	Good Good	8	32	Good Good	8	32	Good Good	8	32
	4. Selectivity	(a) ACA-number of decibels down from desired signal (adjacent channel) (b) Image rejection (ratio 150 or greater)	25 150	4	22 96	8	32	21 100	8	32	21 90	8	32	21 90	8	32
B. Operating Cost	1. Power Cost	(a) Watts input	35	1	35	10	10	35	10	10	35	10	10	35	10	10
	2. Replacement & Maintenance cost	(a) Tube replacement cost-per life and humidity tests (b) Parts replacement cost-per life and humidity tests (c) Complaint expenditures			Good			Good			Good			Good		
C. Reliability	1. Dependability of features	(a) Life tests (hours) (b) Accuracy tests	10 000 100%	4	10 000 100%	10	40	10 000 100%	10	40	10 000 100%	10	40	10 000 100%	10	40

Criteria	Measure	Basis of Measurement	Optimum or Standard Measurement	Relative Weighting	Set A Facts	Set A Rating (0 to 10)	Set A Weighted Appraisal	Set B Facts	Set B Rating (0 to 10)	Set B Weighted Appraisal	Set C Facts	Set C Rating (0 to 10)	Set C Weighted Appraisal	Set D Facts	Set D Rating (0 to 10)	Set D Weighted Appraisal
	9. Tone control	(a) Inspection for presence or absence		.5	No	0	0	No	0	0	No	0	0	No	0	0
	10. Calendar clock	(a) Inspection for presence or absence		2	No	0	0	No	0	0	No	0	0	No	0	0
	11. Dial beam tuning	(a) Inspection for presence or absence		1	No	0	0	Yes	10	10	No	0	0	No	0	0
	12. Illuminated dial	(a) Inspection for presence or absence		.5	No	0	0	Yes	10	5	No	0	0	No	0	0
	13. Push-button tuning	(a) Inspection for presence or absence		1.5	No	0	0	No	0	0	No	0	0	No	0	0
	14. Luminous clock hands or illuminated dial on clock	(a) Inspection for presence or absence		2	Yes	10	20	Yes	10	20	Yes	10	20	Yes	10	20
	15. Alarm light	(a) Inspection for presence or absence		.5	No	0	0	No	0	0	No	0	0	No	0	0
C. Ease of servicing	1. Ease of servicing	(a) Observation of objectionable design features (b) Survey of service shops	None No complaints	3	Good), Good)	9	27	Excellent), Good)	10	30	Good), Good)	9	27	Good), Good)	9	27
D. Range of Use	1. Other uses	(a) Furnace timer?) (b) Automatic blanket timer) Inspection (c) Other uses?)		—			—			—			—			—
E. Accessories	—			—			—			—			—			—
F. Interchangeability	—			—			—			—			—			—
G. Convenience	1. Ease of tuning	(a) Inspection), (b) Customer surveys)	Excellent	2	Fair	7	14	Excellent	10	20	Poor	4	8	Good	9	18
	2. Ease of setting timer	(a) Inspection), (b) Customer surveys)	Excellent	2	Good	9	18	Excellent	10	20	Poor	4	8	Good	9	18
	3. Ease of reading clock	(a) Inspection), (b) Customer surveys)	Excellent	2	Good	9	18	Good	9	18	Good	9	18	Good	9	18
H. Safety	1. Handling hazards (such as sharp edges)	(a) Inspection	No hazard	2	Good	8	16	Excellent	10	20	Excellent	10	20	Excellent	10	20

Criteria	Measure	Basis of Measurement	Optimum or Standard Measurement	Relative Weighting	Set A Facts	Set A Rating (0 to 10)	Set A Weighted Appraisal	Set B Facts	Set B Rating (0 to 10)	Set B Weighted Appraisal	Set C Facts	Set C Rating (0 to 10)	Set C Weighted Appraisal	Set D Facts	Set D Rating (0 to 10)	Set D Weighted Appraisal
Weight (both radio and clock)	2. Weight-less the better	(a) Weight		-			—			—			—			—
Shape	3. Balance	(a) Rater's opinion		-			—			—			—			—
		(b) "Tipability"--center of gravity		-			—			—			—			—
Finish	4. Stain resistance	(a) Liquor tests	No effect		Poor 5			Poor 5			Good 7			Good 7		
		(b) Furniture polish tests	No effect		Poor 5			Poor 5			Good 7			Good 7		
		(c) Kitchen grease tests	No effect		Poor 5			Poor 5			Good 7			Good 7		
	5. Burn resistance	(a) Cigarette burns	No effect		Poor 5			Poor 5			Good 8			Good 8		
	6. Dust repulsion (static electricity problem)	(a) Dust attraction tests	No attraction	2	Very Poor 3		11	Very Poor 3		11	Good 10		16	Good 10		16
	7. Color fastness-cabinet	(a) "Life" and humidity tests	Color fast		Good 10			Good 10			Good 10			Good 10		
B. Special functions	1. "Wake up to music"	(a) Inspection for presence or absence		2	Yes	10	20	Yes	10	20	Yes	10	20	Yes	10	20
	2. Buzzer alarm	(a) Inspection for presence or absence		2	Yes	10	20	Yes	10	20	Yes	10	20	Yes	10	20
	3. "Sleep switch"	(a) Inspection for presence or absence		1.5	Yes	10	15	Yes	10	15	Yes	10	15	Yes	10	15
	4. "Full music alarm"	(a) Inspection for presence or absence		.5	No	0	0	No	0	0	No	0	0	No	0	0
	5. Overnight station changeover	(a) Inspection for presence or absence		1	No	0	0	No	0	0	No	0	0	No	0	0
	6. Appliance outlet	(a) Inspection for presence or absence		1	Yes	10	10	Yes	10	10	Yes	10	10	Yes	10	10
	7. Phono jack	(a) Inspection for presence or absence		.5	Yes	10	5	Yes	10	5	No	0	0	No	0	0
	8. "Audio magic" volume control	(a) Inspection for presence or absence		.5	Yes	10	5	Yes	10	5	No	0	0	No	0	0

Criteria	Measure	Basis of Measurement	Optimum or Standard Measurement	Relative Weighting	Set A Facts	Set A Rating (0 to 10)	Set A Weighted Appraisal	Set B Facts	Set B Rating (0 to 10)	Set B Weighted Appraisal	Set C Facts	Set C Rating (0 to 10)	Set C Weighted Appraisal	Set D Facts	Set D Rating (0 to 10)	Set D Weighted Appraisal
D. Durability	1. Plastic cabinet durability	(a) Temperature tests	200° F		200			300			300			300		
		(b) Scuff resistance(solid plastic versus painted cabinets)			Good			Good			Good			Good		
		(c) Impact durability(foot-pounds impact-Underwriter's standards)	2 ft. lbs.	2	2	10	20	2	10	20	2	10	20	2	10	20
	2. Materials durability	(a) Rust resistance tests	No rust for 500 hrs. @ 95% humidity		No rust			No rust			No rust			No rust		
	3. Clock durability	(a) Shock tests	Resistance to impact		Good			Good			Good			Good		
E. Life	1. Life of radio	(a) Life test (6 000-10 000 hours)	10 000 hrs.		10 000			10 000			10 000			10 000		
		(b) Humidity test	2 500 hrs.		2 500			2 500			2 500			2 500		
		(c) Component tests-electrical & mechanical	1 000 hrs.	2	1 000	10	20	1 000	10	20	1 000	10	20	1 000	10	20
	2. Life of clock	(a) Life test (6 000-10 000 hours)	10 000 hrs.		10 000			10 000			10 000			10 000		
		(b) Humidity test	5 000 hrs.		5 000			5 000			5 000			5 000		
F. Disturbance Level	1. Noise level	(a) Signal to noise ratio (EMSI in decibels)	9	2	7	8	16	7	8	16	7	8	16	7	8	16
	2. Hum level-radio	(a) Milli-volts across voice coil	5	2	3	10	20	5	10	20	4	10	20	3	10	20
	3. Hum level-clock	(a) Vibration in cabinet-personal opinion	Low	2	Low	10	20	Low	10	20	Low	10	20	Low	10	20
G. Safety	1. Fire hazard	(a) Underwriter's approval (or lack of it)	UL	2	UL	10	20	UL	10	20	UL	10	20	UL	10	20
	2. Shock hazards	(b) Underwriter's approval (or lack of it)	UL		UL			UL			UL			UL		
Sub-total - Weighted Appraisal - Performance				34			320			320			320			320
II. Features																
A. Physical Characteristics																
Size	1. Smallness-consistent with sound engineering practices-particularly heat problems	(a) Rater's opinion	-		Adequate			Adequate			Adequate			Adequate		
		(b) Cubic inch content	-	1	350	10	10	300	10	10	325	10	10	325	10	10

Criteria	Measure	Basis of Measurement	Optimum or Standard Measurement	Relative Weighting	Set A			Set B			Set C			Set D		
					Facts	Rating (0 to 10)	Weighted Appraisal	Facts	Rating (0 to 10)	Weighted Appraisal	Facts	Rating (0 to 10)	Weighted Appraisal	Facts	Rating (0 to 10)	Weighted Appraisal
I. Packaging	1. Ease of handling and displaying	(a) Inspection	Good	2	Good	10	20	Good	10	20	Good	10	20	Good	10	20
Sub-total - Weighted Appraisal - Features				31			229			250			212			232
III. Attractiveness																
A. Styling	1. General Attractiveness	(a) Inspection (Rater's opinion) (b) Customer surveys (c) Survey of independent designers	Excellent	10	Good	7	70	Excellent	10	100	Very good	9	90	Very good	8	80
	2. Color	(a) Inspection (b) Customer surveys	Excellent	4	Excellent	10	40	Excellent	10	40	Excellent	10	40	Excellent	10	40
	3. Variety	(a) Inspection (number of colors offered) (b) Customer surveys	5	4	4	8	32	3	6	24	4	8	32	4	8	32
	4. Finish	(a) Inspection (b) Customer surveys	Excellent	3	Very good	9	27	Very good	9	27	Good	8	24	Good	8	24
B. Compatibility & Uniformity	1. Compatibility with all types of home furnishings	(a) Inspection (Rater's opinion) (b) Customer surveys (c) Survey of independent designers	Compatible	2	Good	8	16	Very good	9	18	Good	8	16	Good	8	16
C. Construction	1. Evidence of good basic design	(a) Inspection (Rater's opinion) (b) Customer surveys	Excellent	5	Very good	9	45	Very good	9	45	Very good	9	45	Very good	9	45
	2. Evidence of good factory workmanship	(a) Inspection (Rater's opinion) (b) Customer surveys	Excellent	5	Very good	9	45	Very good	9	45	Very good	9	45	Very good	9	45
Sub-total - Weighted Appraisal - Attractiveness				33			275			299			292			282
Grand Total - Weighted Appraisal - Performance, Features, Attractiveness				100			824			878			824			834

Criteria	Measure	Basis of Measurement	Set A	Set B	Set C	Set D
Cost	1. Intrinsic cost differences	(a) Total manufacturing cost	$14.98	$15.53	$15.20	$15.21
		(b) Variance in manufacturing cost attributable to differences in performance, features, and/or attractiveness:*				
		1. Speaker (tone)		$ -	$ .08	$ -
		2. Phono jack		-	(.04)	(.04)
		3. Vernier drive (ease of tuning)		-	(.15)	-
		4. Grille cloth (general attractiveness)		-	.09	(.07)
		5. Additional colors (variety of colors)		-	.25	.23
		6. Cabinet (general attractiveness)		.16	-	-
		7. Clock hardware (general attractiveness)		.21	-	-
		8. Dial beam tuning and illuminated dial		.15	-	-
				.52	.21	.12
		(c) Variance in manufacturing cost attributable to design differences that do not affect performance, features, or attractiveness:*				
		1. Output transformer		-	(.04)	-
		2. Tuning capacitor		-	(.02)	-
		3. Electrolytics		(.03)	(.02)	.10
		4. Oscillator coil		.04	.01	-
		5. IF coils		.02	-	.12
		6. Clock		.04	.06	-
		7. Clock shield		-	.08	.03
		8. All other		(.04)	(.06)	(.14)
				.03	.01	.11
		(d) Variance in other costs (shipping, handling, warehousing) attributable to design differences*		-	-	-
		(e) Net variance		$ .55	$ .22	$ .23

* - Higher (lower) cost compared with cost of Set A.

Summary

1. The relative standing of the four clock radio sets evaluated is as follows:

	Performance, Features, and Attractiveness		Manufacturing Cost		Composite
	Rating	Rank	Amount	Rank	Rank
Set A	824	3	$14.98	1	3
Set B	878	1	15.53	4	1
Set C	824	3	15.20	2	4
Set D	834	2	15.21	3	2

2. Principal strengths and weaknesses of the sets evaluated consisted of:

Set	Factor	Comments
B	General attractiveness	The general attractiveness of this set was given a maximum rating. In the raters' opinion, the additional cost of the cabinet and clock hardware for Set B was justified by the attractiveness advantage that it had over Sets A and D (30 and 20 points, respectively), but not over Set C (10 points).
B	Dial beam tuning and illuminated dial	Set B is the only one which has these features. The additional points (15) gained by these features justify the additional cost.
A & B	Phono jack and "audio-magic" volume control	The 10 additional points granted for these desirable features fully justifies the small additional cost involved.
C & D	Stain and burn resistance and dust repulsion	A small advantage (5 points) in stain and burn resistance and dust repulsion was obtained in these sets by using phenolic molding compounds for the cabinet. This advantage, however, does not justify the substantial additional cost incurred in obtaining the advantage.

3. Remarks:

a. Point weightings and ratings were used primarily to establish an indication of relative rank, with full recognition of the fact that any qualitative rating of this kind cannot be considered in terms of an exact number of points.

b. "Cost per rating point" was considered as an over-all guide in establishing the composite rankings, but was not the final determining factor.

Issued by: Product Planning
Date : 7/14/55
Raters (on applicable criteria):

_____ Product Planning
_____ Engineering
_____ Manufacturing
_____ Finance
_____ Product Service
_____ Market Research
_____ Sales

Appendix Exhibit 3-7

PRODUCT LEADERSHIP SUMMARY
(4 Page Exhibit)

APPENDIX EXHIBIT 3-7

ABC DEPARTMENT

PRODUCT LEADERSHIP SUMMARY

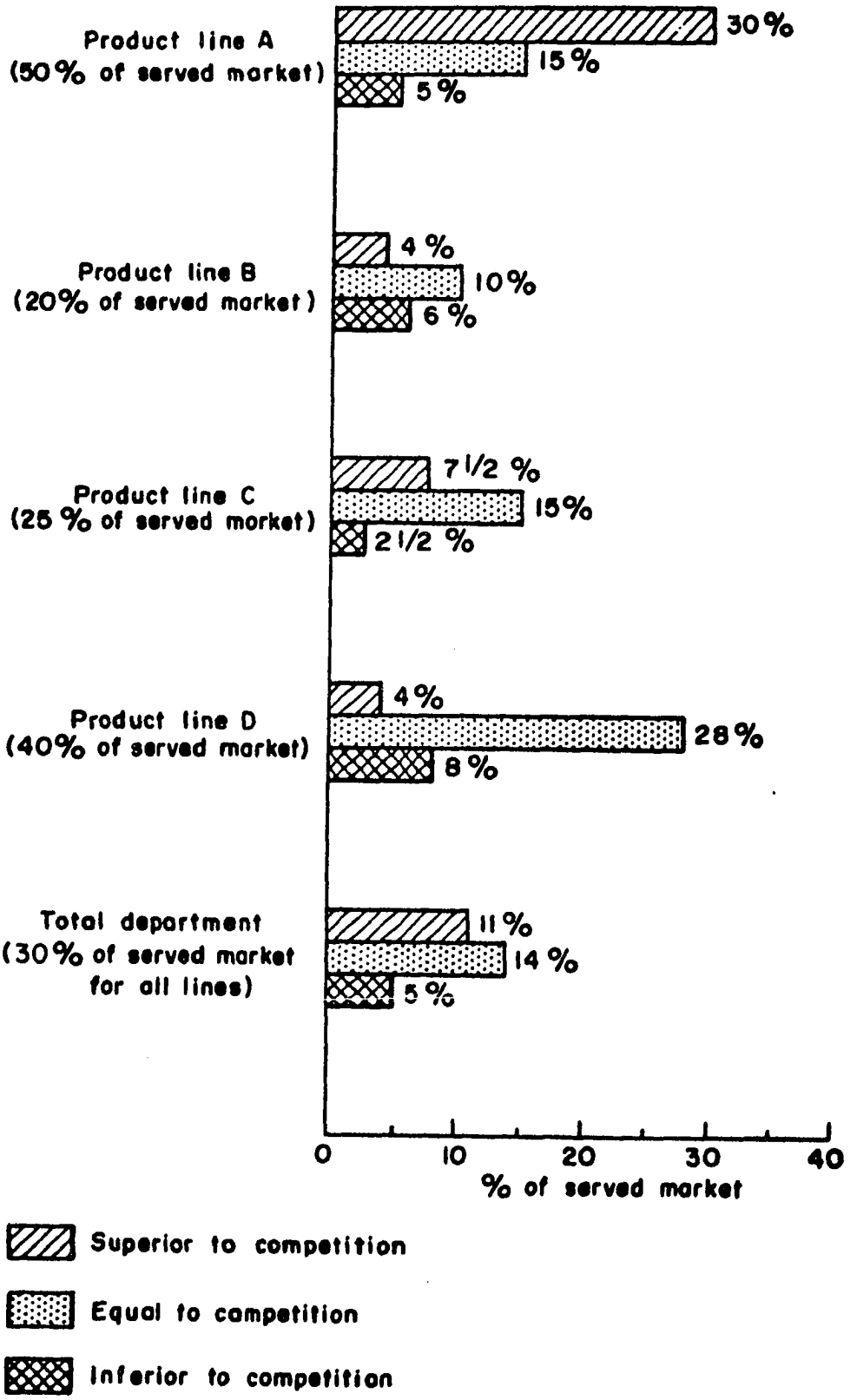
1955

	Product Line A	B	C	D	Total Department
Served market -a)-b)	$8 000	$15 000	$8 000	$2 500	$33 500
Products superior to competition					
Sales -a)	$2 400	$ 600	$ 600	$ 100	$ 3 700
% of total sales	60%	20%	30%	10%	37%
% of served market	30	4	7 1/2	4	11
Gross margin %	42	40	29	50	40
Products equal to competition					
Sales -a)	$1 200	$ 1 500	$1 200	$ 700	$ 4 600
% of total sales	30%	50%	60%	70%	46%
% of served market	15	10	15	28	14
Gross margin %	44	37	23	55	38
Products inferior to competition					
Sales -a)	$ 400	$ 900	$ 200	$ 200	$ 1 700
% of total sales	10%	30%	10%	20%	17%
% of served market	5	6	2 1/2	8	5
Gross margin %	18	12	18	28	16
All products					
Total sales -a)	$4 000	$ 3 000	$2 000	$1 000	$10 000
% of total sales	100%	100%	100%	100%	100%
% of served market	50	20	25	40	30
Gross margin %	40	30	25	49	35

(a- In thousands
(b- For purposes of this illustration, it was assumed that all products in a given product line were intended to serve the same market.

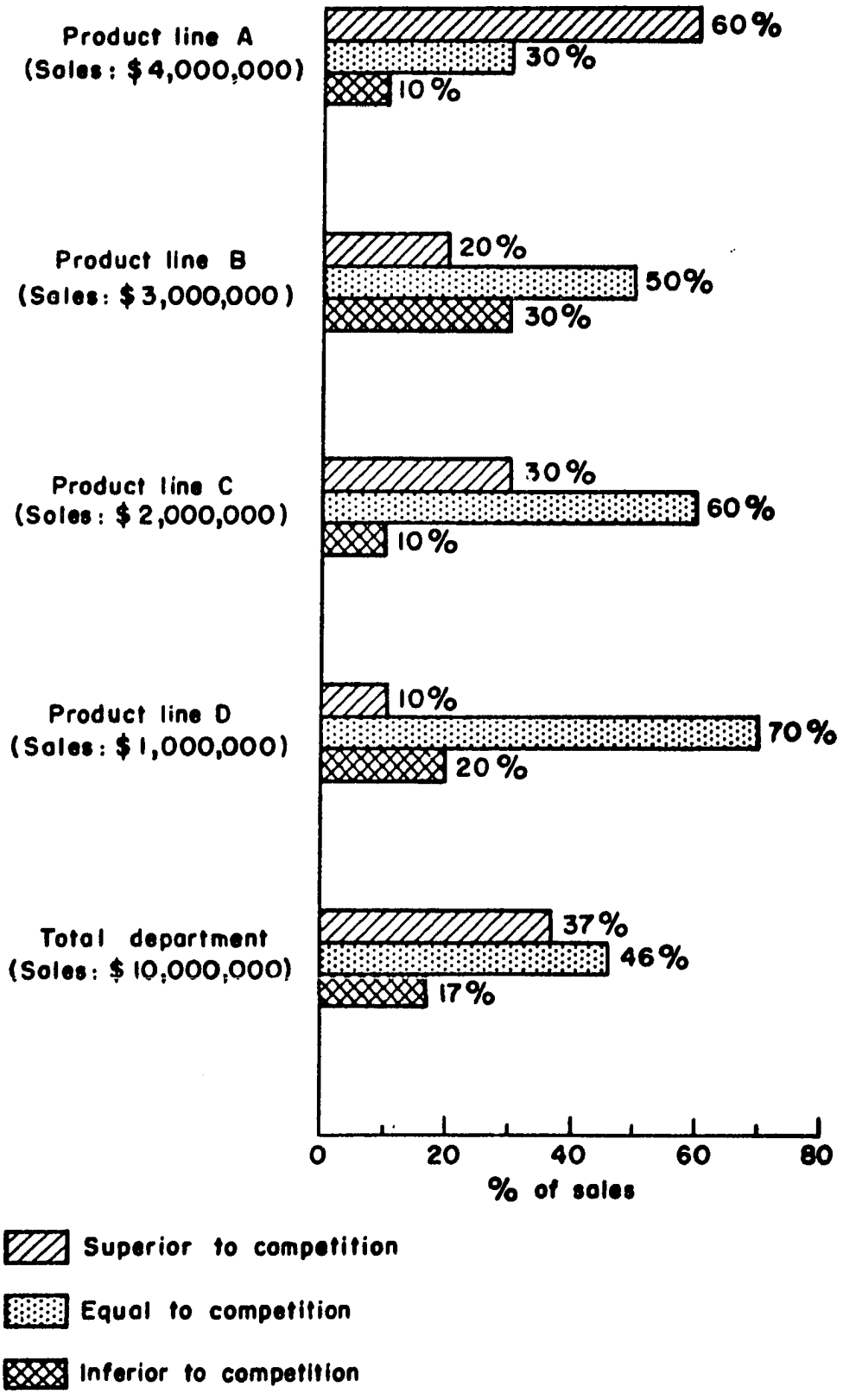
ABC DEPARTMENT

CLASSIFICATION OF MARKET POSITION BY PRODUCT LEADERSHIP RATING



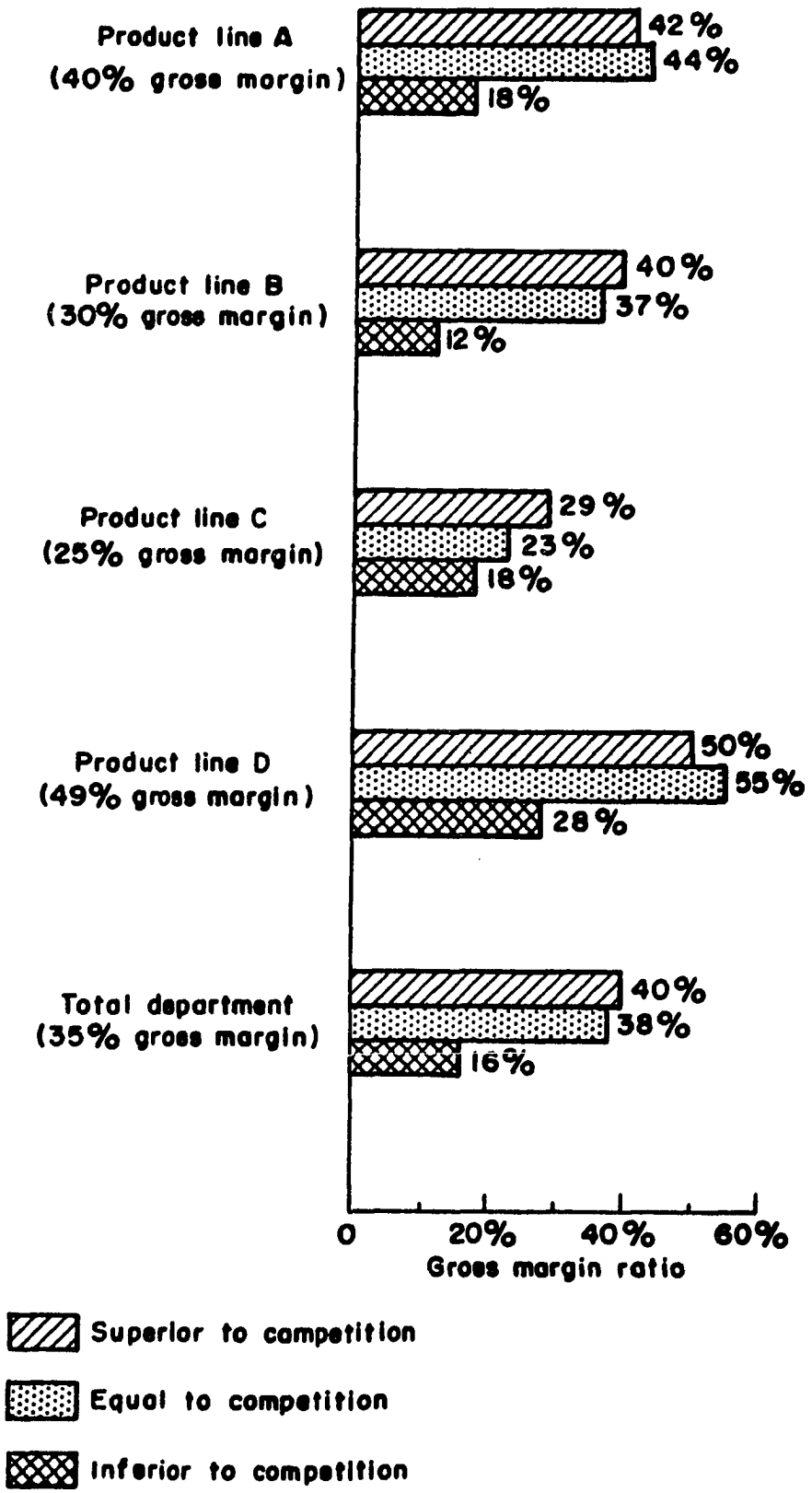
ABC DEPARTMENT

CLASSIFICATION OF SALES BY PRODUCT LEADERSHIP RATING



ABC DEPARTMENT

CLASSIFICATION OF GROSS MARGIN RATIO BY PRODUCT LEADERSHIP RATING

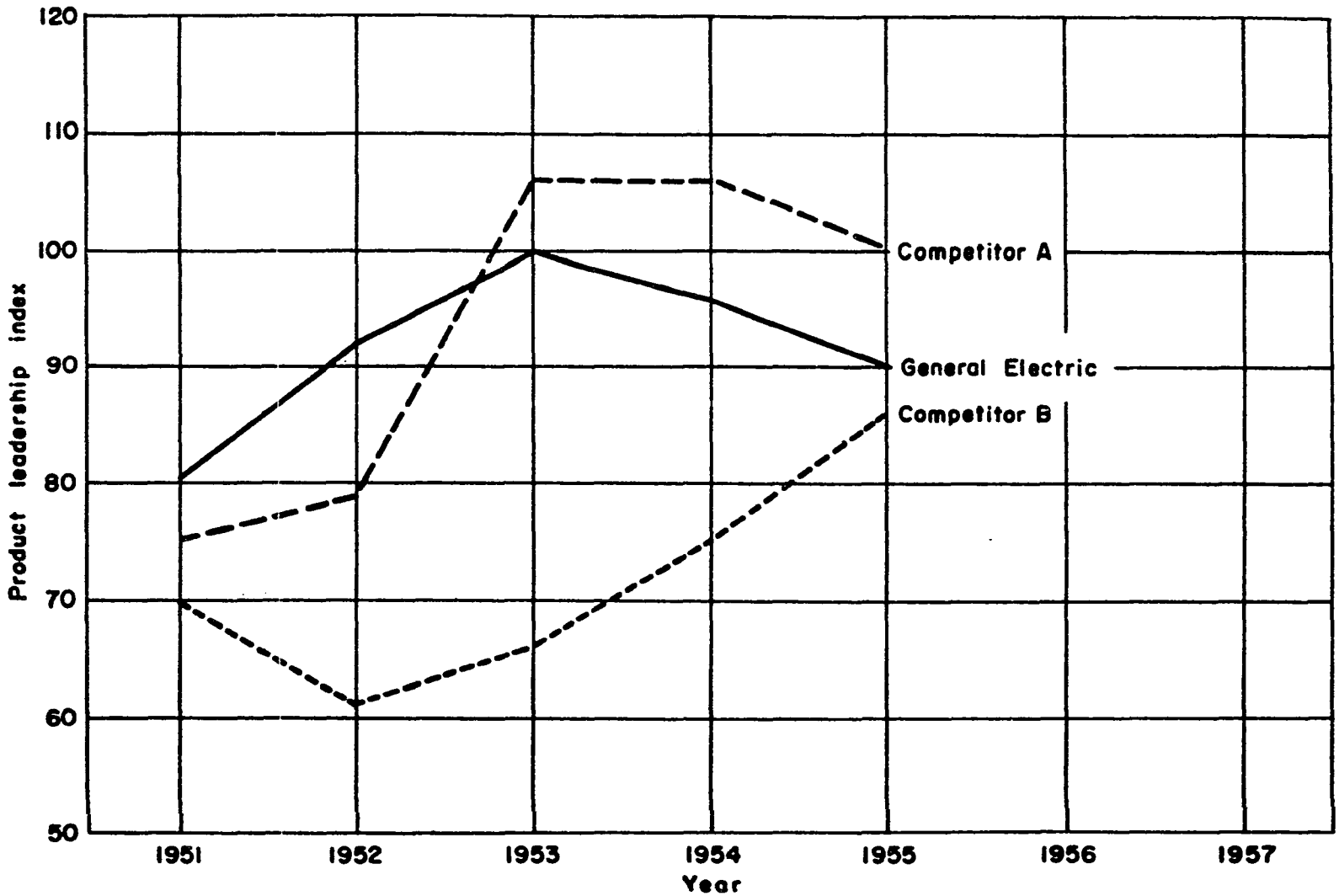


Appendix Exhibit 3-8

DEPARTMENT PRODUCT LEADERSHIP TREND

APPENDIX EXHIBIT 3-8

XYZ DEPARTMENT
PRODUCT LEADERSHIP TREND
1951-1955



Appendix Exhibit 3-9

ATTITUDE QUESTIONNAIRE - HOURLY
(9 pages)

ATTITUDE QUESTIONNAIRE - HOURLY

(Questions arranged by categories)

COMPENSATION

*DA	*IA	ID	DD	1.	My job pays about what it should compared with other jobs in the plant.
DA	IA	*ID	*DD	5.	The pay here is less for the same kind of work than it is in other companies in this area.
*DA	*IA	ID	DD	9.	All in all, I am satisfied with the pay I get.
DA	IA	*ID	*DD	13.	I often do jobs that higher paid people do, but with no increase in pay.
*DA	*IA	ID	DD	17.	Pay rates are set up on a fair and accurate basis.

WORKING CONDITIONS

*DA	*IA	ID	DD	2.	Temperature and ventilation are good in my work place.
*DA	*IA	ID	DD	6.	The layout of space and facilities is convenient.
DA	IA	*ID	*DD	10.	It's too noisy in my work place.
*DA	*IA	ID	DD	14.	Our work area is kept clean and neat.
DA	IA	*ID	*DD	18.	It's too crowded at my work place.

FUTURE OPPORTUNITY

DA	IA	*ID	*DD	3.	It takes "pull" to get ahead here.
*DA	*IA	ID	DD	7.	It's not hard to get ahead here.
*DA	*IA	ID	DD	11.	If a person wants a transfer to another job, he can usually get it.
DA	IA	*ID	*DD	15.	Too many good jobs are filled from outside the plant or department.
*DA	*IA	ID	DD	19.	The right amount of importance is given to seniority in upgrading and promotions.

Legend: DA - Definitely Agree
IA - Inclined to Agree
ID - Inclined to Disagree
DD - Definitely Disagree

* Indicates the favorable answer choice (s).

SUPERVISION - ADMINISTRATOR

*DA *IA ID DD 4. My foreman always let me know beforehand of changes that affect my work.

*DA *IA ID DD 8. My foreman gives clear instructions and explanations.

29. Does your foreman try to make advance arrangements for needed tools and equipment?

*( ) 1. Always
*( ) 2. Usually
( ) 3. Sometimes
( ) 4. Practically never

30. When things go wrong, how often does your foreman know what to do?

*( ) 1. Practically always
( ) 2. Usually
( ) 3. Sometimes
( ) 4. Practically never

SUPERVISION - LEADER

31. How much of an interest in you as an individual does your foreman show?

*( ) 1. A great deal of interest
*( ) 2. An average amount of interest
( ) 3. Very little interest
( ) 4. No interest at all

32. How many jobs does your foreman know well enough to teach to employees?

*( ) 1. All of our jobs
*( ) 2. Most of them
( ) 3. Some of them
( ) 4. None of them

33. How much have you learned from your foreman?

*( ) 1. A great deal
( ) 2. A fair amount
( ) 3. Practically nothing

* Indicates the favorable answer choice (s).

34. How often does your foreman discuss with you on an individual basis the future plans concerning your work or the work of your section?

*( ) 1. Every day
*( ) 2. Once or twice a week
*( ) 3. Once or twice a month
( ) 4. Rarely or never

SUPERVISION - DISCIPLINE

35. When it comes to disciplining an employee, how does your foreman usually act?

( ) 1. It depends on his mood.
*( ) 2. It depends on how often the employee has done the same thing before.
( ) 3. It depends on whether he likes you.
( ) 4. He treats a given incident in the same way.

36. How does your foreman usually go about trying to change the way someone in your group wants to do something?

( ) 1. He uses his authority as boss.
*( ) 2. He really persuades them that his way is better.
*( ) 3. He promises to try it both ways.
*( ) 4. He suggests a compromise.
*( ) 5. He gets the others in the group to help him convince the person.
( ) 6. None of these applies.

37. How does your foreman usually handle differences of opinion between employees and management?

( ) 1. He takes higher management's point of view.
( ) 2. He takes our point of view.
*( ) 3. He tries to make each side see the other's point of view.
( ) 4. He does not take either side.

38. How does your foreman treat employees when it comes to discipline?

*( ) 1. He treats everyone alike.
( ) 2. He lets some get away with things.
( ) 3. You can't tell what he will do.

* Indicates the favorable answer choice (s).

GROUP HARMONY

39. If it were possible for you to pick the "ideal" group of people with whom you would like to work, how many of your present group would you include?

( ) 1. None of the present group.
( ) 2. A few of the present group.
*( ) 3. A majority of the present group.
*( ) 4. Practically all of the present group.

40. If you were to choose a work group of people who would be able to get the greatest amount of work done, how many of your present group would you include?

( ) 1. None of the present group
( ) 2. A few of the present group.
*( ) 3. A majority of the present group.
*( ) 4. Practically all of the present group.

41. If you were to choose a work group of people who would be able to do top-quality work, how many of your present group would you include?

( ) 1. None of the present group.
( ) 2. A few of the present group.
*( ) 3. A majority of the present group.
*( ) 4. Practically all of the present group.

42. How many people in your group go out of their way to help each other?

*( ) 1. Almost all of them.
( ) 2. Over half of them.
( ) 3. About half of them.
( ) 4. A few.
( ) 5. Practically none.

COORDINATION WITHIN WORK GROUPS

43. How many people are there in your group who keep the others from doing their best work?

( ) 1. More than half of them.
( ) 2. About half of them.
( ) 3. A few.
*( ) 4. Practically none.

* Indicates the favorable answer choice (s).

44. How often does work in your group tend to pile up all at one time, instead of being spread out?

( ) 1. Almost every day.
( ) 2. Once every few days.
( ) 3. Several times a month.
*( ) 4. Practically never.

45. During the past month on how many occasions was there a question or a quarrel over who in your work group should do a particular job or piece of work?

( ) 1. Almost every day.
( ) 2. About once a week.
( ) 3. Once or twice during the month.
*( ) 4. None at all.

COORDINATION BETWEEN WORK GROUPS

46. Adding it up, how much time do you have to spend going after supplies and materials or waiting for them to be brought to you?

( ) 1. An hour or more a day.
( ) 2. An hour or two a week.
*( ) 3. A few minutes a day.
*( ) 4. Practically none.

47. In the past month how often have you received conflicting orders about your work from different people?

( ) 1. Several times a day.
( ) 2. About once a day.
( ) 3. A few times during the month.
*( ) 4. Practically never.

48. How often does your group get "rush" jobs?

( ) 1. Nearly every day.
( ) 2. Every two or three days.
*( ) 3. About once a week.
*( ) 4. Once or twice a month.
*( ) 5. Practically never.

* Indicates the favorable answer choice (s).

49. How often do you have to wait for employees in another group to get their work done before you can go ahead to do your part of the job?

( ) 1. Several times a day.
( ) 2. About once a day.
( ) 3. Two or three times a week.
( ) 4. About once a week.
*( ) 5. Practically never.

WORK METHODS AND CHANGES

*DA *IA ID DD 12. The work runs smoothly here.

*DA *IA ID DD 16. There seem to be good reasons whenever changes are made here.

*DA *IA ID DD 20. When new methods of doing the work are installed, we get a satisfactory explanation of the expected benefits.

*DA *IA ID DD 21. I may not always like what management does, but I feel they are always trying to be fair.

INCENTIVE CLIMATE

*DA *IA ID DD 22. When employees where you work come up with useful, new ideas about the job (or turn in suggestions), the foreman helps these employees to keep on bringing in such ideas.

*DA *IA ID DD 23. When employees in your work group come up with useful, new ideas about the job (or turn in suggestions), management arranges to help such employees to keep on bringing in more useful ideas.

*DA *IA ID DD 24. When an employee in your group is often absent without good reason, the foreman tries to help such an employee so he can come to work regularly.

DA IA *ID *DD 25. When an employee in your group often wastes or spoils materials or tools, the foreman tries to get the employee moved out of the group by having him laid off, transferred to another job, or discharged.

* Indicates the favorable answer choice (s).

*DA *IA ID DD 26. When employees often waste or spoil materials or tools, management explains to such employees why they are expected to be more careful.

*DA *IA ID DD 27. When an employee regularly turns out better quality work than your foreman expects of him, the foreman lets the employee know that he is well pleased about it.

*DA *IA ID DD 28. When an employee where you work regularly turns out better quality work than your foreman or the management expect of him, the other employees show that they think it's a good thing.

VALUE PERCEPTIONS

50. Below is a list of reasons for which an employee might get criticized by supervisors and management. Check the one for which an employee is most likely to get criticized if he does it.

( ) 1. Not turning out a lot of work.
( ) 2. Not turning out high quality work.
( ) 3. Not coming up with new ideas.
( ) 4. Being absent a lot.
( ) 5. Being new on the job.
( ) 6. Not watching costs or the amount of waste.
( ) 7. Not being friendly.

51. For which of these reasons is an employee most likely to get fired? (Check one)

( ) 1. Not turning out enough work.
( ) 2. Not turning out good quality work.
( ) 3. Not bringing in new ideas.
( ) 4. Being absent a lot.
( ) 5. Having less seniority than most.
( ) 6. Being careless about costs and waste.
( ) 7. Not being friendly.
( ) 8. There is no likelihood that anyone here will be fired for any of the above reasons.

* Indicates the favorable answer choice (s).

52. For which of these reasons is an employee most likely to be unpopular with other employees? (Check one)

( ) 1. Turning out too little work.
( ) 2. Turning out poor quality work.
( ) 3. Not bringing up new ideas.
( ) 4. Being absent a lot.
( ) 5. Being new on the job.
( ) 6. Wasting a lot of material.
( ) 7. Not being friendly.
( ) 8. Turning out too much work.
( ) 9. Turning out work of too high quality.

53. For which of these reasons would an employee most probably be liked by supervisors and management? (Check one)

( ) 1. Doing a lot of work.
( ) 2. Doing high quality work.
( ) 3. Coming up with new ideas or ways of doing things.
( ) 4. Having a good attendance record.
( ) 5. Having been here a long time.
( ) 6. Being careful of costs and waste.
( ) 7. Being friendly.

54. For which of these reasons is an employee most likely to get the respect of other employees? (Check one)

( ) 1. Turning out a lot of work.
( ) 2. Turning out high quality work.
( ) 3. Having lots of new ideas.
( ) 4. Having a good attendance record.
( ) 5. Being an old-timer here.
( ) 6. Watching costs carefully.
( ) 7. Being friendly to others.

55. For which of these reasons is an employee most likely to get more pay? (Check one)

( ) 1. Turning out a lot of work.
( ) 2. Doing high quality work.
( ) 3. Thinking up new ideas.
( ) 4. Having a good attendance record.
( ) 5. Having been here a long time.
( ) 6. Keeping costs down.
( ) 7. Being friendly.

56. For which of these reasons is an employee <u>most likely</u> to get <u>promoted</u>? (Check one)

( ) 1. Turning out a lot of work.
( ) 2. Doing high quality work.
( ) 3. Thinking up new ideas.
( ) 4. Having a good attendance record.
( ) 5. Having been here a long time.
( ) 6. Keeping costs down.
( ) 7. Being friendly.

Appendix Exhibits 3-10 and 3-11

Appendix Exhibits 3-10, 3-11*

Appendix Exhibits 3-10 and 3-11 are taken from General Electric's Operational Measurements Key Result Area No. 6 - Employee Attitudes issued in 1958. These two Exhibits show how the tabulation is presented enabling a foreman to see how his group responded and how the group compares to other foremen's groups.

The questionnaires (Appendix Exhibit 3-9) are scored and summarized using tabulating equipment. A tabulation is prepared for each manager summarizing the results for the employees reporting to him. The summary shows the percentage of favorable responses for each question, each category and the total questionnaire.

To compare the relative standing of a particular group with all other groups in the plant or department, summary charts are prepared. Exhibit 3-10 is a copy of one type of summary chart. Each dot represents the category score of one work group within the department or plant location. Thus, the category scores of all work groups are represented on the chart. This form provides a very broad summary of the survey results and clearly demonstrates the range of differences between work groups for each attitude area.

This form can also be used by individual managers to evaluate the standings with the groups reporting to them. On Exhibit 3-10, the numerals (1), (2), and (3) indicate the category scores of the three foreman groups reporting to a given general

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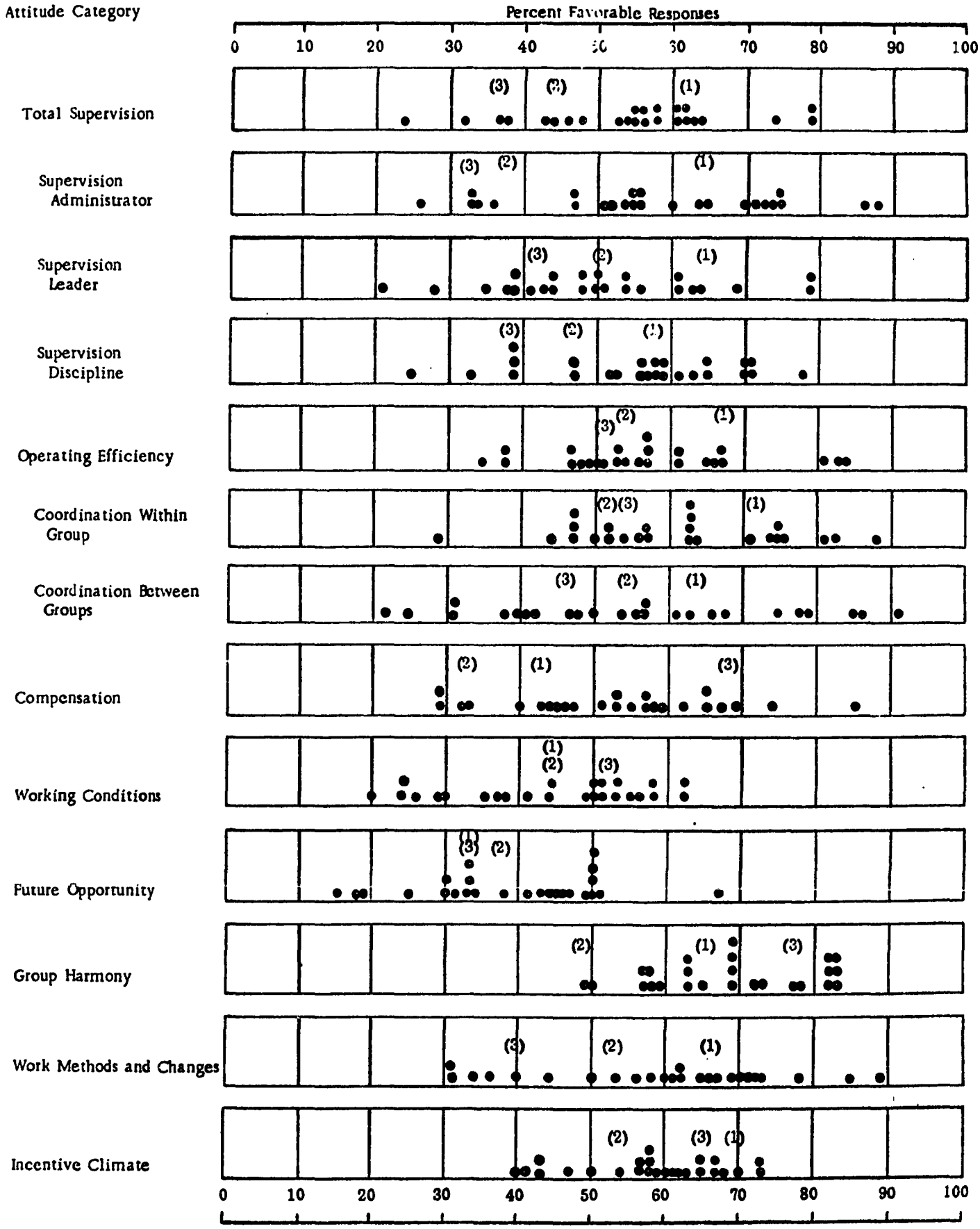
*Measurements Project, Operational Measurements Key Result Area No. 6 - Employee Attitudes, Measurements Service, Accounting Services, General Electric Co., Schenectady, N.Y., January, 1958.

foreman. This permits the general foreman to compare the differences between the foreman groups with all other groups in the plant or department without disclosing the identity of any of the other groups. It is, of course, possible to make charts of this type to suit the needs of any level of management.

A somewhat different kind of summary is shown in Exhibit 3-11. In this type of chart, each bar represents a specific group, identified by name and number of employees. The letters within each bar represent a category score, as explained in the legend at the foot of the chart. Each letter is placed opposite the point in the percentage scale which corresponds to the category score. The general plan for arranging these groups is in an ascending order according to the questionnaire average (A). The reader can see at a glance the similarities and differences among the scores for the various groups, by plotting the profile for each category (as illustrated by Compensation on Exhibit 3-11). The chart also provides a quick view of the range of the group category scores, through examination of their relative position within each bar. Finally, the chart shows the reader which scores are above or below the group's average of all categories combined.

ATTITUDE SURVEY - DEPARTMENT X

General Foreman A

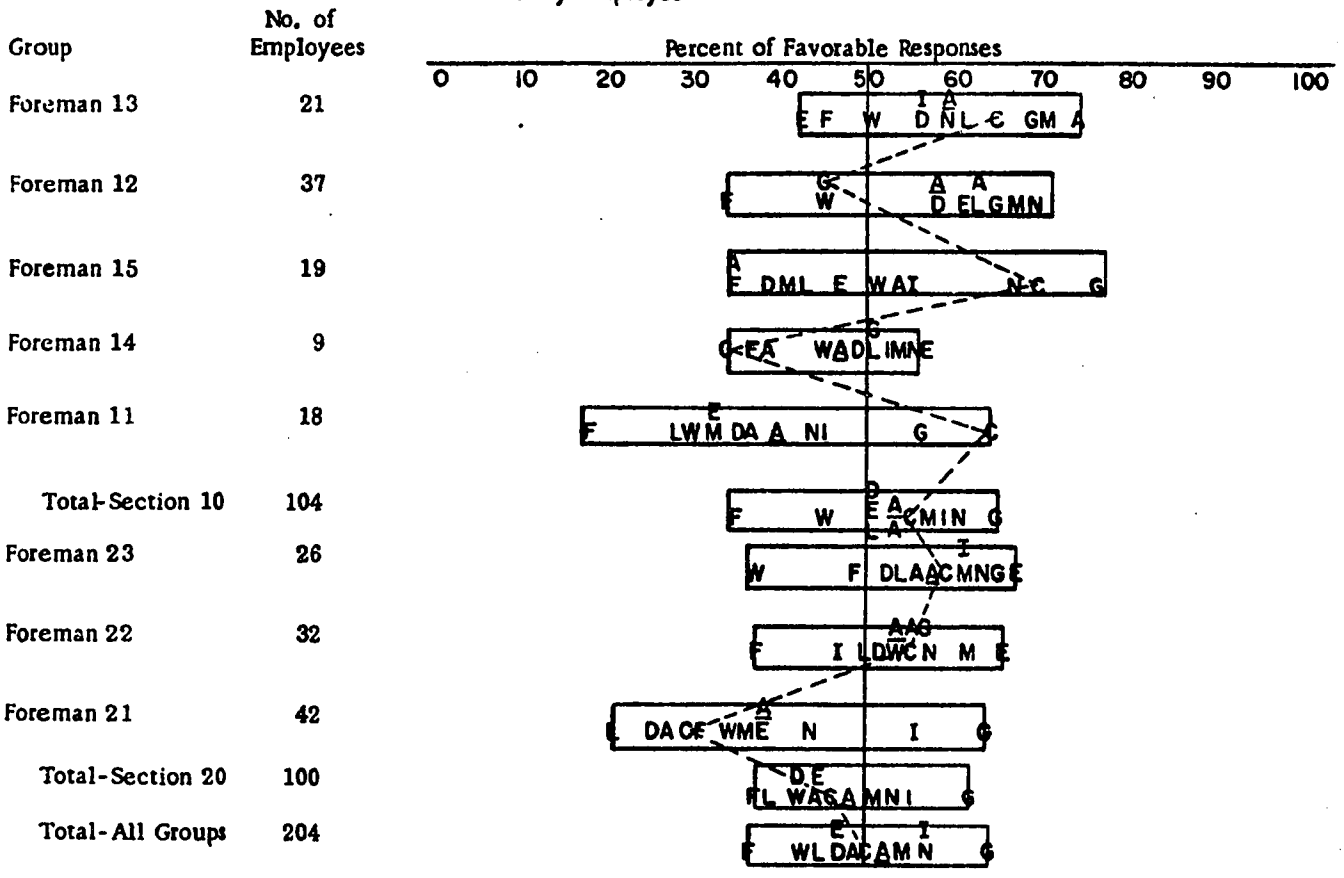


FORM I

Appendix Exhibit 3-10

Appendix Exhibit 3-11

COMPARISON OF CATEGORY AVERAGES FOR VARIOUS GROUPS
Hourly Employees



A - Average
A - Supervision-Administrator
C - Compensation
D - Supervision-Discipline
E - Coordination Between Groups
F - Future Opportunity
G - Group Harmony
I - Coordination Within Group
L - Supervision-Leader
M - Work Methods and Changes
N - Incentive Climate
W - Working Conditions

FORM II

APPENDIX
EXHIBIT 3-12
GENERAL ELECTRIC
COMPANY OBJECTIVES

GENERAL ELECTRIC
COMPANY OBJECTIVES

1. To carry on a diversified, growing and profitable world-wide manufacturing business in electrical apparatus, appliances, and supplies and in related materials, products, systems and services for industry, commerce, agriculture, government, the community and the home.

2. To lead in research in all fields of science and in all areas of work relating to the business, including managing as a distinct and a professional kind of work, so as to ensure a constant flow of new knowledge and of resultant useful and valuable new products, processes, services, methods and organizational patterns and relationships; and to make real the Company theme that "Progress Is Our Most Important Product."

3. To operate each business venture to achieve its own favorable customer acceptance and profitable results; especially by planning the product line or service through decentralized operating management, on the basis of continuing research as to markets, customers, distribution channels and competition, and as to product or service features, styling, price range and performance for the end user, taking appropriate business risks to meet changing customer needs and to offer customers timely choice in product and service availability and desirability.

4. To design, make and market all Company products and services with good quality and with inherent customer value, at fair prices for such quality and value.

5. To build public confidence and continuing friendly feeling for products and services bearing the Company's name and brands through sound, competitive advertising, promotion, selling, service and personal contacts.

6. To provide good jobs, wages, working conditions, work satisfactions and opportunities for advancement conducive of most productive performance and also the stablest possible employment, all in exchange for loyalty, initiative, skill, care, effort, attendance and teamwork on the part of employees—the contributions of individual employees that result in "Value to the Company" and for which the employee is being paid.

7. To manage the enterprise for continuity and flow of progress, growth, profit and public service through systematic selection and development of competent managerial personnel for effective leadership through persuasive managerial planning, organizing, integrating and measuring for best utilization of both the human and material resources of the business; using a clear and soundly designed organization structure, and clearly expressed objectives and policies, as a vehicle for freeing the abilities, capacities, resourcefulness and initiative of all managers, other professional workers and all employees for dynamic individual efforts and teamwork, encouraged by incentives proportionate to responsibilities, risks and results.

8. To attract and retain investor capital in amounts adequate to finance the enterprise successfully through attractive returns as a continuing incentive for wide investor participation and support; securing such returns through sound business and economic research, forecasting, planning, cost management and effectively scheduled turnover of all assets of the enterprise.

9. To cooperate both with suppliers and also with distributors, contractors and others facilitating distribution, installation and servicing of Company products, so that Company efforts are constructively integrated with theirs for mutually effective public service and competitive, profitable progress.

10. To adapt Company policies, products, services, facilities, plans and schedules to meet continuously, progressively, foresightedly, imaginatively and voluntarily the social, civic and economic responsibilities commensurate with the opportunities afforded by the size, success and nature of the business and of public confidence in it as a corporate enterprise.

APPENDIX EXHIBIT 3-12

The General Electric Company objectives were first published in 1954 and stood unaltered as of June 1, 1971.

Appendix Exhibit 5-1

GENERAL ELECTRIC
DIRECTIVE POLICY 20.5
(6 pages)

GENERAL ELECTRIC

ORGANIZATION AND POLICY GUIDE

SUBJECT	TAB	NO.
DIRECTIVE POLICY ON THE COMPLIANCE BY THE COMPANY AND ITS EMPLOYEES WITH THE ANTITRUST LAWS	General	20.5

NEED FOR A DIRECTIVE POLICY

It is the personal obligation and responsibility of each General Electric employee to act in the conduct of any of the Company's affairs in accordance with high ethical standards and in compliance with all applicable laws. Employees who fail to fulfill this obligation jeopardize the reputation and success of the Company and, depending upon the circumstances, subject themselves to severe disciplinary or other appropriate action, including discharge. It is the responsibility of each Manager to exercise care, diligence, and leadership to the end that all employees within the area of his responsibility observe these principles in the course of their work for the Company.

Fulfillment of these obligations and responsibilities with respect to every aspect of the Company's business to which the antitrust laws apply is of such vital importance to the Company that a specific Directive Policy prescribing a mandatory course of action for all employees with respect to such laws has heretofore been and continues to be appropriate.

The character of our free society and the unmatched success of the economy of the United States is based solidly on the concept of a free and competitive market. The future of the General Electric Company depends upon the continued existence of such a free, competitive market. Our growth and success will reflect the extent to which we are able to innovate, to provide superior products and services to our customers and to show competitive initiative in all areas of the Company's business. In General Electric, the only effective and enduring business philosophy is one of fair, vigorous competition. As a matter of good business judgment, there is no excuse for collusive activities in violation of the antitrust laws. As a matter of economic, ethical and legal principle, it is the unequivocal policy of the Company to avoid actions which in any way restrain or restrict competition in violation of the antitrust laws.

Experience has demonstrated the need for continuous teaching by Managers at all levels within the organization and especially teaching and discussions by Officers, Division and Department General Managers of the principles upon which the policy is based. Employees in positions of responsibility must be continuously aware of the fact that the Company's compliance with the antitrust laws depends upon their conduct and that there are penal provisions under which they may be individually and personally subjected to substantial fines or imprisonment.* They must likewise be continuously aware of the fact that violations of the law in any area of the Company's operations may have far-reaching effects beyond the Department or Division in which they occur, and may result in great injury to the Company through lengthy and expensive litigation, treble damage liability, and injunctions or orders drastically affecting the Company's property or its business.

STATEMENT OF DIRECTIVE POLICY

1. General

It is the policy of the General Electric Company to compete vigorously and fairly and in compliance with the antitrust laws, including, specifically, the Sherman Act, the Clayton Act, as amended, the Robinson-Patman Act, the Federal Trade Commission Act, state antitrust laws as applicable, and the provisions of all antitrust decrees or orders which have been entered against the Company.

The provisions of this Directive Policy prescribe mandatory courses of action upon all Company employees.† No employee has any authority to act in any manner inconsistent with the provisions of this Directive Policy, to qualify or compromise it, nor to authorize, direct, or condone violations of its terms by another.

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* Violation of the Sherman Act constitutes a crime which may be punished by a fine of up to $50,000 or up to one year imprisonment, or both.

† The term "employees", as used herein, includes all Company Officers and Managers.

2. Relationships with Competitors

(a) The law generally prohibits entering into, and no General Electric employee shall enter into, any understanding, agreement, plan or conspiracy, expressed or implied, formal or informal, with any competitor limiting or restricting competition with respect to such matters as prices, terms or conditions of sale, production, distribution, territories or customers.

(b) The law does not prohibit discussions among competitors of prices and other competitive matters which do not result in an expressed or implied agreement, understanding, plan or conspiracy to limit or restrict competition. However, any discussions or exchange between competitors of their respective prices, terms or conditions of sale, or other competitive information, may provide the basis for inferring a violation of law although there may have been no intention of entering into any improper agreement. Such discussions may, in addition, jeopardize the best business interests of the Company by prematurely disclosing proposed Company plans, products and business strategies. Therefore, no employee shall give to or accept from a competitor, nor discuss with a competitor, any information concerning prices, terms or conditions of sale, or other competitive information. The provisions of this Paragraph 2 do not preclude any discussions, conduct, or activities

(i) which are relevant or necessary to a bona fide prospective or existing buyer-seller relationship; or

(ii) where the circumstances are such that in the opinion of Company counsel, the discussions, conduct, or activities would be proper and there would be no reasonable basis for inferring a violation of the antitrust laws.

(c) There exist many organizations serving legitimate and proper purposes, participation in which by Company personnel will result in association with representatives of competitors. Among such organizations are Professional Societies, Management Associations, Trade Associations and Government Advisory Committees. The provisions of this Policy affect membership in, and attendance at meetings of, any such organizations as follows:

(i) Every employee must take special care to insure observance of the provisions of Paragraph 2(a) and (b) above, when present in any kind of group or meeting at which competitors are also present. Whether the meeting is for governmental, business or social purposes, is casual or planned, is formal or informal in character, any employee who has any question concerning the propriety of any matter under discussion in light of this Policy shall immediately and unequivocally disassociate himself from such discussion, leaving the meeting, if necessary to do so. In no event and in no circumstance shall any employee attend or remain present at any kind of concealed, disguised or surreptitious meeting of competitors.

(ii) Each Department General Manager shall adopt and publish a policy, approved in writing by his Division Manager, or, in the alternative, a Division Manager may adopt and publish a policy which shall establish criteria for determining which employees of his component shall be eligible to attend meetings of manufacturers' trade associations or other organizations where representatives of the component's competitors may be present. Similarly, Services Officers shall adopt and publish policies applicable to employees within their respective components who may attend such meetings. Such policies shall set forth the procedures to be followed to assure that all participation in such meetings is lawful and in the best business interests of the component and the Company. These policies should be designed so as to promote observance of this Policy by minimizing the occasions when those marketing employees who have authority to establish prices, terms, and conditions of sale of the component's products may be placed in contact with marketing employees of their competitors. Such policies need not, however, prevent the attendance of sales or marketing personnel at trade shows, customer associations or other meetings of customers in furtherance of customer relations or other legitimate and proper business purposes.

3. Other Conduct Involving the Antitrust Laws

In addition to prohibiting the restrictive kinds of agreements referred to in Paragraph 2(a) of this Policy, the antitrust laws apply to many aspects of the Company's business. Under the Clayton Act and the Robinson-Patman Act, for example, the legality or illegality of certain contracts, unilaterally established prices, or other conduct may depend upon whether the effect thereof "may be" to: substantially "lessen competition" or "tend to create a monopoly", or "injure competition". Under these laws, as under Section 2 of the Sherman Act, a practice which may be legal in one competitive situation may be illegal in another. Moreover, the precise meaning and effect of certain provisions of the antitrust laws has not been definitively decided by the courts and others depend upon the facts of each particular case. Therefore, each employee responsible for the Company's conduct or practices which may involve application of the antitrust laws shall have made available to him through educational meetings, discussions, and general legal advice, information which will instruct him on the manner in which the antitrust laws and any applicable antitrust decrees or orders apply to his activities. It shall be the responsibility of each employee to be guided by the general instructions he receives, to observe the programs designed by his component to comply with these laws, decrees and orders and to consult with and be guided by the legal opinion of Company counsel assigned to his component with respect to questions on which he has doubts. In no event, and under no circumstances, shall any employee take any action or engage in any conduct on behalf of the Company which, in the opinion of Company counsel, violates any of the antitrust laws or the terms of any applicable antitrust decree or order.

4. Good Faith Reliance upon Advice of Counsel

Where an employee who has acted in good faith upon the advice of Counsel for the Company nevertheless becomes involved in an antitrust proceeding, the Company will assist him to the fullest extent permissible and appropriate.

5. Company Discipline for Violations

Any employee who violates, or who orders or knowingly permits a subordinate to violate, this Policy, shall be subject to severe disciplinary or other appropriate action, including discharge.

6. General Procedures

Sixty days after the issuance of this Policy, no employee shall be hired into, transferred into, or continue to be employed in any salary position of Level 12 or above, or any other position in which he has responsibility for recommending or establishing prices, terms or conditions of sale or preparing or submitting bid quotations who has not acknowledged in writing, in the presence of his superior, receipt of a copy of this Directive Policy—General 20.5.* At the time of each such written acknowledgment, the employee shall be informed of the name of the Company Counsel assigned to his component and advised that it is his responsibility to consult with such Counsel concerning questions he may have as to the application of the antitrust laws and any antitrust decrees or orders to his activities, and to be guided by legal opinions received from such Counsel.

Each employee required to acknowledge receipt of this Policy shall have delivered to him, at the time of such acknowledgment or as soon as practicable thereafter, a copy of the appendix to this Policy entitled "Guide to Compliance with the Antitrust Laws" and revisions which may be made in it from time to time.

* With respect to employees who may be ill or who are remote from headquarters, the date for compliance with this provision may be extended a reasonable period of time with the written approval of the appropriate Group Executive or Services Officer.

DIRECTIVE POLICY ON THE COMPLIANCE BY THE COMPANY AND ITS EMPLOYEES WITH THE ANTITRUST LAWS (Continued)

RESPONSIBILITY AND AUTHORITY

The Chairman of the Board of Directors shall from time to time issue procedures to be followed to implement this Directive Policy.

Every employee within the Company is responsible for personal strict adherence to this Directive Policy and every Manager is responsible for instituting measures designed to obtain understanding and acceptance of, and compliance with, this Directive Policy among all employees within the component he manages. Any employee who has knowledge of facts which cause him to believe Paragraph 2 of this Policy is being violated within any component of the Company shall review the matter with the General Counsel of the Company or with Counsel assigned to his component who shall, in turn, review the matter with the General Counsel. It shall be the responsibility of the General Counsel to inquire into the facts reported and to advise the appropriate officer of the Company of his legal opinion. Counsel and the General Counsel shall hold in strict confidence the name of the employee who reviews such matters with him.

PROCEDURE	PROCEDURE FOR COMPLIANCE BY THE COMPANY AND ITS EMPLOYEES WITH THE ANTITRUST LAWS	TAB General To be filed after Directive Policy 20.5

NEED FOR A PROCEDURE

Directive Policy 20.5 provides for issuance from time to time of a Company Procedure to be followed to implement the Policy. A Company-wide Procedure is necessary to assure full use of Company managerial resources in fulfilling the Policy objectives of antitrust compliance stated in Directive Policy 20.5. Procedural letters and memoranda have been issued from time to time and this Procedure supersedes these previous communications, including letters to members of the Executive Office dated: May 13, 1964, April 23, 1964, and January 4, 1963. Existing Services, Division and Department Instructions and Procedures are not superseded.

STATEMENT OF PROCEDURE

- At the request of the General Counsel and in consultation with him, the Comptroller has devised and put into effect a continuing program whereby the Traveling Auditors on his staff expand the scope of their regular audits to examine in depth any records which may indicate the failure of employees to abide by the Company's Directive Policy 20.5. In those instances in which such expanded review indicates the possibility or likelihood of noncompliance, the Comptroller will report the facts to the General Counsel for his legal opinion. The General Counsel or his designee shall make such further inquiry into the facts as may be necessary to the formulation of such opinion. The President, upon being advised of the facts and opinion of General Counsel, shall direct such action or further investigation as may appear appropriate to protect the interests of the Company and its share owners.

- Every employee who receives a copy of Directive Policy 20.5 shall be responsible for fully communicating with both those who report to him and those to whom he reports concerning any activities relevant to the objectives of this Procedure and of Directive Policy 20.5.

  Furthermore, it is the basic responsibility of each Manager to ask each employee, directly, any specific questions concerning the subject matter of, and compliance with, Directive Policy 20.5 which may seem appropriate in the light of the duties of the particular employee. Each Manager should, by thoughtful questioning, tailored to the particular circumstances affecting each individual's work, encourage free and meaningful communication by employees. It is one objective of this Procedure to develop at an early stage information on any areas of operations which are generating doubts among our own people before such doubts arise outside the Company. Where an individual employee has doubts or suspicions, these should be promptly and fully disclosed, leaving to higher management and the General Counsel's office the responsibility for deciding whether such doubts or suspicions justify further inquiry.

- Careful examination and inquiry will continuously be made by each General Manager into any circumstances which might evidence lack of vigorous competition in the business of any Department. More specifically: annual reviews will be conducted by each Division General Manager with each of his Department Managers, attended by the Division Counsel; these will be followed by discussions initiated by each Group Executive with each of his Division General Managers, with either the General Counsel present or a member of his office; finally, the President, with the participation of the General Counsel, will schedule an individual session with each Group Executive—all with the objective of an intensive coverage of the performance of the Operating components under the antitrust laws. Similar annual reviews will be conducted by the Chairman of the Board with Services Officers.

- Each Division will, in 1965, with the assistance of Legal Services and Marketing and Public Relations Services, initiate an inventory of its areas of special economic sensitivity and responsibility, with emphasis on:
  —Identification of key marketing decisions and their impact on customers, distributors, vendors and competitors.

—Identification of exactly who makes or effectively recommends such decisions, how they are made, and on the basis of what facts and judgments.

—The preliminary development of Divisional and Departmental pricing policies, focused on the specific problems of each individual business.

Several Divisions and Departments have underway specific studies in such areas as approaches to pricing strategy and commercial intelligence. Further, such studies should be encouraged in other components as they recommend themselves to the specific concerns of particular businesses.

- Whenever any major price change has been made with respect to a product line or a major part thereof, it shall be the responsibility of the Department General Manager to have a report made and retained in the Department's files describing the change and the business reasons involved. Each such report shall have attached to it a certification of the Department General Manager, and any other employee responsible for the change or for recommending the change, that the pricing decision has been independently arrived at and is in no way related to any implied or expressed agreement or understanding with competitors. Determination of what constitutes "major price changes" and "major parts of a product line" shall be made by the Department General Manager after consultation with his Division General Manager.

RESPONSIBILITY FOR PROCEDURE

Each employee is specifically charged with responsibility for exerting his maximum efforts on behalf of the Company as a whole to ensure that the objectives of this Procedure and of Directive Policy 20.5 are fully realized. No authority is withheld in this respect, and each employee shall be held strictly accountable for his performance under this Procedure and under Directive Policy 20.5.

REVIEW OF PROCEDURE

The above Procedure will be reviewed by August 1, 1966. It will continue in effect until a superseding Procedure is issued.

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BIBLIOGRAPHY

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