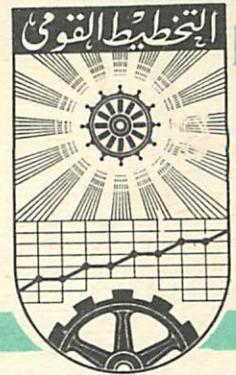


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Simon's Decisional Framework:
Its Relationship To Empirical Research.

By

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Chart 1: A Simplified View of Traditional PROPOSALS FOR ORGANIZING ACCOUNTING FUNCTION AT THE FACTORY-WIDE LEVEL ²⁴

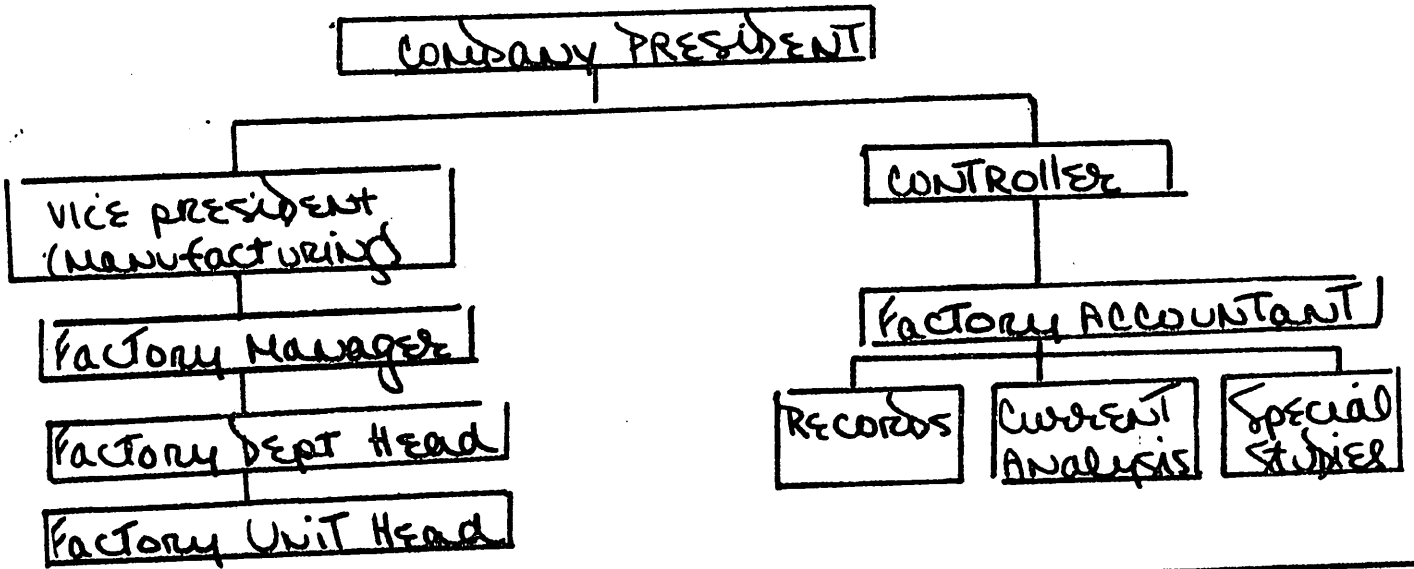
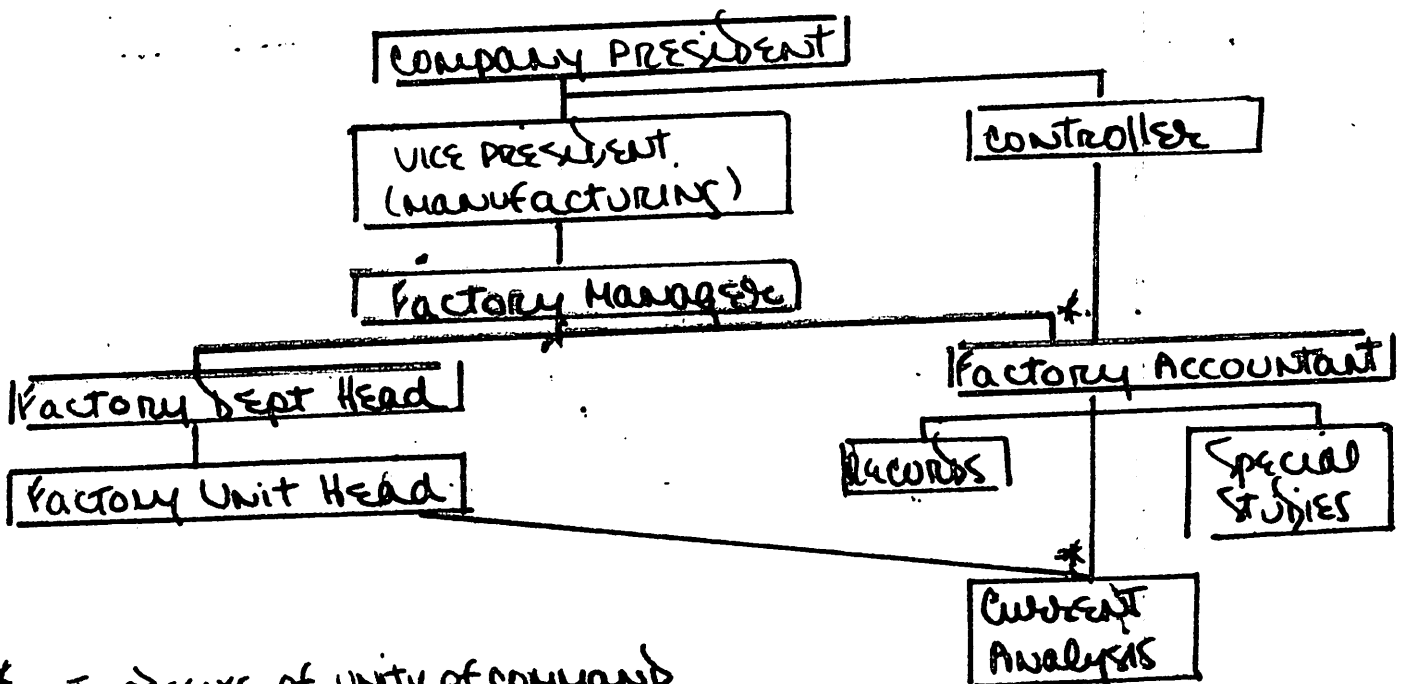


Chart 2: A Simplified View of SIMON'S PROPOSALS FOR ORGANIZING ACCOUNTING FUNCTION AT THE FACTORY-WIDE LEVEL ²⁵



* NOTE ABSENCE OF UNITY OF COMMAND

CHAPTER I INTRODUCTION

In surveying the literature which has been written since 1945, the year when Herbert A. Simon's Administrative Behavior was first edited, it becomes apparent that there is a linkup between Simon's theory and empirical research. This relationship between theory and research seems to be of two types. The first may be referred to as the hypothesis testing type. That is, several of the hypothetical propositions which Simon set forth in his theory have since been tested by means of empirical research. The second may be referred to as the direct instrument type. In other words, Simon's scheme for analyzing administrative organization in terms of the decision-making process has been used as an instrument in empirical research in the sense that actual administrative situations have been described within Simon's decisional framework. In short, the purpose of this paper is to illustrate that these two types of relationships between Simon's theory and research do exist by: (1) citing examples which illustrate how certain of his hypotheses have since been tested by empirical research; and (2) citing examples which illustrate how Simon's analytical tool was used as an instrument in empirical research.

Before proceeding with the proposed discussion, it seems appropriate to briefly summarize Simon's theory as it was presented in Administrative Behavior. The central theme of Simon's study is that an understanding of administrative organization can be obtained by analyzing organization in terms of the processes of decision-making (i.e., by analyzing the manner in which the decisions of organization members are

influenced within and by the organization). In light of this theme, Simon takes up the task of studying decision-making processes in administrative organization by explaining: (1) the anatomy of decision-making, (2) the physiology of organization, and (3) the anatomy of organization.

Simon begins by explaining the anatomy of decision-making. He states that decision-making involves three steps: (1) the listing of all behavior alternatives; (2) the determination of all the consequences that follow upon each of these alternatives; and (3) the comparative evaluation of these sets of consequences. Factual knowledge and the values or preferences of the deciding individual for one set of consequences as compared with another are the two influences on this process of choice. In short, a decision is a conclusion drawn from a set of factual premises and value premises.¹

In his discussion of the anatomy of decision-making, Simon also examines the limits and possibilities of human rationality. Because the human mind is unable to bring to bear upon a single decision all aspects of knowledge, value, and behavior that would be relevant, human decision-making falls short of objective rationality. In actual behavior, as distinguished from objectively rational behavior, decision is initiated by external stimuli which channel attention to selected aspects of the situation to the exclusion of competing aspects that might turn choice in another direction. Human rationality, then, operates within the limits of a psychological environment. That is, individual choice takes place in an environment of "givens" -- an environment which imposes on the individual

as "givens" a selection of premises upon which he must base his decision. The stimuli may be initiated arbitrarily. Or they may be controlled, thus making it possible for a higher degree of rationality to be achieved.²

Next Simon attempts to explain the physiology of organization or the processes whereby an organization influences the decisions of its members. Since a decision is a conclusion drawn from a set of factual and value premises, organizational influence upon the individual may then be interpreted not as a determination by the organization of the decisions of the individual but as a determination for him of some of the premises upon which his decisions are based. A decision is rational from the standpoint of the individual if it is consistent with the facts (information), values, and alternatives which he weighed in reaching it. A decision is rational from the standpoint of the group if it is consistent with the values governing the group, and the information that the group possesses relevant to the decision. Therefore, the organization must be constructed such that a decision which is "subjectively" rational (i.e., rational from the standpoint of the deciding individual), will remain rational when reassessed from the standpoint of the group. Hence, the basic task of administration is to provide each operative employee with an environment of decision such that behavior which is rational from the standpoint of this environment is also rational from the standpoint of the group values and group situation.³

The principal modes of organizational influence in determining its members' psychological environment of decision or "givens" are: (1) authority, (2) communication, (3) identification or organizational loyalty, (4) effi-

ciency criterion, and (5) training.⁴ The first two modes are influences for imposing on an organization member decisions reached elsewhere in the organization. The last three modes are influences for establishing in the organization member himself attitudes, habits, and a state of mind which lead him to reach that decision which is advantageous to the organization.

Finally, Simon deals with the anatomy of organization or the distribution and allocation of decision-making functions. It is his view that the key to understanding organization structure is to develop a clear and realistic picture of the decisions that are required for the organization's activity, of the key decision premises (or set of guiding principles developed by the top administrators) on which its activity rests, and of the flow of these and other premises which contribute to decisions in the organization.⁵ The result would be an outline of the decision-making process in the organization (i.e., an analysis of the way in which decisions actually were made and the locations of important decision functions in the organization). Thus, it would also be an outline of the important features of the organization structure -- uses of authority, its communication system, its members' organizational loyalties, training, and so on.

CHAPTER II
HYPOTHESIS TESTING TYPE RESEARCH: ILLUSTRATIONS

There is a great deal of empirical research which supports many of the propositions hypothesized by Simon in Administrative Behavior. The following discussion presents several examples to illustrate this hypothesis testing type of research that is linked to Simon's theory.

In his theory, Simon presents a set of hypotheses concerning organizational loyalty (or identification). His principal hypothesis on this matter is that organizational loyalty is one of the primary modes whereby an organization influences its members' psychological environment of decision. His reasoning is that identification is the process whereby the individual substitutes organizational objectives for his own aims as the value premises which determine his organizational decisions.⁶ Several studies have been conducted which lend support to this hypothesis.

One such hypothesis-testing type of study was a laboratory experiment on small groups conducted by K. W. Back. By means of plausible instructions to the subjects, he experimentally created groups of high and low cohesiveness, that is, conditions in which members strongly identified with the group and those in which identification or loyalty to the group was relatively weak. "Each team member was instructed to write an interpretation of pictures he had seen alone before discussion with his teammates, and again after discussion. Irrespective of the source of group identification (Back used three different types of identification in both high and low cohesive conditions), the subjects in the high cohesive groups influenced

each other's opinions more than the subjects in the low cohesive groups.⁷ In short, as Simon's hypothesis predicts, Back found that the greater the degree of identification to the group, the greater the amount of influence actually accomplished.

These findings are corroborated by a study conducted by Festinger, Schachter, and Back. Unlike the previous study discussed, this was a field study, not an experiment. The researchers investigated the relationship between the cohesiveness of social groups in a housing project (i.e., how strongly members identified with the group) and how effectively a group standard relevant to the functioning of the group was maintained. A correlation of .72 was obtained between these two variables.⁸ In other words, the greater the identification of members to the group, the greater was the amount of influence which the group could successfully exert on the attitude and behavior of its members.

In conclusion, it is apparent that because both of these empirical investigations found that the greater the identification with the group, the more effective will be the attempts to influence the member, they provide empirical support to Simon's hypothesis that organizational (i.e., group) identification is one means whereby an organization group influences its members' decision premises (i.e., the values and attitudes on which a member's decisions will be based). However, even though these findings may be generalized to a certain degree because they were derived from two very differently structured studies (i.e., one study being a laboratory experiment on small groups; the other being a field study on comparatively larger social

groups in a housing project), it is important to note that neither study drew its findings from an organizational setting, which is where Simon derived his hypothesis.

Simon also presents a set of hypotheses in his theory that deal with communication. Communication, like organizational identification, is a means by which an organization influences its members' psychological environment of decision. In discussing this proposition, Simon postulates related ones which also concern communication and many of which have since been supported by systematic empirical evidence. For illustrative purposes the following paragraphs discuss some of the research that has been conducted in relation to two of Simon's communication hypotheses.

One of Simon's hypotheses on communication states that personal motivation affects communication. That is, personal motivation (e.g., one's motivation to increase one's power or influence in the organization) has considerable influence on whether or not the individual who first obtains the information will transmit it to the rest of the organization.⁹ Data from the experiment by Back described earlier supports this hypothesis. In this experiment the reader may recall that groups of high and low cohesiveness were experimentally created using three different sources of motivating one personally to remain in the group. These three sources were: (1) liking the members, (2) prestige attached to belonging, and (3) possibility of getting a reward for performance in the group activity. Back found that in the highly cohesive groups where attraction to remaining in the group was strongest, pressures to communicate were stronger.¹⁰ That is, information

was transmitted and discussed at a more rapid and intense pace in these groups than in the corresponding less cohesive groups. Similarly, in a study conducted by Leon Festinger, the findings showed that where members' personal motivation to remain in the group was zero, no forces to communicate arise. As one's motivation to remain in the group increases (given a certain relevance of the item to the functioning of the group), the pressures to communicate will increase.¹¹ In short, it is obvious that while these two studies imply other things as well, at the same time they lend empirical support to Simon's hypothesis that personal motivation (to gain prestige, power, or influence, and so on) in an organization affects the flow of information from the beholder to the rest of the organization or group.

A second communication hypothesis that Simon presents in his theory states that the source of the communication is one of ^{the} primary determinants of how much consideration the recipient will give to it.¹² One of the most prominent studies in this vein was conducted by Carl Hovland and Walter Weiss. The overall design of the study was to present an identical communication to two groups, one in which a communicator of a generally "trustworthy" character was used, and the other in which the communicator was generally regarded as "untrustworthy."¹³ For example, on the topic of "The Future of Movie Theaters" the high credibility source was Fortune magazine while the low credibility sources was an extensively syndicated woman movie-gossip columnist. The effects of source on factual information and on opinion were measured by the use of questionnaires administered before, immediately after, and a month after the communication. According to the results, communica-

tions, when presented by a high credibility source, were regarded as being "justified" in 71.7% of the cases when presented to the subjects who initially held the same opinion and in 50% of the cases when presented to subjects who initially held an opinion at variance with that advocated by the communicator. When communications were presented by a low credibility source, they were regarded as being "justified" in 51% of the cases where subjects initially agreed and in 36.7% of the cases where they initially disagreed.¹³ In short, Hovland and Weiss found that the immediate reaction to the "fairness" of the presentation and the "justifiability" of the conclusions drawn by the communication is significantly affected by both the subject's position on the issue and by his evaluation of the trustworthiness of the source. Also, opinions were change immediately after the communication in the direction advocated by the communicator to a significantly greater degree when the material was presented by a trustworthy source than when presented by an untrustworthy source.¹⁴ In conclusion, it becomes apparent that the findings of this empirical study lend credibility to Simon's hypothesis that the source of the communication is a salient factor in determining the degree to which its recipient will be influenced by it (i.e., the degree to which the recipient will consider the new information in making organizational decisions).

Finally, a third example of the hypothesis testing type of link between research and Simon's theory can be mentioned. This example deals with Simon's description of human rationality, one of the central notions in his theory. Simon defines objective rationality as viewing behavior alterna-

tives prior to decision in panoramic fashion, considering the whole complex of consequences that would follow on each choice, and, with a system of values as criterion, singling out one alternative from the whole set. However, Simon hypothesizes that actual behavior falls short of objective rationality in three ways. The first is that only a very few of all possible behavior alternatives come to mind at any moment. The second is that a human's knowledge of the consequences that will follow on each choice is always incomplete, fragmentary. The third human limitation is that since these consequences lie in the future, the value that an individual attaches to an anticipated consequence may be quite different from the value that the consequence will have for him in experience. Thus, the valuation process in choice is limited in its accuracy and consistency.¹⁵

Several years after Simon's theory was published, several empirical studies were conducted which indicate that Simon's description is correct, rather more accurate than the historical model of economic man in which rational objectivity in decision-making has no limitations. The following list briefly mentions some of these verification studies. One of the first was a study by Max Wertheimer, a psychologist who studied the judgmental processes of man. His findings pretty well fit those of Simon's informal description.¹⁶ A second study which confirms Simon's hypothesis is that by A. deGroot who also was a psychologist. In this interesting and significant study, the research dealt with the thought processes of chess players.¹⁷ Finally, Simon conducted his own empirical investigation in collaboration with Allen Newell. In this study the researchers succeeded in describing in

detail a decision-making mechanism capable of exhibiting certain complex human problem-solving behavior -- specifically, the discovery of proofs for theorems in logic. Subsequently, the researchers were able to simulate such complex behavior, using this decision-making program, with the aid of an ordinary electronic computer.¹⁸ Their results correspond with Simon's original hypothesis. In short, these studies are mentioned here briefly as evidence that Simon's hypothetical description of human rationality in Administrative Behavior has been verified in its main features.

CHAPTER III
INSTRUMENT TYPE RESEARCH: ILLUSTRATIONS

There is a good deal of evidence which justifies Simon's claim that the decision-making framework can be used as a direct instrument of empirical research on organization structure. The following discussion not only presents examples to support Simon's claim but also demonstrates how the pattern variable concept has been applied empirically.

One example deals with a study on the organization and role of the accounting (or controller's) department. The study team was led by Simon under the sponsorship of the Controllershship Foundation. The team studied seven large companies which had all approached the problem of organizing the controllership function in different ways. The question which the study group sought to answer was: "How should a company's accounting department be organized in order that the data it assembles will be of greatest usefulness to the operating executives of the business in making decisions and solving problems?" The method by which the study team sought to answer this question was Simon's decision approach.¹⁹ The following briefly describes how the decision scheme was applied in an investigation of this problem.

The first step taken by the study team was to identify the points in the organization at which decisions were made. This step consisted of identifying what important types of decisions had to be made in the organization and which operating executives made which types of decisions. The key points which the researchers identified in the decision-making hierarchy were (1) the chief executive, (2) the company vice presidents for sales and for

production, (3) division executives, and (4) factory and regional sales managers.²⁰

Having identified the decision centers, the next step was to determine what types of accounting data might be useful in making these decisions. Thus, by observing the actual decision-making process, specific types of data needs were identified at particular organizational levels. For example, the fundamental question asked by the factory manager, who has the basic responsibility for getting work out, is, "How well am I doing?" Therefore, communication to provide information on the results of activities is the type of accounting data needed at this level. The researchers labeled this category "score-card" information. On the other hand, the higher level officials, whose job it is to look for trouble spots, continuously ask the question, "What problems shall I look into?" Therefore, the type of data needed at this point is communication to evoke programs or "attention-directing" information. Finally, in cases where the fundamental question is, "Which course of action is better?", a third category of information is needed. This type is called "problem-solving" information or communication to provide data for the application of strategies.²¹ In short, the researchers identified three categories of information, each serving a different purpose at a different point in the decision hierarchy. They also discovered that the extent to which the information was used depended in considerable part on the closeness of the relationship between the accounting people (as information sources) and the operating people (as consumers).²² Therefore, what might be a good organization pattern for the use of certain types of account-

ing information might be inappropriate for others.

As a result of this analysis, the research group found that the accounting department's function consists of three major areas, each of which can be separated from the other. The first is record-keeping which involves bookkeeping and preparation and distribution of periodic accounting reports. In making judgments as to where this mechanical aspect of the accounting function might most appropriately be located, such factors as cost and uniformity of reports are considered significant. Because no special problems of communication are involved in the record-keeping function and because decision premises are largely irrelevant to organization arrangements for the record-keeping function, it can be approached in rather conventional organization terms. The second function area of accounting is current analysis which involves assistance to the operating departments in providing meaningful "score-card" and "attention-directing" information. Here proximity to the operating units is the most important locational consideration. Not only must there be promptness of presentation but also confidence of reliability and integrity of the data. Easy horizontal communication is therefore essential. For example, in terms of "score-card" analysis, it is important that there be a close relationship between the cost analyst (a middle management executive of the accounting department) and the department head (a middle management operating executive). The same general situation applies with "attention-directing" information, with the basic horizontal contact between the factory accountant and the factory manager. The third function area is special studies for problem-solving purposes. This involves participation

in the use of accounting information to satisfy unique management requirements and to suggest strategies. Again the factor of horizontal communication is a most significant element. Arranging the relationship between the company controller and the chief executive or the factory accountant and the factory manager in a horizontal pattern are two examples. However, in contrast to the case of "score-card" and "attention-directing" questions which indicate decentralization, the case of problem-solving questions indicates centralization for two reasons. One is that there seems to be less need to create the same kind of close relationship necessary in the "score-card" and "attention-directing" areas. The second is that these "problem-solving, special studies" cut across departments and have to be attacked at the company-wide, or at least factory-wide, level.²³

By juxtaposing these functions and the information on who needs what information from whom, the researchers found that a rough model for accounting organization begins to emerge. Chart 2 on the following page is an example of one of the structural models which arose from this analysis. Preceding it is an example of a model which emerged from one of the more traditional approaches to analyzing organizations, such as by means of analyzing formal lines of authority.

In Chart 1, communication only flows vertically in order to observe the unity of command principle which is based on the assumption that a man can serve only one master. On the other hand, Simon's group recommends that the company should forget the unity of command idea. Since communication patterns outlined in Chart 2 exist under any circumstance, the structural arrange-

ment suggested in Chart 1 serves only to hamper or inhibit communication. In other words, Simon recommends that if the administrative situation requires communication to flow both vertically and horizontally, this pattern should be formalized in the organization structure as Chart 2 depicts. On the matter of the unity of command precept, Simon states that it should be abandoned until further studies prove it is essential. Meanwhile, Simon cites evidence illustrating that "A man can serve two masters provided that the two masters are not working at cross purposes."²⁶ For example, a division of formal authority over the factory accountant is entirely workable so long as the controller's department has acceptance and support of company manufacturing executives.

In summary, Simon's decision model is based on the idea that human beings, with all their failings, are continually being cast into problem-solving situations where choices are made. Thus we need to know who makes decisions and the base of information from which decisions are drawn. In the study of controllership in several large factories, this method of analysis was followed. The points of decision were identified as were the kind of decisions to be made. Since information served as the initial stimulus for the decision, as the means of guiding action, and as the vehicle for reporting action results preparatory to taking new decisions, it was obvious also that the analysis of communications or information content and flow was a necessary step. On the basis of these data, the Simon group came to certain conclusions about the nature of the accounting function in a large company and a model for the internal structure of accounting in a large

factory emerged. Furthermore, it is interesting to note that some companies have created the formal arrangement suggested by the model without disastrous results.²⁷

Two major conclusions may be drawn from this study. The first is that in many respects the findings on the accounting department's functions and internal structure were not particularly dramatic or striking, but they do suggest some rather sharp departures from classic organization. The recognition of the need for horizontal communications and the formalization of this pattern into the organization structure is an example. The second is that it would appear that the decision, with ^{its} ~~is~~ companion study of information flows, has proved itself to be a practical means of organization analysis.

A second example which illustrates the use of the decision framework as a direct instrument of research is a study on an organization called the Economic Cooperation Administration (ECA). This study was also conducted by Simon who at this time had a position in the agency. ECA was created in April of 1948 to administer the Marshall Plan, a foreign aid program. Some four months later, ECA was a going concern, complete with organization chart.²⁸ Simon's study is an attempt to analyze these first few months of the organization's existence. In other words, he analyzes how the program of the ECA, and the organization to implement that program, emerged.

Within the first few months, before the ECA's final organization structure took form, Simon has identified six important approaches to the

organization. These six different approaches are: commodity-screening, balance of trade, European cooperation, bilateral pledge, investment bank, and policy-administration. In other words, the early administrative history of the agency can be written in terms of the rise and fall of these approaches and of the administrative units within ECA with which they were associated. What Simon has done is to analyze each of these six approaches individually whereby he shows that from an analysis of the key decision premises implied by each approach, one could predict the main outlines of the decision-making process in the agency, and from the decision-making process, the important features of organization structure pending the adoption of the approach in question.²⁹ As an example, the following paragraph briefly discusses two of the approaches to demonstrate Simon's analytical framework.

The European cooperation approach views the ECA's program as a means for bringing about a greater measure of international trade, economic cooperation, and rationalization of industry in Western Europe. Its organizational implications were: (1) that the initiative for programming should rest upon the European countries acting cooperatively; (2) that our relations with them under the program should be multilateral rather than bilateral, and that these relationships should be channelled primarily through the Paris rather than the Washington office of the ECA; and (3) that area units should be established which would specialize in the problems of the individual countries.³⁰

Another alternative was the bilateral pledge approach. Somewhat

different from the idea that the central aim of the program was to foster European cooperation was the idea that assistance should be conditioned on bilateral pledges between the individual countries and the United States. This decisional premise suggests several aspects of organizational structure which conflict with those suggested by the previous approach. One such implication, for example, is that because the negotiation of the pledges was a high-level matter involving State Department leadership, bilateral agreements create the necessity for direct negotiation between the State Department and individual countries. From an organizational point of view this would weaken the Paris office of ECA as the primary channel of contact which directly contradicts the view set forth by the European cooperation approach wherein the ECA's Paris office would be the primary contact channel for negotiating multilateral agreements. ³¹

In less than four months, during which it was already in operation, the agency attained virtually its final form. However, it is important to note that during these first few months while each of the six approaches were being considered, the top administration circulated, in draft form, a memorandum entitled "Basic Principles of ECA Organization." This memorandum emphasized the balance of trade approach and pointed to weaknesses in the commodity screening and investment bank approaches. It also stressed the need to foster multilateral rather than bilateral approaches. As a result, the organization units, such as the Foods and Industry Division, which can be equated with some identifiable element in the commodity screening, investment bank, bilateral pledge, and policy-administration approaches withered

away or became subordinate to those units which had arisen in conjunction with the balance of trade and European cooperation approaches.³² In short, the final structure of ECA took the form that was implied in these latter two approaches and the organization units which can be equated with some identifiable elements in these two programs became the agency's power centers. Therefore, it appears that once the top administrators developed a set of guiding principles (in the memorandum) that provided some of the key decision premises on which the ECA's activity rested, the resulting organizational structure was similar to that predicted by Simon in his description of the balance of trade and European cooperation approaches because the decision premises in the memorandum paralleled the conceptions of ECA's program that were implied in these two approaches.

Two major conclusions can be drawn from this study. The first is that this study provides empirical evidence that the relationship between the decision-making process and an organization's structure (which Simon's theory hypothesizes) does in fact exist. Two of the major findings in this study which proved this relationship to be the case were that the organization structure took form only after the top administrators established guiding principles for action (i.e., the key decision premises) and that these decision premises accurately forecasted the mold into which the organization was forced because they set down the guide or framework for decision and action -- the conditions of "workability". A second conclusion which can be drawn from this study concerns the utility of Simon's decisional scheme as a research instrument

While the ECA as an organization grew and assumed a reasonably coherent form without apparently ever having been planned, its form was predictable. That is, while the form of ECA was not planned, Simon was able, from an analysis of the key decision premises, to predict the main outlines of the decision-making process in the agency, and from this process the important features of organization structure. In other words, this study vividly illustrates how Simon's analytical scheme can be effectively used in predicting or studying the structure of "growing" new organizations.

CHAPTER IV
SUMMARY AND CONCLUSION

In summary, this discussion has attempted to present evidence for the relationship between research and Simon's theory. In fact, it has attempted to show that this link exists in two different ways.

One such link or relationship between the two is the hypothesis testing type. The discussion cited evidence of empirical research which has been conducted since Simon's theory was first published and which lends systematic empirical support to a number of his hypothetical propositions that deal with organizational identification, communication, and human rationality. Therefore, because certain of Simon's hypotheses have since been tested by empirical research, it becomes obvious that the hypothesis-testing type of relationship does exist between his theory and research. It is important to note, however, that the research examples in this vein have one major limitation as far as the verification of Simon's theory goes. That is, they were not carried out in an organizational setting but either were laboratory experiments on small groups or field studies on social groups. Therefore, while the research may lend support to Simon's theory, it does not verify his hypotheses completely. Nevertheless, the relationship between the two (i.e., between theory and research) is evident.

The second type of relationship between the two is the direct instrument type. The discussion cited evidence that Simon's decision framework for analyzing organization structure has in fact been used in empirical research. In one case the decision framework was used to analyze the

decision-making processes and organization structure of an ongoing organization. As an analytical tool, it proved to be useful in helping to answer questions on departmental reorganization. In the second example, the decision framework was used as a research tool to analyze a "growing" new organization. In this case it proved to be a useful tool in predicting organization structure. In other words, the study showed that once top administrators adopt guiding principles (i.e., decision premises), it is possible to plan the organization's structure systematically, rather than having to let it develop its form in a gradual unplanned fashion. In comparison, these two studies used the decision framework as an analytical tool in different types of organization settings and to serve different ends. At the same time, they demonstrate that the decision framework can be used as an analytical tool or instrument in empirical research on administrative organizations.

Simon was one of the first social scientists to study organization and administration in terms of the decision-making process. Therefore, in conclusion, it seems appropriate to mention some of the progress that has been made over the past quarter century toward deepening our scientific knowledge of decision-making. The following concluding paragraphs serve to mention briefly some of the recent advances which have been made in decision-making theory.

One area in which progress has taken place is that of developing new decision-making tools to help management make decisions. Since World War II there has been a tremendous development in the normative theory of decision-making that goes under the labels of "operations research" and

"management science." Through these activities, many classes of administrative decisions have been formalized, mathematics has been applied to determine the characteristics of the "best" or "good" decisions, and myriads of arithmetic calculations are carried out routinely in many business and governmental organizations to reach the actual decisions from day to day. A number of sophisticated mathematical tools, such as linear programming, and a number of less complicated but highly useful tools, such as PERT, have been invented or developed to this end.³³ In many ways the contributions of operations research and management science to decision-making theory have been very pragmatic in flavor. The goal, after all, is to devise tools that will help management make better decisions.

A second area of significant advance has been in applying the experimental method to the investigation of decision-making. This has been done by arranging for experiments on live real-world organizations. One such example of a field experiment is the study done on the Prudential Life Insurance Company by the Survey Research Center of the University of Michigan.³⁴ Also this has been done by bringing organizations or "organizationoid" systems into the laboratory. The Systems Research Laboratory of the RAND Corporation, for example, studied decision-making by simulating, under controlled conditions, an entire air defense control center.³⁵ A more thriving enterprise, however, has been laboratory experimentation with relatively small groups. A single example will convey the flavor of such work. Cyert and March were able to produce bias in the estimates of members of a simulated organization by creating partial conflict of interest among them, but showed that under

certain circumstances this bias did not affect organization performance.³⁶ In short, new knowledge about organizational decision-making has been obtained from appropriately planned experiments.

In addition, there have been several substantive developments in the theory of decision-making. The notion that a decision is like a conclusion derived from a set of premises has been a useful metaphor for analyzing the decision-making process. Recent studies have followed this metaphor of Simon's a step further by developing a theory to answer the question, What happens in an organization when there are conflicting premises pushing a particular decision in different directions? In summary, these studies conclude that evoking and attention-getting mechanisms are also important for decision-making.³⁷ From every point of view, the new knowledge gained about evoking and attention-directing processes is a major substantive advance in our understanding of organizational decision-making.

Finally, advances have been made in explaining the structure of a decision. One example is a study which recounted the steps taken by a business firm to reach a decision about the installation of an electronic computer.³⁸ Such studies have only been possible since the development of the modern digital ^{computer,} a powerful new tool which has provided both a language for expressing theories of decision-making and an engine for calculating their empirical implications.

These, then, are some of the more prominent landmarks along the road of developing the organizational decision-making concept over the past twenty-five years since Simon first theorized on the utility of studying

organization and administration in terms of the decision-making process. On the normative side, the analytical tool of modern operations research and management science have secured an important place in the practical work of management. On the side of the pure science of administration, there have been equally fruitful developments. The laboratory experimental method can now be used to study a wide range of decision-making behaviors that are relevant to organizations. The introduction of such concepts as "evocation" and "attention-directing" have been used to gain new understanding of the decision-making process in changing environments. Finally, in the modern digital computer we have an analytical tool for studying the structure of decisions. That is, we have a language for expressing our theories and a machine to calculate their empirical implications.

In conclusion, it appears that the utility of Simon's theory does not lie only in the fact that it has served research in the past by suggesting hypotheses to be tested and by providing empirical studies with an analytical tool. Also, his decision-making theory has some utility even today in the sense that it is a dynamic rather than a static concept because theorists, methodologists, and empirical researchers seem to be continuously developing and elaborating on Simon's original body of ideas.

FOOTNOTES

- ¹Herbert A. Simon, Administrative Behavior: A Study of Decision-making Processes in Administrative Organization, (New York: The Free Press, 1945), pp. 45-78.
- ²Ibid., pp. 79-109.
- ³Ibid., pp. 76-79, 123.
- ⁴Ibid., pp. 125-219.
- ⁵Ibid., pp. 220-247.
- ⁶Ibid., p. 218.
- ⁷Kurt W. Back, "Influence Through Social Communication," Journal of Abnormal and Social Psychology, XLVI (1951), 9-23.
- ⁸Leon Festinger, Stanley Schachter, and Kurt W. Back, Social Pressures in Informal Groups, (New York: Harper & Bros., 1950), p. 119.
- ⁹Simon, Administrative Behavior, pp. 162-163.
- ¹⁰Back, "Influence Through Communication," pp. 20-23.
- ¹¹Leon Festinger, "Informal Social Communication," Psychological Review, LVII (September, 1950), 274.
- ¹²Simon, Administrative Behavior, p. 164.
- ¹³Carl I. Hovland and Walter Weiss, "The Influence of Source Credibility on Communication," Public Opinion Quarterly, XV (1952), 641-642.
- ¹⁴Ibid., pp. 635-650.
- ¹⁵Simon, Administrative Behavior, pp. 80-84.
- ¹⁶Max Wertheimer, Productive Thinking, (New York: Harper & Bros., 1945); pp. 75-82.
- ¹⁷Simon discusses Deereet's work which is written in German in Herbert A. Simon, Models of Man, (New York: John Wiley & Sons, Inc., 1957), pp. 261-273.

¹⁸ Allen Newell and Herbert A. Simon, "The Logic Theory Machine," Transactions on Information Theory, Vol. IT-2, No. 3 (September, 1956), 61-79.

¹⁹ John Pfiffner and Frank P. Sherwood, Administrative Organization (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), pp. 390-391.

²⁰ Ibid., p. 391.

²¹ Ibid., p. 392.

²² Herbert A. Simon, et al., Centralization vs. Decentralization in Organizing the Controller's Department (New York: Controllership Foundation, Inc., 1954), p. 3.

²³ Pfiffner, Administrative Organization, pp. 394-395.

²⁴ Malcolm T. MacEachern, Hospital Organization and Management (Berwyn, Ill.: Physicians' Record Company, 1940), p. 84.

²⁵ Pfiffner, Administrative Organization, p. 400.

²⁶ Simon, et al., Centralization vs. Decentralization, p. 83.

²⁷ Pfiffner, Administrative Organization, p. 398.

²⁸ Herbert A. Simon, "Birth of an Organization: The Economic Cooperation Administration," Public Administration Review XIII (1953), 227.

²⁹ Ibid., pp. 228-233.

³⁰ Ibid., pp. 229; 232-233.

³¹ Ibid., pp. 229-230; 233.

³² Ibid., pp. 234-235.

³³ Herbert A. Simon, "Administrative Decision-Making," Public Administration Review, XXV (March, 1965), 31-33.

³⁴ N. G. Morse and E. Reiner, "Experimental Change of a Major Organizational Variable," Journal of Abnormal and Social Psychology, LII (1956), 120-129.

³⁵ Robert L. Chapman, "The System Research Laboratory's Air Defense Experiments," Management Science, (April, 1959), 250-269.

³⁶ Richard M. Cyert and James G. March, The Behavioral Theory of the Firm (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963), pp. 67-77.

³⁷ Simon, "Administrative Decision-Making," pp. 34-35.

³⁸ Richard M. Cyert, Herbert A. Simon, and D. B. Trow, "Observation of a Business Decision," Journal of Business, XXIX (1956), 237-248.

BIBLIOGRAPHY

- Back, Kurt W. "Influence Through Social Communication." Journal of Abnormal and Social Psychology, XLVI (1951), 9-23.
- Chapman, Robert L. "The System Research Laboratory's Air Defense Experiments." Management Science, V (April, 1959), 250-269.
- Cyert, Richard M. and Simon, Herbert A. "Observation of a Business Decision." Journal of Business, XXIX (1956), 237-248.
- _____ and March, James G. The Behavioral Theory of the Firm. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963.
- Festinger, Leon. "Informal Social Communication." Psychological Review, LVII (September, 1950), 271-282.
- _____; Schachter, Stanley; and Back, Kurt W. Social Pressures in Informal Groups. New York: Harper & Bros., 1950.
- Hovland, Carl I. and Weiss, Walter. "The Influence of Source Credibility on Communication." Public Opinion Quarterly, XV (1952), 635-650.
- MacEachern, Malcolm T. Hospital Organization and Management. Berwyn, Ill.: Physicians' Record Company, 1940.
- Morse, N.C. and Reimer, E. "Experimental Change of a Major Organizational Variable." Journal of Abnormal and Social Psychology, LII (1955), 120-129.
- Newell, Allen and Simon, Herbert A. "The Logic Theory Machine." Transactions on Information Theory, Vol. IT-2, No. 3 (September, 1956), 61-79.
- Pfiffner, John and Sherwood, Frank P. Administrative Organization. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960.
- Simon, Herbert A. Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization. New York: The Free Press, 1945.
- _____. "Administrative Decision-Making." Public Administration Review, XXV (March, 1965), 31-37.
- _____. "Birth of an Organization: The Economic Cooperation Administration." Public Administration Review, XIII (1953), 227-236.

- _____. Models of Man. New York: John Wiley & Sons, Inc., 1957.
- _____; Guetzkow, Harold; Kozmetsky, George; and Tyndall, Gordon.
Centralization vs. Decentralization in Organizing the Controller's
Department. New York: Controllership Foundation, Inc., 1954.
- Wertheimer, Max. Productive Thinking. New York: Harper & Bros., 1945.