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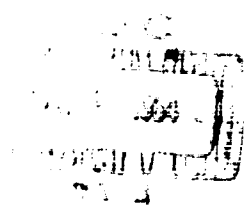
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MARCH 1964

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ON DECISIONMAKING IN
LARGE ORGANIZATIONS

William M. Jones

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The RAND Corporation
SANTA MONICA • CALIFORNIA

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**ON DECISIONMAKING IN
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William M. Jones

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PREFACE

Many of the available studies and reports on military command and control systems tend to view the system problems in the context of equipment or data processing procedures. This Project RAND Memorandum is an attempt to view these problems in the context of organizational decisionmaking processes. The Memorandum is based on the personal observations and experiences of the author and is neither a survey of the available literature on organizational behavior nor the result of extensive case studies. The validity of the conclusions drawn here should be judged by the reader not simply on the basis of the discussion in the Memorandum; it is hoped that the reader will also draw on his own experiences and observations to supplement those of the author and to test his conclusions.

This Project RAND Memorandum is an interim report arising out of RAND's continuing study of military command and control systems. Preliminary results of the present study have been discussed with officers of the Directorate of Command Control and Communications, DCS Programs and Requirements, Headquarters USAF. The Memorandum is intended to be of assistance to that organization and to other Air Force and Department of Defense agencies that are involved in command and control system developments.

SUMMARY

Decisionmaking in a large military organization is intimately associated with the very complex communications process between individual decisionmakers and is significantly different from the processes whereby an individual makes decisions. The characteristics of the organizational decision process can be described by categorizing the intraorganizational communications process as occurring at three levels: the formal, the subformal, and the personal. Each of these levels has an important role in the decision process. The introduction into an organization of an information distributing system designed solely in the pattern of the formal level will have little useful effect on the decision process, and may prove to be detrimental.

The observable weakness of organizational decisionmaking can be attributed to weaknesses in the intraorganization communications process, and would exist even in an organization composed entirely of serious, responsible, dedicated, and intelligent officials. The significant differences among individuals, regarding their positions in the structure and their varying styles of operation, make an effective communication process even more difficult.

Periods of crisis are marked by a sharp increase in organizational communications at all levels, as the various elements of the organization attempt to reach an agreement on what should be and can be done. The greater rapidity with which agreement is reached between those elements that have had a history of effective communications at all levels is significant to the development of military command and control systems.

In every organization there are individuals whose types of operation vary sharply. For the purposes of this discussion they are categorized as being either the type who view the central decisionmaker as the person in detailed control, or the type who view the central decisionmaker as the head of a large decisionmaking organization. No attempt is made to explore the situations under which either

view might be appropriate. The fact of their existence and the fact that some situations call for one or the other technique indicates that military information systems should be designed to support both.

The implications to be drawn from this viewpoint are summarized as follows:

- o Higher echelon military command and control systems should be structured with a view toward enhancing communications between significant decisionmakers.

- o The ability to rapidly evaluate an ongoing situation is required in each command post.

- o The ability to rapidly estimate the effects of various possible actions is required as is the ability to analyze such evaluations (proposals) made by other command centers.

- o A capability to communicate directly with officials on the scene of a developing crisis is required. The maintenance at the seat of government of voluminous and detailed situation data is not an adequate substitute for such a capability.

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I. THE APPROACH TO BE USED

In the development of this description of organizational decision-making, the writer has drawn primarily on his experiences and observations as a staff officer in a number of military headquarters. As a result, this discussion is directed toward directive-type decision-making organizations such as one finds in the Executive Branch of the U.S. Government. Discussions with associates experienced in other types of large organizations leads the writer to believe that most of the factors discussed here are to be found in any large organization, with some variation in the importance of several elements.

In describing the patterns and processes of organizational decision-making, actual or hypothetical examples will occasionally be cited. These should be considered as illustrations of the element being discussed rather than proof of the validity of this particular construct.

The organization decisionmaking process is a product of the very complex communications* process among individual decisionmakers in the organization. The following assumptions will be used to simplify and give structure to a description of the process:

(1) Much of the phenomena in the decisionmaking processes of large organizations can be explained without assuming the existence of any irresponsible, stupid, undedicated, or uncaring members. Stated positively, whenever the expression "large organization" is employed in this discussion, the members are assumed to be serious, dedicated, responsible, and intelligent officials.

(2) The communications process between the members of a large organization, and between large organizations, can be described by categorizing the process as occurring at three levels: formal, sub-formal, and personal.

* Throughout this Memorandum the word "communications" is used to mean the interchange of thoughts and opinions between people. "Communications equipments" or "communications systems" is used to mean electronic or mechanical devices designed to support this interchange.

(3) Certain additional facts and events can be explained by assuming that all organization members can be categorized as being either oriented toward centralization or toward decentralization in their views on how their organization should manage its processes.

The remainder of this discussion develops and illustrates the ideas embodied in the above assumptions, attributing certain commonly seen organizational phenomena to their interaction, and draws a few tentative implications for the structuring of military command and control systems.

II. COMMUNICATIONS IN AND BETWEEN LARGE ORGANIZATIONS

In discussing intrastaff and interstaff communications channels, three levels will be assumed: the formal, the subformal, and the personal. This categorization into three levels of what is, in fact, a highly complex spectrum has been adopted so as to make the subject manageable although its artificiality and arbitrariness are recognized.

FORMAL COMMUNICATIONS

The formal communications channel is the explicit level. At this level, one finds published organization charts, standing operating procedures, formal orders and directives, formal periodic reports, and so on. The substance of the messages communicated at this level is marked as being, officially, a matter for the record. This is the structure that is manipulated when a change in organizational procedures is made. Being overt it serves as a useful guide to a first point of contact when communications must be established among subordinates on two large staffs. The strength of and, in fact, the necessity for, communications at this level are related to its official nature. The substance of the messages passed in the formal channel (and at the formal level) makes the taking of certain actions and the making of certain decisions "legal." Being explicit, and having the aspect of legalizing, communications at the formal level tend to be somewhat slow in their development and passage through a large staff or organization. When a number of ongoing activities of a slightly discrepant nature must all be made legal in one formal message (a frequent event when more than one staff element is involved in originating the message), one can observe a great deal of care being exercised in wording the message so as to allow for adequate latitude in interpretations.

Whereas the formal level is the structure most apparent to an outsider, a careful observer will soon become aware that much of importance to the understanding of organizational attitudes and activities lies beneath this surface.

SUBFORMAL COMMUNICATIONS

The subformal communications channel is the level at which activities and attitudes are much less explicit. It is characterized by the "our way of doing things" that develops around the formal organization structure. The undirected or partially directed patterns of communications linkages that develop between subunits of large organizations are in this level. These linkages are usually related to certain subjects or actions. (For example, Plans always coordinates with Operations on base acquisition matters.) The subformal communications and the rules governing their use are organizational necessities as they permit a certain latitude in operation within the formal structure, and allow for personality variations that cannot be reflected in the formal organization.

To be effective in his job a subordinate official must know and observe these rules and procedures. Being mostly unspecified, these subformal rules are learned by experience and example and, during his learning period, the newcomer to the organization may have a number of unpleasant experiences. Violation of these unwritten "rules of the road" is certain to arouse resistance and, if persisted in, active antagonism.

As suggested above, there are many gradations in the subformal level. Permanent, interstaff committees and published directives that require coordination are, in a sense, formal recognition of the subformal operations and frequently grow out of preexisting subformal activities. The subformal rules, in any active organization, are continuously changing and therefore the learning process is always going on. The rate of change is usually slow, however, and accommodation to the changes is relatively easy. The freedom to ignore the rules or establish new rules varies with the position of the official within the organization although there are always practical limits to this freedom. A new commander can be expected to make changes in the

subformal pattern but his ability to make such changes rapidly is limited by the ability of the organization to adjust to the change.*

Once an insider has gained an adequate "feel" for the subformal communications pattern of his organization he is likely to view the prospect of a sharp change, imposed from above or from the outside, with considerable distaste. His functional needs have urged him into the pattern and his emotions are likely to be aroused by the prospect of change and a resulting period of reduced effectiveness. Objective discussion of projected changes is made difficult because many of the features of the subformal pattern are unadmitted and, to some extent, are unconscious habits.

Because the subformal attitudes and activities are strong operative factors in the accomplishment of objectives within an organizational framework, and because they are usually learned by experience and example, they represent an important but unknowable element to an outsider. A sensitive observer will be aware that they exist, may suspect that he knows some of the rules, but is unlikely to know the degree of importance the insider attaches to them.

PERSONAL COMMUNICATIONS

The personal communications channel is, for the purposes of this discussion, defined as that level at which an organization functionary, in communicating with an insider or an outsider, deliberately reveals something of his own attitude toward the activities of his own organization. This does not mean, exclusively, the network of friendships that develop within an organization but rather that pattern of low-key shop talk that goes on behind formal and subformal activities. Within a large staff it is observable primarily as a type of interelement communications that is used to keep the participants aware of what is going on. The "coffee cup conversations" between friends and

* It is assumed here that the purpose for which the organization was formed is of sufficient importance to preclude a deliberately accepted period of disorganization as a reasonable option.

acquaintances within a large organization characterize this level. The observer can usually detect the personal level in a conversation between two functionaries by the advent of expressions like "Personally, I think..."; "My Boss would skin me if he heard me say this but..."; "My outfit is planning to...but I feel..."; and "I don't know if I can sell it to my outfit but I'll try."

Although the specific connections in the nexus of personal channels are usually uncontrolled in an organization, there are quite specific rules as to how they may be used. In general, the personal channels within a staff may be safely used only for the passage of information, not for "action type" direction. The friendly tip, dropped during a period of shop talk at the "19th hole," is designed to direct the attention of the recipient to a subject. Proper organizational procedures require that the information be verified (using subformal or formal channels) before action is taken. Protection of the source is frequently important. Personal level communications, while they exist between echelons in the staff, tend to be degraded between people occupying significantly different ranks since "good ethics" dictate that shop secrets must be protected and a person in a subordinate position must, for safety's sake, avoid the appearance of violating this dictum.

The outsider is likely to be surprised at the speed with which the personal channel, "the rumor mill," operates in a large staff. This speed is the result of the lack of control and the absence of any built-in verification mechanism, insofar as the organization is concerned.

Effective communications and coordination between large staffs are difficult matters due to a mutual lack of detailed knowledge of each other's current communication patterns and the rules under which they operate. Being an insider on one staff does nothing to change one's status as an outsider on another. In fact, if the two organizations are competitive (and large organizations communicating with each other characteristically are), the communications block is likely to be formidable.

USE OF COMMUNICATION LEVELS

In their attempts to communicate and coordinate with each other, large organizations are rather rigidly confined to the formal level, with some superficial elements of the subformal and the personal.

The introduction of the new budgeting procedure in the Department of Defense is an excellent case study that demonstrates some of the difficulties. Without describing either the prior or the new procedures or commenting on their merits and failings, one can simply observe that there was a sharp change in the formal organizational arrangements for handling this procedure. The old procedure had, over time, developed a well-recognized pattern of organization and communication at the subformal level. The sharp change in the formal system shattered many of the subformal arrangements and necessitated a rather unpleasant period of adjustment. Those functionaries on the headquarters staffs whose job it was to express their Service's requirements in proposed budget form had previously known the offices and functionaries in the OSD with whom they should interact in an attempt to "sell" their package. Without suggesting that they were always pleased with the results of such interactions, it can be noted that they generally understood the subformal operations they had to perform in the attempt to accomplish their job.

With the advent of the new system this knowledge of operations was removed and a period of trial and error, false starts, and general confusion ensued. It is also worth noting that the pace with which the new system has gained operating efficiency has been closely related to (and in the view of this writer, dependent upon) the rate at which a new subformal pattern has developed. Finally, it should be observed that the existence of personal connections between the staffs that existed before, during, and after the change had little or no effect in the smoothing of the transition.

Another case in point might be the interactions between a Service headquarter's staff and the headquarters of a major subordinate command. As it has been previously suggested, the major subelements of

a large staff have only vague notions about the operations of the other elements. Therefore, one should expect that the notions about the headquarters staff one finds in a command headquarters will be considerably distorted (and vice versa). Again we see the resultant lack of mutual predictability. Notice that in this situation we can identify strong ties in the formal structure and numerous links in the personal, but still the misunderstandings exist.

It is in this context that one can observe quite sharply the rules that divide the subformal and the personal. Information about ongoing decisions in the headquarters staff is rapidly transmitted to major command headquarters via personal contacts, but an officer from a command headquarters can only cause embarrassment to himself and to his acquaintances by trying to exploit this connection to steer the decisions.

III. AN INSIDER'S VIEW OF A DECISIONMAKING STAFF

To further illustrate the assumptions developed thus far, this Section will focus on organizational activities from the insider's view. For this view we will use a hypothetical Director of Operations on the headquarters staff of a military service.* The reader is requested to adopt the attitude that our hypothetical officer is a serious, dedicated, intelligent, and responsible individual. In addition, it is important to this construct that similar attributes be conceded to all people occupying positions of responsibility.** Given such a concession, little violence will be done to the notions expressed if the reader substitutes any other functionary in the organization up to and including the Chief of Staff. To a considerable extent, the same general observations made below can be applied to any functionary in any large governmental organization; however, care should be used in applying some of the ideas to organizations where the personnel are likely to have significantly lesser feelings of identity.

To aid in the suggested exercise in empathy, the term "you" will be used to designate the hypothetical functionary whose attitudes and activities are to be discussed.

You are the Chief of a Directorate under a Deputy Chief of Staff. Directly under you are a group of Deputy Directors for various special activities, various divisions, and branches.

*No attempt is being made here to describe precisely the functions of an actual position on a real staff. The intent is to outline a context in which the development of attitudes can be illustrated. The consequences of organizational overlaps are not discussed here. Our hypothetical officer might also be a Methodist, a Mason, and a member of the neighborhood bowling team. These connections, while they may have certain effects, are not considered to be of serious consequence to the ideas expressed in this Memorandum.

**Of course, not all incumbents of positions of authority are consistently serious, dedicated, intelligent, and responsible. It is, however, the belief of the writer that all or most of the decisions that to an outsider appear ill advised or ill timed can be explained without recourse to a "scapegoat" on the staff.

You are formally responsible to the Deputy Chief of Staff for monitoring the status and capabilities of the Service components of the Unified and Specified Commands as well as certain uncommitted Service elements. Readiness status must be measured against something, and conventionally it is measured against the various contingency plans of the Unified and Specified Commanders. Your function urges you not only to insure that your estimates of Service capabilities are accurate but also to exert such influence and authority as you have to keep these capabilities at high level.

Your immediate superior exercises two major functions. He is responsible to the Chief of Staff for your functions and that of your colleagues, certain other Directors. He also is a member of a committee under the Joint Chiefs of Staff.

His superior, the Chief of Staff, also has two jobs. In his unilateral capability he is responsible to the Secretary of Defense, through the Service Secretary, for the management of Service resources. As a member of the JCS, he is one of the senior military advisors to the Secretary of Defense and the President and is responsible for providing strategic direction to the Armed Forces of the United States.

Your normal round of activities involves frequent conversations with your subordinates and their staff officers on such matters as they bring to your attention. Officers from other elements of the staff frequently seek concurrence in proposed decisions and actions that would have an effect on your job and the resources you monitor. Usually they will be accompanied by members of your Directorate who will recommend for or against the requested concurrence. Occasional staff meetings are held by your superior during which you receive guidance for future decisions, and you hold occasional meetings of your staff to pass this information along. You are also frequently called upon to sit on various boards and panels to consider matters that have implications for many of the Directorates across the Service Staff.

To the outsider you may appear to be involved in a daily mass of trivia, dialogues, and meetings. From your viewpoint, however, your numerous contacts are opportunities to influence the direction of the organization effort. Within this plethora of daily interactions and decisions you are urged into certain patterns of action by your sense of your responsibilities, your responsibility to the nation, to your Service, to your immediate superior, and to the members of your own organization. Notice here the existence of opportunities for internal conflicts. Your resolution of such conflicts is a personal matter and is dependent on the situation under consideration.

Having had much experience on various military staffs, you are urged in your daily decisions toward a consistent pattern. You understand (possibly without consciously thinking about it) that your staff cannot function in support of you unless you are somewhat predictable to them. (Your superior must be consistent in his expressed views concerning things that influence your area of responsibility if he is to give you freedom, within bounds, to operate effectively.) To the outsider you may present a picture of a confirmed bureaucrat in your resistance to new and "better" ideas, but to you this resistance is the result of balancing a theoretical gain against the practical necessity of keeping your staff functioning effectively.

Another factor being urged upon you continuously is the need to "keep it simple." To insure that your staff understands your views toward certain policy matters, many subtle variations that you may well understand will have to be omitted from your formal communications. A policy statement or published plan that contains numerous "if this -- then that" considerations can produce confusion at the time it is to be implemented simply because of a wide divergence in view as to what the situation really is at the time. To the outsider this can result in the appearance of stupidity or "black and white" thinking, but to you it is the only way to operate effectively.*

*An interesting side note at this point is that every external communication and observable action of a functionary tends to convey a caricature. While a functionary may be aware that his images of

In summary to this point, your job is one of decisionmaking in a management organization. The normal pattern of activities is such that your opportunities to make or influence obviously important decisions are much less frequent than your opportunities to make numerous small decisions. Most of your influence on the direction of the organization is the result of these numerous, small decisions. Consistency in the making of these decisions is, you feel, necessary for effective staff work and coordination. In addition, consistency enhances your influence on the over-all organizational decisionmaking since your beliefs as to what should be done are best expressed by a consistent pattern.

Your decisions, as anyone's, are based on your prediction of the consequences if they are implemented. In the making of these predictions an important factor is the effect it will have on your organization and the probable reactions of other staff elements and associated agencies. Your ability to predict, and therefore influence, the probable attitudes and activities of other staff elements and associated agencies is degraded by your lack of adequate communications with them as compared with your daily communications with your own staff. Your communications with your staff are usually at the subformal, interactive level. Your communications with other staff elements tend toward the formal level. The result is that your predictions are based on mental images that can be grossly inaccurate. Finally, and quite important, you are not conscious of many of these influences.

adjacent staff elements are caricatures, he tends to believe the images of those elements with which he has infrequent interaction. We leave to the reader's imagination the picture of the typical Department of State functionary one sometimes hears sketched by military officers. The writer gains some wry amusement, if no satisfaction, from evidence that the image of the typical military officer drawn by Department of State personnel is equally unflattering. The important thing to notice here is that the absence of any significant volume of interagency communication at other than the formal level makes this type of attitude inevitable. As a result, interagency relations tend to vary from distrust to active controversy.

Some outsiders have occasionally expressed bafflement because of the failure of the Services to accept the notion that decisions on weapon systems procurement are best approached as a sequential process. The construct developed here may shed some light on this "failure." Again placing yourself in the position of the Director of Operations, consider a proposed system development being coordinated through the Staff. You recognize that you may only have this one opportunity to influence the decision. The next decision in the sequence may well be made through other channels. Given your confidence in your view of the future and your lack of confidence in the other, little-known decision channels, you are urged to make (or at least influence) all foreseeable decisions at that time. Because every other functionary in the staff has similar urges, the result tends to be a complete systems decision with all foreseeable decisions made at the outset. In short, the notion of setting up a sequential decision process is acceptable to an individual only if he believes he will have opportunities in the future to make the decisions implied.

Decisions related to future strategies may be bedeviled by this same factor. As a serious, responsible official you are likely to have a vague discomfort with a strategy that suggests, "If they do this, then we'll do either that or the other." Implied here is an idea that someone will be making the decision at the time and that someone is not likely to be you. Your reaction is to conjure up reasons for not adopting such a strategy.

IV. TIME, TIME HORIZONS, AND DECISIONMAKING

Decisionmaking, within a large, military management structure such as a Service headquarters staff has many interesting features. To the outsider the appearance can be one of considerable divergencies of view and resulting confusion. To the insider, our hypothetical functionary, decisionmaking is a way of life and a many faceted activity.

For the purposes of this discussion, it should be assumed that all of the organizational decisions made by our "ideal" functionary are made in an over-all, comprehensive context. He may have to resolve conflicts between his beliefs as to what is in the best interest of the nation, his Service, his staff, and himself. Notice here that his decision may well be based on his judgment of what the nation, his Service, he and his staff should be doing rather than being based on what it is doing at the time. This is not meant to suggest any serious possibility of insubordination or violation of directives from superiors. What is meant here is that, until such time as a final decision on direction is made, our ideal functionary will feel free to attempt to influence the decision in the direction he feels is proper.

One facet of the decision process is the functionary's sense of how closely he is coupled to the decision of the moment. His knowledge that a specific decision is in the process of being made is a result of the information available to him from his formal, subformal, and personal sources. His sense of being or not being potentially influential in the process is affected by all three levels. For example, our hypothetical Director of Operations might hear through a personal channel of a recommendation for action being developed in the Directorate of Personnel. He might then verify the accuracy of the information through subformal channels and express opposition to the proposal to his superior through formal channels. His recommended opposition or alternative must be presented in such a way that it will be favorably considered. For personal and career reasons and for the sake of his

own organization, he must try to avoid placing himself and his superior in a position that appears unacceptable or ridiculous to top management.

Another feature of the decision process is the view that our hypothetical functionary has of his capabilities and those of his staff as contrasted with his views of the capabilities of other staff functionaries and their staffs. Because of his daily interactions with his own organization, he has an appreciation of their abilities to weigh the many, widespread factors involved in developing a decision or recommended action. He has much less frequent interactions with some of the other functionaries and their staff, and his main source of information about their internal processes is their formal outputs. As a consequence, he is likely to feel that his organization is much more qualified to make the "proper" recommendation if they had available the required data.*

One question that is not unusual in the mind of our hypothetical functionary is whether the formal responsibilities and authority of his position authorize him to make and initiate implementation of his decisions or whether he should translate his decisions into a recommendation to his superiors. This determination is not as simple as it might seem to an outsider. The formal organization chart and job descriptions are only a general guide. The specific nature and detailed degree of latitude available is learned (developed) over time. (Our hypothetical functionary is likely to have certain inaccuracies in his views of the actual authority exercised by other functionaries with whom his interactions are infrequent.)

Timing factors and time horizons enter into the decisionmaking process in many ways when viewed in an organizational context. In formulating a recommendation to his superior (or in arriving at a decision to order some action), our hypothetical functionary must

* This feeling, maintained over time, may partially explain the forces at play that produce a tendency toward "empire building," an outsider's expression. It takes people to acquire and maintain data. It may also help explain the inordinately widespread and detailed information requirements placed on manual and electronic reporting systems.

estimate the time required to obtain approval, to send the implementing messages and, finally, the time required by the recipient of the orders to execute the directed actions. Simultaneously, he predicts, from his then current information, the likely course of events he wishes to alter so that the recommended (or ordered) action will be appropriate.*

Closely related to this predictive process is the problem of selecting a time horizon. Many of the misunderstandings that develop between staff sections (or parallel organizations) arise because, although the two organizations have similar predictions of "things likely to come," they are focusing their attention on a different time in the future. One recommended action might lead to short-term improvements followed by adverse results at a later date, whereas another recommendation might be expected to have opposite results. Interorganizational arguments can often be seen to develop and to continue for lengthy periods without the contenders ever becoming aware of the fact that they are not using a similar time horizon.

Given the honest organizational egotism of our hypothetical officer, one can frequently observe a rush to "nail down" a decision before a "less reliable" competitive staff can interfere.

* This feature of deciding on the basis of extrapolation and estimated time lags will be discussed later in more detail.

V. CRISIS PHENOMENA*

National crises, insofar as one can describe them in a general way, are marked as periods in which apparently vital, national decisions must be made. "What can be done?", "What should be done?", and "How should we go about doing it?" become the dominant questions.

Characteristically, different elements of a large organization will display crisis phenomena at different times, even if all sub-elements have continuous access to all the available information about the situation. Each staff element monitors or controls different forces that may be applied to the situation. These different forces have different time lags before they can be brought to bear on the situation. It follows that each subelement is likely to judge the seriousness of the growing situation against its own ability to deal with it at the time.

INITIAL PHASE OF THE CRISIS

The over-all effect, when viewed from the position of the central decisionmaker, is that he is likely to receive, from one of his top subordinates, a first indication that a decision is desperately needed. Quite possibly, the rest of his subordinates will recommend a "wait and see" approach. If the situation continues to develop one can expect more and more of the top subordinates to start pressing for a decision as time goes on.

The required decisions are (in the viewpoint adopted in this study) organizational decisions and most of the phenomena associated with the noncrisis decision processes become readily observable during a crisis. Responsible officials feel powerfully moved to recommend

*"Crisis -- the point of time when it is decided whether an affair or course of action must go on, or be modified or terminate," Webster's New International Dictionary, Second Edition. The reader may prefer the medical definition, "that change in a disease which indicates whether the result is to be recovery or death, also a striking change of symptoms attended by an outward manifestation as by an eruption or sweat."

their solutions. Each recommendation is likely to be related to the use of the organization controlled by the recommending official simply because that is the capability in which he has the greatest confidence. The desire for information increases inordinately as the feeling of the gravity of the situation makes the formulation of the right recommendation a vital matter. Time horizons are likely to contract sharply. Stresses develop in the attempt to get the "right" decision made in sufficient time to permit the effective use of the "right" organization as the "tools" available to different authorities vary in the speed with which they can be effectively employed. Controllers of specialized organizations that are affected by any one proposal may have strong desires to achieve coordination with other such organizations. However, the implementation of these desires may be frustrated by counterproposals from the other organizations. An additional communications barrier can be the fact that, prior to the crisis, the organizations trying to coordinate may have had a history of conflict and controversy.

Given the strong feelings that develop in the perceived gravity of the situation, the motivations toward dealing with people and organizations in which one has confidence become very great. Authorities will often turn to persons and organizations in which they have such confidence even though, in the normal course of events, these people and organizations have little connection with the now acute problems at hand.

Working against these forces of confusions are those people and organizations (and thank heaven for them) that, while recognizing the gravity of the situation, make no attempt to become involved in the decision process unless asked. They recognize that the additional confusion so created is likely to be more harmful than any possible ill effects of a decision arrived at without their participation.

In general one can describe this initial phase of the crisis -- the "What should we do?" and "What can we do?" phase -- as a period in which old formal patterns are ignored, new subformal patterns

rapidly develop, and personal interactions take on a much more important function in organization and interorganizational activities.

DECISIONS IN THE IMPLEMENTATION PHASE

Following a decision made by the national executive authority, the large, subordinate organizations enter a phase of implementation, a period characterized by a myriad of detailed implementive decisions. It is important that the knowledge be widely disseminated that the decision has been made as well as the nature of the decision itself, else much of the organizational effort will be directed toward developing unneeded recommendations. A tentative "We will take one step, then look and see" type of decision is organizationally troublesome as it sets the stage for implementation-type decisions based on ideas of what the nation should do, rather than being based on what it is doing. Of course, such national decisions are usually and properly "of a first step" nature. Also, the desire to deny enemy access to national intentions makes it difficult to settle the organizations into a pattern of implementation. Some confusion will continue to be present until the selected course of action becomes apparent. Even at that time, many of our serious, responsible functionaries, continuing their strong belief that the course of action selected is likely to result in undesirable consequences for the nation, are likely to exploit many of the channels available to them to influence future decisions.

One characteristic phenomenon of crisis situation is "by-passing." This is the procedure, either by communications or by conference, of establishing contact between a superior and a subordinate separated by one or more functionaries in the formal structure. The higher level superior can feel driven to such a procedure by his urgent desire for timely information and a resulting desire to shorten his communications channels. The "by-passed" authorities are certain to resent such a procedure as it eliminates them from the decision process, a happenstance that no responsible functionary can accept without concern. Persistent fears will be felt that the superior, using such a personal level channel, will violate the unwritten rules of the

organization, that the personal channel is for information not orders, and that the superior will fail to recognize that the information is unverified in the organizational sense. Finally the by-passed officers will feel, quite understandably, that their ability to direct possible future action properly is degraded by their having been denied some important information.

One observation or generalization can be made about crisis decisionmaking that is significant to control system development. It is that those people and organizations that have a history of frequent interaction (and therefore a reasonable degree of mutual predictability) tend to achieve coordination more expeditiously than those people or organizations that have no such history.

VI. CENTRALIZATION VERSUS DECENTRALIZATION: TRENDS AND ISSUES

THE TREND TOWARD CENTRALIZATION

One frequently hears assertions that the advent of mass destruction weaponry and the speed with which it can be brought into play makes a trend toward centralized control both inevitable and proper. The writer believes that the trend toward centralization of detailed decisionmaking, contrary to the usual assertion, is directly related to the development of rapid, high-volume communications gear and modern data handling equipments. The desires for detailed information and for detailed control of the operating forces in periods of national crisis are probably little stronger in the leaders of today than in the national leaders of a century ago. The significant difference lies in their differing capabilities to influence ongoing events. The availability of high-speed, high-capacity communications systems has made centralization versus decentralization a subject of controversy in military organizational plans. The issue has changed from a question of mechanical feasibility to a question of organizational efficiency.

To make this complex subject somewhat more manageable, the assumption will be made that decisionmakers can be categorized as one of two types. These two "types" are illustrated by a certain amount of exaggeration. It is recognized that most or all actual functionaries should be positioned somewhere between the extremes described.*

TYPE I: THE MANAGER

One type of decisionmaker views himself as the manager of a decisionmaking organization. He relies upon differences in view

* These opposed views can be found coexisting in every organization functionary. To attribute a single set to any actual official is, of course, quite unfair. In practice, one can observe officials changing their styles of operations as a function of the changing external situation.

among his subordinates to keep him informed and to provide opportunities for directing the organization.

In practice the manager must take steps to insure that he is not entirely dependent upon his immediate subordinates for information upon which to base his decisions. The special information-gathering organizations that support the decisionmaking structure will also report to the central decisionmaker on the situation external to his organization. The manager's visits to and inspection of subordinate groups are used to develop his own opinion about the attitudes and capabilities of his organization. The status reports that flow upward to him through his organization give him an opportunity to observe how his policy directives are being implemented, and provide a basis for estimating the consequences of a change in policy in the future.

The style of operation of this type of leader is characterized by a deliberate withdrawal or self isolation from the details of the day-to-day operations. He will frequently sacrifice his own preferred objectives and ways of proceeding in favor of those recommended by his subordinates if the expected end result is not too different from his goals.

In crisis situations, with the resulting bargaining with his peers (the heads of comparable organizations -- possibly the enemy), he will tend to negotiate about objectives and goals rather than about detailed activities, because, in his view, his control of detailed activities is imprecise. The solutions of his organization to crisis problems will tend to lie well inside of previously laid plans because the preparation of his organization for action is an important element in his bargaining considerations.

TYPE II: THE DECISIONMAKER

This type views himself as literally the decisionmaker. His role, as he views it, is to direct his organization by insuring that the right decisions are made and the right actions are taken throughout the structure. He tends to view his organization as an implementing device rather than a decisionmaking structure.

The point of view of the organization head who is oriented toward detailed centralized control is best observed and appreciated in situations where he is bargaining with his counterpart in another operation. Implicit in the bargaining (or threatening) process is the promised ability to do or refrain from doing certain things. Part of the "bargaining" process, when dealing with a potential (or in some cases actual) military enemy, can be the actual movements of military forces. Here again we can see a requirement for detailed control so that the desired "message" can be transmitted to the opponent. Viewed in this light, it is apparent that such control of detailed activities from the highest level can become necessary.

The information flow in support of this type of decisionmaking is likely to be directed toward identifying an area needing decision and, subsequently, providing detailed data for decisionmaking.

THE WEAKNESSES AND STRENGTHS OF THE EXTREMES

An organization controlled by a "manager" is slow to adapt itself to changed requirements. The interactive decisionmaking process is time consuming and inherently resistant to innovation. The manager himself is vulnerable to collusion among his subordinates since he relies upon them for indications as to when decisions must be made as well as for data upon which to make a decision. The strength of this type is that the decisions that are made are organizationally feasible and, in fact, anticipated.

An organization controlled by a "decisionmaker" is expected to adapt to changes more rapidly, although with considerable friction. The one-man type of decisionmaking is inherently much faster than that of the manager, and the decisionmaker is not very vulnerable to "capture" by his subordinates. The weaknesses inherent to this style of operation are, however: (1) the lack of organizational preparation, in the form of preliminary contributions to the decision, makes the implementation of the decisionmaker's plans a time consuming affair, and (2) one-man decisionmaking places a very high premium on selecting the right man to head the organization.

VII. SOME CONSIDERATIONS ON THE PROBLEMS OF COMMAND AND CONTROL SYSTEM DEVELOPMENT

Command and control systems, designed in the image of the tightly centralized organization structure suggested in Section VI, seem to offer a capability for precise control. Unfortunately they can bring with them many of the problems of tight centralization. The ready availability of voluminous and detailed situational and status data, and an ability to reach anyone in the organization by use of communications equipment does not combine to provide effective organizational control. Even with a practiced capability to analyze and evaluate the voluminous data, and rapidly transmit detailed action directives, an important element has been left out. The preparation of an organization to accept, understand, and intelligently implement an action directive has been omitted. This is an important function of the interactive process suggested in the decentralized organization previously described.

Conversely, a system designed exclusively in the image of the decentralized organization described above would have glaring deficiencies.* The lack of information on the progress of an ordered action allows for undetected gross errors in implementation. There are times when detailed control from the highest level is needed and a completely decentralized system does not have such a capability. It would seem appropriate, insofar as is feasible, to design command and control systems to allow for both styles of operation.

To make a significant contribution to organizational decision-making and to the organization control process, it would appear that command and control systems should incorporate the following general characteristics:

* We do not believe there is any such proposal that a command and control system be so structured. One might suspect that this absence is because in no way does it typify the image of military organizations frequently expressed.

(1) A communications system between significant decisionmakers in the organization should be designed to foster the development and support of the highly interactive subformal level communication. A sense of contributing to organizational decisions and an understanding of the over-all contexts in which decisions are made are essential to enthusiastic and intelligent implementation. Practiced communications at the subformal level are required to develop these essential elements.

(2) The proper informational material in an operational control system are those data that describe the status and capability of the forces and the situation that may call for their employment. To a certain extent and in some specific functional areas any large organization is likely to be in conflict with other organizations with which it must coordinate under emergency conditions. For example, differences in view on long-term policy matters, manpower, and money requirements are sources of chronic misunderstandings. Data related to such matters should not be handled by systems designed to control operations as they tend to make the development of mutual understanding more difficult.

(3) The ability is needed to develop, display, and transmit rapidly a projection of a situation to other decisionmakers (command posts). The practiced exchange of views and recommendations is required for adequate organizational coordination (as has been suggested in this Memorandum). It follows that a system to make quick estimates of the effects of various proposed measures, on an ongoing situation, would be useful. The ability to analyze and evaluate recommendations developed and sent by other command posts is needed. This latter ability can only be the product of practice and considerable supporting communications. It should be noted that the writer is not describing a capability to develop in complete detail a plan of operations. What is being suggested is an ability to quickly approximate the expected effects if a subsequent decision is made to plan and implement a suggested operation. The kinds of situations and operations a decisionmaker might wish to analyze and evaluate is likely to change continuously with time. It seems to follow that the development of the required capability will be a continuous process and, given the

difficulty of describing this activity to an outsider, had best be considered as a continuous maintenance procedure within the structure.

(4) The ability to communicate quickly with officials on the scene is needed. Certain situations and certain types of decision-makers require the detailed control of operational forces. Characteristically this requirement develops when the environmental situation is changing radically and rapidly. The possession of voluminous amounts of detailed data in a central command post insures neither the detection of such a situation nor the proper evaluation of detailed operations being considered. An unexercised capability to evaluate data represents little or no capability at all. Given the enormous volume, variety, and detail of data potentially available to any command and control center, it seems unrealistic to consider seriously a system designed for continuous evaluation of all the data available throughout the system. Direct communications with officials on the scene seems more realistic.*

* It is the author's opinion that the major reason for standard reports to a command post is to permit the monitoring of directed actions rather than the provision of sufficient information to allow the making of detailed decisions. Data developed and transmitted in one context (the theater of operation, for example) is very subject to gross misinterpretation in another context (the seat of government in Washington, for example).

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