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TYPES OF PATTERNED VARIATION IN BUREAUCRATIC  
ADAPTATIONS TO ORGANIZATIONAL STRESS\*

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Abstract

Field data gathered by The Ohio State University Disaster Research Center in studying complex organizations suggest that the bureaucratic model is inadequate to explain organizational adaptation to stress. The informal structure does not replace the formal structure in such situations. There is instead a variety of patterned responses in adapting to the stress. The article illustrates these general points, sets forth a typology of possible patterned variations in bureaucratic adaptations, and indicates some internal and external factors to the organization which influences the direction and kind of adaptation followed.

TYPES OF PATTERNED VARIATION IN BUREAUCRATIC  
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Sociological theory concerning complex organizations involves two major lines of development. One is what sometimes has been called the "managerial" tradition. It encompasses a number of sub-views including the early scientific-management theory of Taylorism (Massie, 1965; March and Simon, 1966:12-22; Mouzelis, 1968:79-90; Etzioni, 1964:20-22), the formal administrative conception fathered by Fayol (Massie, 1965:387-397; Mouzelis, 1968:87-92), and the different human-relations approaches exemplified by Mayo, Chapple, Roethlisberger, Warner and those persons associated with the Tavistock Institute (Mouzelis, 1968:97-112; Etzioni, 1964:32-41; Zalesnik, 1965:606-609) and the group dynamic view of Likert (1961) and his followers. Perhaps most distinctive in this line of development is the decision-making approach of Barnard, Simon, March and Cyert, to the social dimensions of human behavior in organizations (Mouzelis, 1968:120-142; Etzioni, 1964:29-31; Gross, 1964:31-32).

Common to all these views is a focus on the individual worker or work group whose actions, attitudes, and motives are to be manipulated in some way for the benefit of managerial and organizational goals. Essentially, whatever it may be called, this view of complex organizations is a social psychological one. Change and adaptation, planned or unplanned, is primarily thought of in terms of changes in individual behavior.

In contrast to this approach, at least in ideal type terms, is a second line of theoretical development concerning complex organizations. It has a focus on structural characteristics, particularly the phenomenon of bureaucracy.

Early major theorists in this tradition were Weber (1947), Marx (1909; Mouzelis, 1963:8-11) and Michels (1949; Mouzelis, 1963:26-27). The post-Weberian generation, with a somewhat more empirical orientation, includes such figures as Merton, Blau, Gouldner, Selznick and so on (Mouzelis, 1963:55-75).

In this tradition, complex organizations are seen as relatively unitary systems of collective action. The approach is essentially sociological rather than social psychological as can be seen in the classical characteristics Weber set forth as distinguishing a bureaucracy. He noted that this kind of complex organization is marked by administrative machinery; detailed, written rules and regulations; hierarchical character; specialization; and impersonal orientation. The bureaucratic model of organizations, of course, is the one most often used by sociologists in their research in this area.

However, there are some questions that can be raised about certain aspects of the model--particularly its utility in the handling of organizational change. In fact, the relative absence of research on changes in complex organizations might be partly attributed to the somewhat static and unitary model of organizational behavior that the concept of bureaucracy tends to imply. As Gouldner has noted, the natural-system version of this conception especially, "is based upon an underlying 'organismic' model which stresses the interdependence of the component parts." Thus, "changes are therefore expected to have ramifying consequences for the whole organizational system." The focus in studies of organizational change is consequently "on disruptions of organizational equilibrium, and particularly on the mechanisms by which equilibrium is homeostatically maintained." Emphasis is on how the organization as a whole attempts to adhere to its existing

structure (Gouldner, 1959:406).

Short-run changes or what might be called adaptations to immediate stress situations -- to the extent they are considered at all -- are seen as the consequences of the informal patterns of beliefs and interactions that exist even within highly formalized bureaucracies. Thus, it is possible to find remarks to the effect that there is a "defensive informal organization which tends to arise whenever there is an apparent threat to the integrity of the group" (Merton, 1957:201). That is, the informal structure is viewed as taking the place of the formal structure during a period of stress. In fact, the informal structure is sometimes defined as the patterns that develop when organizational participants face persistent problems not provided for by the formal system (Broom and Selznick, 1963:227). The emphasis is on how one structure substitutes for another, rather than on the creation of new patterns.

Drabek (1965:1-27) in his very comprehensive review of the literature cites a number of theoretical discussions of organizational stress, but notes that there are very few empirical studies. Even the theoretical literature is weak because of its inconsistent use of terms and its lack of propositions about conditions which may affect change. In a more recent statement Drabek (1969) comments on the need to develop a conceptual vocabulary for purposes of studying organizational stress. Since our own assessment of the state of the literature in this area is the same as Drabek's, this paper represents an attempt to go beyond the truism that organizations may change under stress and at the same time makes an effort to develop a scheme

for the analysis of organizational adaptation in times of crises.

Our field experiences at the Disaster Research Center at The Ohio State University in studying complex organizations under stress suggest: (1) that the formulation above about the role of the informal structure is an inadequate one, and (2) that the use of a typology of patterned variations in bureaucratic adaptations to stress is a more useful approach to the problem. While the Center has studied more than 100 conflict and consensus kinds of crisis situations (i.e., civil disturbances and natural disasters), we will draw examples here only from the latter category of emergencies, some 70 in number. For a variety of reasons, natural disasters evoke most clearly the range of bureaucratic organizational responses which we are interested in studying.

First, we are going to describe a specific bureaucratic organization, although not one usually examined in the sociological literature. Second, we will indicate what happened to it in a disaster, how as an organization it responded. Third, we shall present a typology of possible patterned variations in bureaucratic adaptations which seems to depict the organization's functioning more adequately than the notion of informal structure. Finally, we will conclude with a rather brief discussion of internal and external factors relevant to an organization's adaptation in stress situations such as disasters. Our overall intent is twofold: to set forth a more adequate way of looking at short-run change or organizational adaptation than is currently available and, to suggest some of the conditions in stress situations which not only may lead to structural and/or functional modifications but also which specify the directions that such adaptations may take.

### A Specific Example of De-Bureaucratization

Our initial example is a large metropolitan engineering department. In many cities it would be known as the public works organization. The Disaster Research Center intensively studied its response to the threat of a major flood. In normal or non-disaster periods this department displayed many of the characteristics of Weber's bureaucratic organization. It followed the principle of hierarchy in that it contained multiple levels, each higher level supervising a lower level. Employees were hired on the basis of technical qualifications which were determined by a civil service examination. Written job specifications clearly delineated the tasks associated with each position as well as its scope of authority. Rules and regulations were specified and rigid compliance to them was demanded. Interaction among members was specified by rules and kept on a functional rather than personal level. Organizational acts and decisions were recorded in writing. Clearly this engineering department closely exemplified Weber's bureaucratic model -- administrative machinery, detailed rules and regulations, hierarchical character, specialization, and impersonal orientation.

But what happens to a highly bureaucratic organization when a sudden and great number of demands are placed upon it? Does it maintain its bureaucratic structure? If it changes, is there a resort to the informal structure to meet the emergency problems facing the organization? Is the response a unitary one?

Our field data show that in general a de-bureaucratization process (Eisenstadt, 1959:302-320) occurs in which some new structures and functions



emerge. Furthermore, differential adaptations characterize different segments of the organization.

Because the engineering department's normal structure lacked sufficient flexibility to deal effectively with the demands it faced, it de-bureaucratized during the emergency period. Organization officials themselves, realized the shift from its normal state. This was reflected in their statements such as, "Our operation wasn't one that was nicely organized in a hierarchy and so forth."

The department ceased to be as autonomous as it had previously been. Although the administrative machinery still existed, it was often modified. For example, the chief engineer, whose normal duty was to head up the department, became liaison between the engineering department and other city agencies -- leaving his normal responsibilities to the assistant chief engineer. The hierarchical character of the department was changed. Several bureau heads were placed either higher or lower in the authority structure than was called for by the table of organization. Others were assigned either modified or completely new responsibilities. For example, the maintenance engineer was elevated above his cohorts and placed in charge of all field operations and general coordination. This placed him directly under the assistant chief and one level above the bureau heads. Also the tasks and scope of his authority were not clearly delineated, as they are in a tight bureaucratic organization. Engineering department officials felt they needed additional manpower. They hired 15 carpenters and several hundred off-the-street volunteers. In addition, elements of a civil defense unit worked under the engineering department as an integral part of it. As time was of the essence,

there were few attempts to determine the competence of new employees by the normal bureaucratic methods used in the organization (i.e., interviews and/or examinations).

An administrative core which informally developed took charge of disaster-related operations. The core consisted of personnel from several levels of the organization selected on the basis of their technical and/or leadership skills. Some of the core members had dual roles to perform -- they carried out their normal roles, as well as their new role of core member. For example, in addition to their normal tasks, two core members were placed in charge of purchasing all disaster supplies. They were given a free hand in ordering crucial equipment without written purchase orders or going through the normal chain of command. The department's purchasing division, which normally handles the ordering and securing of all supplies, did not become involved in the emergency operation at all. Another core member was asked to take a complete pictorial account of the engineering department's activities during the flood threat. This task was completely new to the organization.

Still other non-bureaucratic changes were incorporated by the organization to increase its efficiency in coping with the community threat. Administrative control over the organization still existed, but decision making was greatly modified. In normal times decisions from the top level down followed a prearranged procedure. But with the threat of flooding, the various levels within the department (especially the lower levels) became more autonomous -- making more decisions without consultation with higher officials. The chief engineer, for example, related the following:

I suppose there might have been more latitude ... than people had ordinarily because of the nature of their assignment. I'm thinking of the dike-patrol as an example. Ordinarily they might have been very closely supervised in their particular job, but here they were in fact on their own to a greater extent.

Also, most decisions were verbalized. For the time being, written records were kept to a minimum. In the words of one high ranking official, "I tried to impress on everyone that they should get as much of a written record as possible, but necessarily in the interest of time, a good many more verbal instructions were given."

#### Types of Adaptation

It is necessary to stress that in practically none of what we have described was it the informal structure that took the place of the formal structure. In the stress situation, prior friendship ties, implicit understandings, etc., were a factor in the behavior that occurred. They would explain some of the individual actions. However, what is important for our purpose is that the informal relationships and norms did not seem to substitute at the organizational level for the formal structure, when the organization adapted to the crisis.

Instead there was the partial emergence of new structures and functions. This is what the Disaster Research Center typically has found in its field studies of bureaucracies under extreme stress. Four different kinds of adaptation can be distinguished. These four patterned types are depicted in Figure 1 below. They are distinguished on the basis of a cross classification of the two key variables of structure and tasks (or functions). Different

variables could of course have been used but as Scott notes in his summary review of theories of organizations, a standard sociological approach takes "as its major concern...the structural features and social processes which characterize organizations (Scott, 1964:409). The typology itself was initially formulated at the Disaster Research Center for other purposes (Quarantelli, 1966:3-19), and has since been developed for a variety of lines of study (Dynes, 1969).

The first type of adaptation (Type I) to a crisis involves little change on the part of certain segments of the organization. It reflects continuity of the earlier bureaucratic patterns which existed prior to the crisis -- that is, the ongoing structure carrying out regular tasks. In our descriptive illustration, portions of the engineering department made very few structural changes and carried out their regular tasks. This included bureaus deeply involved in disaster-related activities, as well as bureaus which were not directly involved in the emergency. For example, the survey bureau worked as a unit surveying the various levels of the river and at other tasks which it frequently and regularly undertook in the past.

Type II adaptation involves a modification of the structure on the part of the organization, but a continuation of regular tasks. In our example, the maintenance bureau carried out familiar tasks during the emergency period, but altered its structure to accomplish them. For instance, the bureau changed its authority structure and created new positions. Intra-organizational personnel were relocated, and persons from outside the bureau were put into improvised positions. The bureau expanded greatly by taking on numerous volunteers off the street, carpenters from another organization,

and foremen from another bureau. In general, tasks familiar to the maintenance bureau were carried out by a greatly modified structure.

Type III adaptation refers to a change in tasks, but a continuation of the ongoing structure. In our example, several bureaus remained structurally intact, but undertook new tasks during the flood threat. For instance, the bureau of bridges is normally responsible for the investigation, design, and construction of new and remodeled bridges. However, during the emergency, it was assigned the task of designing a method of raising the flood wall. The bureau of sewers was assigned a new task during the emergency period -- that of manning the intra-organizational information center. Normally the bureau is responsible for the investigation of petitions for sewers, and for the design and specifications necessary for sewer construction, easements, and related orders. Also, as was mentioned earlier, a portion of a civil defense unit was incorporated within the structure of the engineering department to carry out the public information function for the department. These are only a few of the many illustrations which could be cited as Type III adaptations.

Finally, a Type IV adaptation refers to a modification in the organization's structure, as well as a change in its tasks. In the situation we are using as an example, the development of the administrative core, called an "emergency staff" by the chief engineer, was a case in point. Its structure was entirely new, consisting of new roles and, therefore, new rules and regulations governing its performances. Also, the combination of tasks carried out by it was different from those carried out previously by any unit in the department. Its major tasks were that of restructuring segments of the engineering department, forming new but very loose rules governing the

new structures, and coordinating in a very informal manner the functioning of the various subunits of the engineering department.

Although the focus of our attention in this paper has been on a particular engineering department in a specific disaster, data we have collected on several hundred bureaucratic organizations functioning in many different kinds of crises indicate the model is appropriate for analyzing a wide range of such complex groups. Stress kinds of situations may pose various problems for many community organizations. These organizations in whole or in part adapt in different ways in order to cope successfully with the demands placed upon them.

We have noticed in the community disasters that we have studied, that most bureaucratic organizations follow a similar sequence in their efforts to solve their problems. (Since our data were originally collected with other research objectives in mind, it would be misleading to state a more precise quantitative frequency of occurrence). Initially, they attempt to cope with the demands placed upon them by using their ongoing structure and carrying on their regular tasks (Type I adaptation). Those organizations finding they cannot cope with demands by using Type I adaptation alone, incorporate either a Type II or III mode. For example, an electric power company utilized Type II adaptation in an attempt to cope with a large power outage after a hurricane. It expanded the size of the organization tremendously by enlisting the help of numerous linemen throughout the state. Similarly, the structure of a hospital was drastically affected because of a large influx of patients at the emergency room after a tornado. Many doctors and nurses dropped their routine activity and turned their efforts to

the emergency room. Although the hospital's disaster plan specified certain structural changes to be implemented in case of an emergency, the plan was quite inadequate for that particular situation.

On the other hand, a church school which operated a shelter for refugees during a flood incorporated Type III adaptation. It used its ongoing structure, but engaged in radically different tasks from those to which it was accustomed. Finally, if an organization fails to meet the demands placed upon it using the first three adaptive modes, it may incorporate Type IV. But this type tends to be used only as a last resort; that is, only after Types I, II and III modes of response have proved insufficient.

#### Factors Affecting Adaptation

This paper has so far illustrated the different patterns a bureaucratic organization can exhibit in its response to a stress situation. This has been the major intent. But while a depiction of types of patterned variation in bureaucratic adaptations to organizational stress is useful, it falls somewhat short of being a full analytical model. The model ought to be able to predict why one pattern or combination of patterns would develop in certain situations and a different pattern or combination in other contexts. In the rest of the paper we will very briefly suggest some of the internal and external factors involved that affect the mode of adaptation. Our intent of course is to suggest conditions associated with the direction of organizational adaptation and not merely that structure and/or function may be altered under stress. It should go without saying that the examples used, while actual ones, are illustrative and are not intended to convey necessarily established propositions about the particular kinds of bureaucracies

mentioned in the discussion.

Our data have shown that at least four internal factors affect an organization's adaptation to stress.

First, the nature of demands as perceived by organizational personnel, especially by decision-makers, can influence the type of adaptation which a bureaucracy may make in a given situation. These demands can differ quantitatively and/or qualitatively from the normal. If organizational officials believe they can meet the demands, they will tend to use a Type I response; however, if the demands are defined as too great, modification in either structure or tasks will be attempted. For example, after a major explosion a hospital emergency room was faced with having to care for 120 injured persons in less than two hours. Although no new tasks were undertaken, hospital officials had to alter the structure of the emergency room staff to cope with the increased demands (Type II adaptation). However, the more the perceived demands are seen as overwhelming, the more likely a move in the direction of a Type IV adaptation.

What are or are not perceived as demands is partly dependent of course on the general overall goal orientation of the organization. Thus, many governmental agencies, whether at the city, county or state level are "adaptation" oriented in the sense that they are by charter, tradition and role conception of key personnel, seen and see themselves as having certain responsibilities in times of major community crises. Other bureaucratic groups, such private corporations of business firms seldom have such an orientation. Consequently, the latter kinds of organizations are rarely likely to perceive any demands imposed on them, unless they are very directly affected by the crisis.



Unlike adaptation oriented organizations which react directly to disaster related problems, these private groups often simply cease to function for the duration of the emergency.

Second, the organizational response is clearly dependent on the particular bureaucratic structure in question, especially how it is differentiated and stratified. Bureaucratic organizations differ greatly among themselves in their division of labor and authority systems. For instance, police department subunits usually function much more autonomously than those of fire departments. It is not surprising to note, therefore, that in a large city after a disaster different police subunits, in the radio communications room and in the field, showed considerable Type III adaptations. In general, the greater the degree of internal autonomy within an organization, the more likely functions or tasks of the subunits will be altered before their structures are modified in the face of stress.

In addition, any ongoing inconsistencies or discrepancies between structural elements of a bureaucracy can influence its later adaptive mode. For instance, organizational strain is often found in hospitals between administrators and physicians; the former are geared to business matters while the latter are more interested in patient care. Although such structural friction generated by the two differing orientations can generally be overlooked during normal times, it often becomes problematic in an emergency. Thus, hospitals as a whole usually seem to modify their structure under severe stress but maintain their predefined tasks (Type II adaptation).

Third, the emergency capability of the organization can affect the mode of adaptation. It is not just the organization's capability in general but

rather than that which is relevant to emergency operations. This capability can take at least three forms. Some complex organizations maintain stand-by secondary groups for handling routine but unscheduled difficulties. Perhaps the public works department and utilities provide the best examples. Each of these organizations has stand-by emergency crews which are summoned whenever a given public service is routinely interrupted. Disaster planning is also an important aspect of an organization's capability. For instance, many emergency organizations prior to the 1966 Topeka, Kansas tornado had developed extensive tornado warning procedures. These were put in operation when the city was threatened. Finally, the possession and availability of technological resources relevant for emergency use is a crucial aspect of an organization's capability. Many city agencies such as police departments keep emergency electric generators in reserve in the event of difficulty with the power supply. Disaster plans, in fact, often assume the availability or convertibility of certain organizational resources for emergency use.

To the extent that a bureaucracy is able to maintain or increase its emergency capability -- other things being equal -- it can be expected to retain a Type I response. However, if an organization loses a portion of its capability, it has to adapt. It can alter its structure in order to carry out its tasks (Type II adaptation) or it might modify its tasks (Type III adaptation). For example, when Hurricane Betsy hit a major metropolitan center, the local telephone company unexpectedly lost many trucks and much equipment in high water, forcing it to delay the carrying out of certain organizational tasks until the resources could be replaced.

Fourth, the perceived effectiveness and efficiency of the emergency

response may affect the mode of adaptation. For example, during a recent tornado, the medical staff of one hospital felt that they could not effectively handle the large number of persons being admitted, and therefore started sending them to hospitals in another city. It was the perceived rather than the actual effectiveness which led hospital officials to make the decision. In general, the greater the weight placed by organizational personnel on efficiency and effectiveness, the more likely a shift to a non-Type I adaptive mode.

These four internal organizational factors we have illustrated -- perceived demands, nature of the bureaucratic structure, emergency capability, and perceived effectiveness and efficiency -- affect the way in which given organizations will adapt to large-scale stress. However, organizations do not function in isolation but rather in a larger context in which certain external factors influence the adaptive response followed. We would like to suggest five of them.

First, situational factors are important. This has reference to events occurring or existing just prior to a stress situation which alter the consequent resources available to an organization, but which are not a regular part of the external capability normally available to the organization. For example, when the Alaskan earthquake occurred, the National Guard happened to be in encampment in the Anchorage, Alaska area. This provided a significant external resource for the city police that would normally have not been available. It allowed them to maintain a Type I response which, given the demands of the stress situation, might otherwise have been impossible.

Second, the space-time (or ecological) dimension seems important in any

explanatory scheme about organizational response. The time of onset, for instance, is frequently crucial. It is often related to the level and kinds of demands made on an organization as well as the capability that the organization can muster. For example, the Palm Sunday tornadoes of 1965 caught many organizations with minimum staffs on hand. The absence of personnel, dictated more by the timing of the disaster than the lack of manpower as such in most groups, precluded a Type I adaptation to the emergency.

Third, organizational response is also highly dependent on the nature of the inter-organizational relationships in the community under stress. Organizations do not operate in a social vacuum. In varying degrees they have ties and links of various kinds with other groups that restrict and/or assist their own activities. Both the pre- and post-emergency set of relationships can be important. For example, after a tornado hit one community, several municipal groups were able to meet some of the disaster-created demands that came to their attention in the emergency period because Air Force units in a neighboring air base with close relationships with the city provided help. The pre-crisis inter-organizational ties were a source for external resources which created less pressure for a Type II or Type III response.

Fourth, even more important in affecting organizational response is the community context. Every organization exists in some setting but the contextual conduciveness can change with different stress situations. A community can be viewed as a social system that acts in a collective fashion to solve certain problems. In any given locality, a division of labor develops to cope with day-to-day problems. However, some communities have a rich array of organizations serving a variety of functions necessary in a stress situation.

Other areas are characterized by organizational "poverty." In the latter kinds of situations, Type IV responses would seem more likely.

Finally, the societal context in which bureaucracies respond to a large-scale emergency clearly is an important factor. The differences stand out vividly when complex group reactions to disasters are examined in a cross-cultural context. For example, in societies such as Chile, Greece or Japan where national organizations are highly centralized, the response is different from that occurring in the United States where community subunits of even national organizations may have considerable local autonomy. Type IV organizational modes of adaptation are, everything else being equal, less likely in highly centralized social systems.

#### Future Research

We have presented a conceptual model of bureaucratic adaptation to stress, and have suggested some factors that might account for variations in the patterns of adaptation. If both the relevant internal and external factors were ascertained, it clearly would be possible not only to describe the structure and functioning of bureaucratic organizations, but also to predict the type of adaptations to be expected in a given stress situation. To move further in this direction, it will be necessary to understand better the process of modification that occurs in bureaucratic structures and functions. For example, how does a new task or function come to be seen as a legitimate undertaking of a part of the organization? What are the upper limits in increase of personnel (for instance, through volunteers) before intra-organizational boundaries or the internal structure has to be changed? Or, by what specific process does a Type IV group emerge that is both new (i.e., has a new structure

and new functions) and yet continues to be an integral part of the overall bureaucratic organization? These and similar questions that could be raised all suggest the need for more research in the direction of obtaining additional, detailed descriptions and making specific analyses of the dynamic aspects of adaptation.

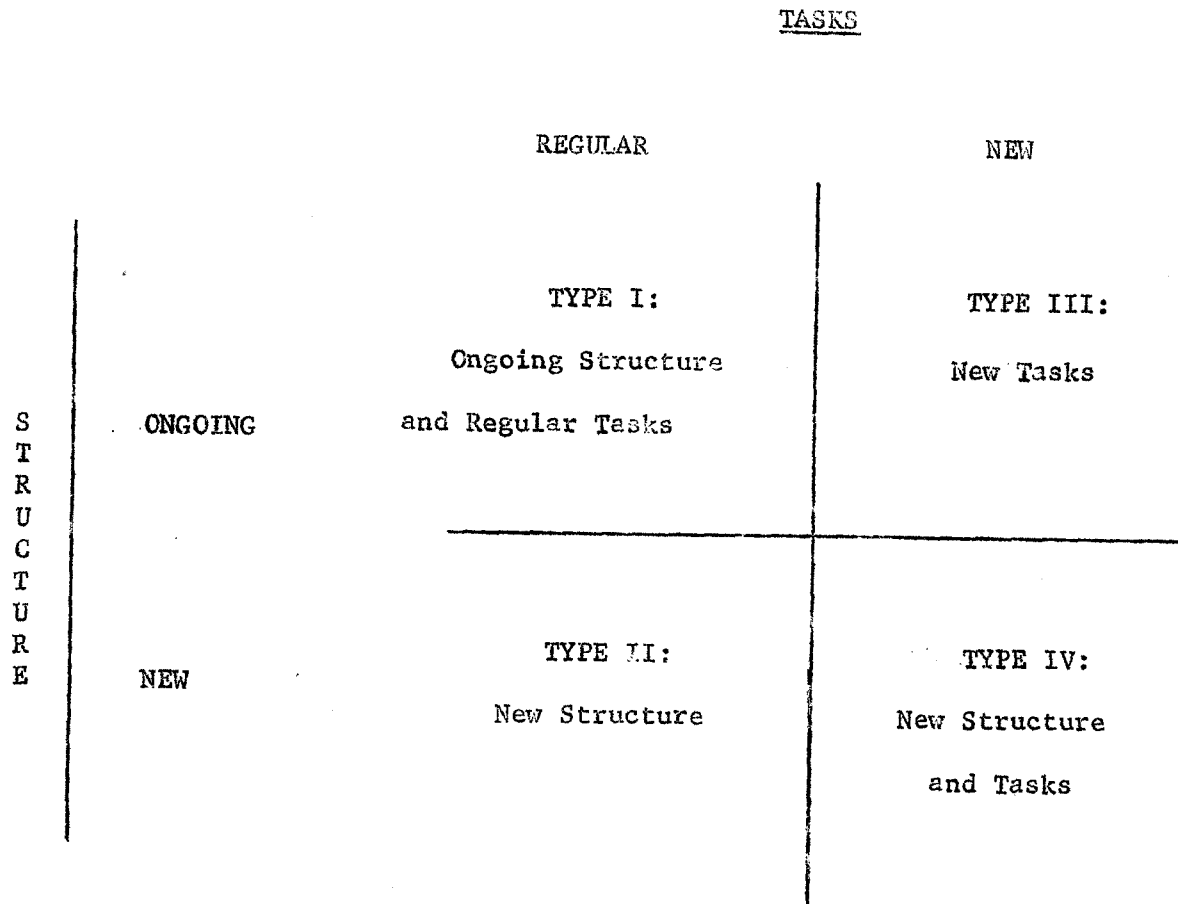
The conditions which may affect bureaucratic adaptation have been set forth in an almost single variate kind of framework. For purposes of listing relevant factors and illustrating their importance, this is a defensible procedure. In fact, further case studies are probably necessary to ascertain if all the important conditions have been identified. However, in actuality conditions are not only multiple by synergistic, i.e., interacting with one another. Multi-variate and stochastic kinds of studies would thus seem necessary eventually if not at present. For that kind of research, Heydebrand (1967) has suggested some seemingly useful sampling procedures and analytical techniques.

Most of our observations come from analyses of both semi-structured field interviews with high organizational officials and documentary sources such as after action reports, disaster plans and organizational logs and other records. Such data in future research should be gathered and analyzed in ways that lend themselves to more systematic quantification (as the Disaster Research Center itself is currently doing). In addition, since the organization as organization is a basic unit of analysis, the collective kind of data most useful for this kind of research as discussed by Barton (1961:1-5) should be particularly sought.

The adaptive model has been derived from the study of bureaucratic

organizations. Whether non-bureaucratic organizations can be analyzed in the same fashion is yet to be ascertained. Some of the Center's other research indicates that all groupings can be analyzed in the same general framework (Dynes and Quarantelli, 1968). But further study is still needed to demonstrate if the adaptive model is really adequate for all groups or if, as suggested by Heydebrand (1967:82), different models are necessary to describe and to predict correctly the structure and functioning of non-bureaucratic organizations in stress situations.

Figure 1. -- Patterns of Bureaucratic Adaptation



Continued on next page



## REFERENCES

- Barton, Allen H.  
1961 Organizational Measurement and its Bearing on the Study of College Environments. New York: College Entrance Examination Board.
- Broom, Leonard, and Philip Selznick  
1963 Sociology. (3rd ed.) New York: Harper and Row.
- Drabek, Thomas E.  
1965 "Laboratory Simulation of a Police Communication System Under Stress." Unpublished Ph.D. dissertation, The Ohio State University.  
  
1969 Theory and Methods in the Study of Organizational Stress. Denver: University of Colorado Department of Sociology.
- Dynes, Russell R.  
1969 Organized Behavior in Disasters: Analysis and Conceptualization. Columbus: Disaster Research Center Ohio State University.
- Dynes, Russell R. and E. L. Quarantelli  
1968 "Group behavior under stress: A required convergence of organizational and collective behavior perspectives." Sociology and Social Research 52:416-429.
- Eisenstadt, S. N.  
1959 "Bureaucracy, bureaucratization and debureaucratization." Administrative Science Quarterly 4 :302-320.
- Etzioni, Amitai  
1964 Modern Organizations. Englewood Cliffs, New Jersey: Prentice-Hall.
- Gouldner, Alvin W.  
1959 "Organizational analysis." Pp. 400-428 in Robert K. Merton et al. (eds.), Sociology Today. New York: Basic Books.
- Gross, Edward  
1964 "Industrial relations." Pp. 619-679 in Robert E. L. Faris (ed.), Handbook of Modern Sociology. Chicago: Rand McNally.
- Heydebrand, Wolf V.  
1967 "The study of organizations." Social Science Information 6 (October) :59-86.

- Likert, Rensis  
1961           New Patterns of Management. New York: McGraw-Hill.
- March, James G., and Herbert A. Simon  
1966           Organizations. New York: Wiley.
- Marx, Karl.  
1909           Capital: A Critique of Political Economy. Chicago:  
Charles H. Kerr.
- Massie, Joseph L.  
1965           "Management theory." Pp. 387-422 in James G. March (ed.),  
Handbook of Organizations. Chicago: Rand McNally.
- Merton, Robert K.  
1957           Social Theory and Social Structure. Glencoe, Illinois:  
The Free Press.
- Michels, Robert  
1949           Political Parties. Glencoe, Illinois: The Free Press.
- Mouzelis, Nicos P.  
1968           Organization and Bureaucracy: An Analysis of Modern  
Theories. Chicago: Aldine.
- Quarantelli, E. L.  
1966           "Organization under stress." Pp. 3-19 in Robert C.  
Bricton (ed.), Symposium on Emergency Operations.  
Santa Monica: System Development Corporation.
- Scott, Richard W.  
1964           "Theories of Organizations." Pp. 485-529 in Robert E.  
Faris (ed.), Handbook of Modern Sociology. Chicago:  
Rand McNally.
- Weber, Max  
1947           The Theory of Social and Economic Organization.  
Translated by A. M. Henderson and T. Parsons, Glencoe,  
Illinois: The Free Press.
- Zaleznik, Abraham  
1965           "Interpersonal relations in organizations." Pp. 574-613  
in James G. March (ed.), Handbook of Organizations.  
Chicago: Rand McNally.