THE SPREAD OF THE MULTIDIVISIONAL FORM AMONG LARGE FIRMS, 1919–1979*

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The multidivisional form is the favored form of organization for the large firms that dominate the American economy. This study takes up the causes of the dissemination of that form among large firms from 1919 to 1979. Five theories are initially proposed as possible explanations for the changes observed and these theories are operationalized and tested. The model that seems most consistent with the data emphasizes the ability of key actors to alter structure under three circumstances: when the firm has a product-related or -unrelated strategy (which is consistent with Chandler's [1962] theorizing); when the corporate presidents have a background in sales or finance; and when other firms in the industry alter their structures. The implications of these results for theories of organizational change are discussed with special reference to the importance of conceiving how actors operate with varying rationalities in this process.

The multidivisional form is one of the most frequently studied organizational structures (Chandler, 1962; Rumelt, 1974; Williamson, 1975; Armour and Teece, 1979). It is an important object of study as it is the preferred organizational form for the large firms that dominate the American economy (see Table 2). While social scientists of many disciplines have all considered the multidivisional form, there have been few systematic quantitative attempts to understand the organizational processes that have generated its dissemination.[1] It is the purpose of this paper to apply recent theorizing about organizational change, in general, and the forces that have allegedly operated to produce the multidivisional form, in particular, to give a theoretical and quantitative account of the spread of the multidivisional form.

Five theories of organizational change are utilized to help explain the genesis of the multidivisional form: (1) strategy-structure (Chandler, 1956, 1962); (2) transaction cost analysis (Williamson, 1975; Williamson and Ouchi, 1981); (3) population-ecology theory (Hannan and Freeman, 1977, 1984); (4) control theory based on power (Karpik, 1978; Pfeffer, 1981; Perrow, 1970, 1981); and (5) organizational-homogeneity theory (DiMaggio and Powell, 1983). Each theory will be developed with respect to its use as an explanation of the multidivisional form. Then, the theories will be critically analyzed in order to reveal issues that fundamentally differ across theories. Finally, multivariate models based on the experiences of the 100 largest industrial enterprises from 1919 to 1979 are presented to test the efficacy of theories concerning the adoption of the multidivisional form.

The study of complex organizations has led to a plethora of theories, concepts, and approaches (Pfeffer, 1982). Yet, each school of thought has tended to view its theory as a total causal explanation of organizational phenomena. This suggests that one of the central tasks in organizational theory is to reorient the field in such a way as to view competing theories as contributing to an understanding of organizational phenomena. It is probable that the object of study is sufficiently difficult that different theoretical perspectives are useful in understanding organizations, and at varying historical moments different theories may come into play in order to explain relevant phenomena. The multidivisional form is an important substantive example of organizational change. If the theories of such change are to prove useful, then they should allow us to explain the dissemination of this important orga-

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[1] Chandler's work is mainly historical and limited to a small number of cases. Williamson has focused on one theoretical interpretation of the MDF. Rumelt (1974) and others have accepted Chandler's interpretation and provided mainly descriptive patterns. There has been little sustained quantitative analysis of the adoption of the multidivisional form.

nizational innovation. This is not to say that the differences between these theories are small. In fact, the theories are based on quite different assumptions about the power, constraints, and rationality of key actors in large organizations. What can be done is to attempt to apply these theories and specify the conditions under which the assumptions underlying the theories are more or less consistent with the data.

THEORIES EXPLAINING THE MULTIDIVISIONAL FORM

Corporate structure refers to the design of the organization and it includes the lines of communication and authority between administrative offices as well as the information that flows between them (Chandler, 1962:14).[2] There are obviously many ways to classify or describe organizational forms. A five-fold distinction is utilized here: unitary, functional, geographical, holding company, and multidivisional forms (Rumelt, 1974).[3] Each of these describes the relationship between a central office and its various subunits.

The unitary form implies an organization divided into manufacturing, sales and marketing, and finance departments. Functional organization implies departmentalization along discrete task lines. An example is oil companies, which were often organized into drilling, shipping, refining, and retail departments which reflect the flow of the product through various stages. Geographical forms reflect businesses demarcated into departments along geographical divisions. Holding companies are legal devices whereby small central offices act as portfolio managers, while each subunit is operated independently. The multidivisional form (hereafter MDF) is a decentralized management structure. Firms are organized into product divisions and each division contains a unitary structure. There also exists a central office where long-range planning and financial allocations are located. These are, of course, ideal-typical descriptions and some firms contain multiple structures, for instance, functional and divisional or geographic and divisional.

Alfred Chandler's seminal work, *Strategy and Structure* (1962), uses historical materials to show the dynamic interplay between important actors (managers) and the social structures in which they operate (corporations). The central thesis revolves around the concepts of organizational strategy and structure. Strategy is defined as "the determination of the long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out those goals" (Chandler, 1962:13). Chandler identifies three basic strategies: horizontal; vertical; and diversification (of which there are two types, product related and unrelated). A horizontal strategy implies growth in markets which can be local, national, or multinational. A vertical strategy implies absorbing functions that are either backwards toward suppliers or forwards toward ultimate consumers. Diversification is the decision to enter into related or unrelated markets. Chandler's thesis is that a horizontal strategy produces a unitary structure, while a vertical strategy produces a functional structure. Finally, the decision to enter into related or unrelated product lines produces the multidivisional structure.

Two historical questions that Chandler attempts to answer are (1) why did the product-related and -unrelated strategies occur in the first place, and (2) how then did the MDF emerge? His answer to the first question is that entrepreneurs responded to changing market conditions "created by changing population, income, and technology, to employ existing or expanding resources more profitably" (Chandler, 1962:15). Chandler argues that firms in certain industries were more likely to choose diversification strategies because those industries involved technologies which led naturally to related and unrelated products. For example, DuPont began as an explosives manufacturer. Because that was a cyclical business, DuPont began to diversify into products that utilized similar chemical technologies, i.e., paint and fertilizer. From this point of view, firms in electrical equipment, machinery, automobile, and food industries were more likely to adopt diversification strategies, while firms in metalmining, steelmaking and petroleum would be more likely to integrate vertically.

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[2] In this paper, attention is restricted to the activities of the 100 largest industrial enterprises. Chandler (1962:8) defines an industrial enterprise as "a large private profit-oriented business firm involved in the handling of goods in some or all of the successive industrial processes from the procurement of the raw material to the sale to the ultimate customer." This definition excludes firms involved in transportation, utilities, finance, real estate, and insurance. It includes firms involved in wholesale, retail, mining, and manufacturing. This definition of the population forms the basis of Chandler's definition as well as the list of the 100 largest firms used in this study (Collins and Preston, 1961).

[3] Organizational forms can be defined in terms of technology (Blauner, 1964; Woodward, 1965), levels and amount of bureaucratization (Blau and Scott, 1962; Pugh et al., 1968), and openness to the environment (Lawrence and Lorsch, 1967). This listing does not exhaust the possibilities of classification.

Once diversification strategies are chosen, then the organizational issue becomes coordination of multiple product lines. Chandler argues that the unitary/functional structure was not a good mechanism to control multiple products as it became difficult for top executives to keep track of the diversified product lines. Firms attempted to deal with these strategy shifts within their administrative structures. When this failed, certain firms changed structures and invented the MDF.

Oliver Williamson's recent work on understanding the economics of organization relies on three related concepts: transaction costs, bounded rationality, and opportunism. Williamson maintains that transaction costs, which he defines as the cost of performing an economic exchange, are the key to understanding economic life. Individual actors are viewed as constrained by what they know and their ability to process their knowledge; hence their behavior is bounded rational (see Simon, 1957). Opportunism extends the neoclassical model of man by arguing that individuals do not just act out of self-interest; they act with guile. Because of this, they may act to promote their own interests and work against the interests of the firm. Williamson argues that firms choose alternatively to contract activities to markets or build hierarchies to perform the same tasks. Hierarchies come into existence when the costs of transacting with the market are high, the market may be unstable or uncertain, or the actors in the market may be opportunistic (this is also referred to as the market failures approach).

Williamson (1975: Ch. 8) explicitly theorizes on the MDF. His argument is that continuous expansion of the unitary/functional structure creates "cumulative 'control loss' effects, which have internal efficiency consequences" (Williamson, 1975:133). As size increases, actors reach their limits of control due to bounded rationality. Opportunism is therefore more likely to occur within the organization, and organizational efficiency and profitability are threatened. By reproducing the organization within divisions (i.e., the MDF), the problems of control are resolved and the continued growth of the organization is possible.

Based on their view of population-ecology theory, Hannan and Freeman (1984) make a number of assertions about the link between organizational niche, age, inertia, and the possibility of organizational change.[4] Their perspective argues that "adaptation of organizational structures occurs principally at the population level" (Hannan and Freeman, 1984:149). This is because once an organization comes to occupy a niche, it will move toward the state Hannan and Freeman call structural inertia. Organizations tend toward this state as they are selected by their environments to survive because of their "high reliability of performance and high levels of accoantability" (Hannan and Freeman, 1984:154). The major cause of structural inertia is that organizational structures must be "highly reproducible" (Hannan and Freeman, 1984:154) in order to be able to perform reliably. As a result, as organizations age, they are presumably performing reliably and tend toward structural inertia. Further, as organizations grow, the potential costs of organizational change also imply structural inertia since large organizations face greater risks in making changes.

While the MDF is never a direct focus of their theorizing, one could surmise that organizational changes like the MDF would occur "through the creation of new organizations and organizational forms and the replacement of old ones" (Hannan and Freeman, 1984:150). While Hannan and Freeman's argument mainly concerns selection, this study will focus on the adoption of the MDF. Insofar as the Hannan-Freeman argument is applicable to the MDF, one would expect that younger and smaller firms would be more likely to adopt the MDF than older and larger ones.

The power perspective utilized here has many sources (Zald, 1970a, 1970b; Walmsley and Zald, 1973; Hickson et al., 1971; Hinings et al., 1974; Pfeffer and Salancik, 1978; Perrow, 1970, 1972; Pfeffer, 1981). Pfeffer (1981) has argued that organizations must allocate scarce resources, and it is not always apparent as to what might be the optimal mechanism for such allocation. Hence, power enters into all important organizational decisions and must rest on some structural claim over resources. Actors must have a base of operations whereby they can make claims on the directions of the organization. These claims could be generated from the control of valued resources such as capital, information, organization, and outside ties.

Perrow has elaborated this argument in the context of a small sample of firms. He presents evidence that sales and marketing personnel are regarded as dominant and argues that this is due to the "strategic position sales personnel occupy with respect to the environment" (Perrow, 1970:82). His argument is that in the context of profit-making firms, once manufacturing is routinized, the key issue becomes sales and marketing. This is because the continued oper-

[4] There are alternative population-ecology points of view (see especially Aldrich, 1979). They emphasize adaptation to environments as much as selection mechanisms. What is said here does not directly pertain to such views.

ation of the organization will depend on finding consumers for the output. The structural basis for power, in this instance, is outside ties and the ability to control how much is sold.

Recently, Fligstein (1985) has argued that in different historical periods, different departments are likely to control large firms for different reasons. In the early part of this century, entrepreneurs and manufacturing personnel controlled large firms because they were capable of coordinating large-scale production processes. This assertion is based on evidence that many of the large firms formed in the turn-of-the-century merger movement were not successful (Moody, 1909; Kolko, 1963). These firms failed because they were unable to control the market and more importantly, they were unable to control the newly formed large organizations. The individuals in the organization who could claim to solve the coordination problem were those persons who initially started the firm (i.e., entrepreneurs) or those persons who had intimate knowledge of the production process (i.e., manufacturing personnel).

Once production is routinized, power shifts to sales and marketing personnel as the key issue for the organization becomes growth. Here, the argument is similar to Perrow (1970). A sales and marketing strategy focuses on attempting to broaden the firm's market by expanding across regions and countries. It also produces a product-related strategy as an avenue of growth.

The dominance of sales personnel in large firms was undermined by two phenomena: (1) government concern with increasing concentration in product lines, which resulted in the Celler-Kefauver Act of 1950 (Stigler, 1961; Adelman, 1962); and (2) a shift to product-unrelated and merger strategies for growth (i.e., conglomerates). In the late 1940s, there was an increased concern with concentration and mergers in large firms. The Celler-Kefauver Act provided a mechanism whereby firms were forced to stop pursuing strategies oriented toward increasing market share or vertical integration. The Supreme Court upheld the legality of the Celler-Kefauver Act, and firms turned to product-related and -unrelated strategies. The emergence of conglomerates and the possibility of enormous growth through mergers further affected business strategies in the early 1960s. Finance departments are natural heirs to power in this kind of situation because investment decisions are made primarily on financial criteria. This is because firms have little expertise in evaluating product lines that are quite different from their primary lines. The only persons in the organization who can make claims to evaluate such purchases are those who have a criterion of evaluation, and finance personnel are in that position. Fligstein (1985) presents a multivariate analysis consistent with this presentation.

From the power perspective, the MDF would result from the acts of certain key actors whose strategic bases of power are consistent with the MDF. Since the MDF could be viewed as a mechanism which allows for growth through product-related and -unrelated strategies, its implementation would be favored by those who stood to gain the most from those strategies, i.e., sales and marketing, and finance personnel.[5]

DiMaggio and Powell (1983) have argued that large organizations are likely to come to resemble one another due to three kinds of pressures in their environments. First, organizations may be forced to conform structurally because of the cultural expectations of competitors, suppliers, or the state. Second, when organizations face uncertainty in the environment, they may self-consciously mimic other, more successful, organizations. Finally, the professionalization of managers tends to create a particular world view of appropriate organizational behavior. This could act as a force to produce organizational homogeneity.

The MDF spreads to various organizations as a response to other firms' behavior. The examples of successful firms such as DuPont or General Motors provided the role models for other firms. The MDF has also become the accepted form for large firms. Business schools have taught the MDF as an important organizational tool, and managers have come to implement it.

THEORETICAL REFLECTIONS

The five theories reviewed here all imply a causal model whereby the spread of the MDF might be understood historically and theoretically. The intent here is to highlight how these theories view organizational change differently and to move toward a useful test of these different views.

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[5] There is an important ambiguity in power theory. The basic problem is one of detecting the causal link between internal/external problems and the ability of key actors to control solutions. Put another way, do finance and sales personnel come to power because of the implementation of certain strategies or do they come to power and cause strategic and structural shifts? Obviously, both phenomena could be occurring to some degree. It is of some interest to pursue this question, but it is beyond the analysis of this paper. Here, attention is restricted to the effect of various actors on subsequent structural shifts.

Each theory presupposes actors in organizations who perceive their environments and the internal organization of the firm and then are capable of acting on their interpretations. Note that at this level of abstraction such an understanding does not presuppose efficiency or functional necessity as the ultimate criterion of action.[6] The theories differ in two respects: (1) the importance of different causal factors in organizational change; and (2) the motivations and abilities of key actors to affect organizational change. The differing emphases on various mechanisms of organizational change can be most easily resolved through empirical observation. It is probable that a variety of sources of organizational change exist and these sources may vary in their effects under different circumstances.

The second issue has two components: (1) the amount of constraint actors experience; and (2) the model of action presupposed. Hannan and Freeman view the role of actors as highly constrained, while the other views argue that actors perceive their environments and their organizations and are able to act to affect change. To be fair, Hannan and Freeman do not argue that no organizational change will occur, only that the rate of innovation will lessen as firms age and grow. The other theories imply that strategy, size, power, and the strategies and structures of other firms will cause the diffusion of organizational innovations in spite of tendencies toward structural inertia. As Hannan and Freeman (1984:162) suggest, it is to some degree an empirical question whether their view of population-ecology theory, which emphasizes selection over adaptation, or the other theories are more plausible accounts.

The other dimension of this issue concerns the actual ability of actors to interpret the internal and external environments and to alter organizational structures. The best way to view this issue is to place the concerns of Williamson and Chandler on one side and the views of DiMaggio and Powell and the power perspective on the other (for an extended version of this debate, see the exchange in Van de Ven and Joyce, 1981).

Chandler and Williamson assume that organizational change in large profit-making firms will result from the organizational priority to make a profit. Chandler explicitly argues that market conditions produce product-related and -unrelated strategies. Organizations adjust to markets in order to maximize profits and find that the strategy produces structural difficulties. Once key actors recognize these organizational problems, they locate solutions to return the firm once again to the path of profit maximization. Williamson believes he adds to Chandler's theory in the sense that he provides the internal structural mechanism (i.e., cumulative-loss control) by which organizational change becomes necessary.[7]

The power and organizational-homogeneity perspectives offer an alternative view of decision making in large firms. Both posit actors who operate in murky environments in which it may not be clear to the key actors in the organization what is an optimal course of action. These actors must selectively interpret the environment and the internal organization, and they must have the power to act to alter the organization. To the degree that organizational change is problematic adjustment to market conditions, organizational-homogeneity theory and an intraorganizational theory of power are necessary components of an explanation of organizational change. This is not to say that in the case of profit-making firms, market conditions do not affect organizational change. It is only to say that there is also the possibility that organizational change has other sources.

An appropriate test of these various theories would test the assumptions of the various models. It has been argued that organizational change will result when key actors with power come to interpret either intra- or interorganizational problems. Organizational stability would result from perceiving that the organization was working, or that the actors were sufficiently constrained in their actions that change was improbable. Organizational change would result from perceived organizational inefficiencies to attain corporate strategies and/or the power to interpret the environment, or the internal organization of the firm in order to bring about ends consistent with that view.

It is possible now to take up the diffusion of the MDF among large firms as the favored organizational structure. The time frame of this study is 1919–1979. These dates were utilized

[6] The issues of efficiency and rationality have plagued organizational theory since its inception. In the past 15 years, organizational theorists have consistently moved away from models of rationality toward models emphasizing culture, the lack of linkage between organizational goals and their implementation, and the problems of internal coalitions and power struggles (see Pfeffer, 1982, for a review). The position taken here is that both rational and nonrational processes are occurring, but both will require actors to interpret the internal and external environment and have the power to act.

[7] Williamson and Chandler differ mainly in terms of what is the primary cause of the MDF. Chandler argues that strategy is the critical issue because size per se (and hence control loss effects) does not produce the MDF. The MDF is a solution to a coordination problem produced by multiple products, not large size (Chandler, 1981).

in order to begin the study before the existence of the MDF and to consider a long enough time frame to allow for a large amount of diffusion of the MDF. The era is divided into three periods for discussion: 1919–1939; 1939–1959; and 1959–1979. These dates are partially arbitrary and are chosen to match the sources used to generate the data.

In the earliest period, firms that made the transition to the MDF would have to be the innovators of the new organizational form. From the theories previously reviewed, one might expect that firms that made the transition first would be those with a product-related strategy. Firms directed by sales and marketing or finance personnel would also be more likely to adopt the MDF than firms directed by manufacturing personnel or entrepreneurs. If Hannan and Freeman are right, then the innovators will be younger and smaller firms since the older and larger firms would be more constrained in their abilities to innovate. If Williamson is correct, then rapid growth should precipitate the acceptance of the MDF.

The 1939–1959 period is important in two respects. It is the first era in which one could expect mimetic effects as a cause of the spread of the MDF, and it is the period of the greatest domination of large firms by sales personnel (Fligstein, 1985). By 1939, a small but growing number of large firms had adopted the MDF, and they could serve as role models for other firms (see Table 2). Product-related strategies were also spreading, and the domination of large firms by sales and marketing personnel was both a cause and consequence of those strategies. Thus, firms headed by sales and marketing and finance personnel or with a product-related strategy would be most likely to make the transition to the MDF. From the Hannan and Freeman point of view, size and age would again be negatively related to such organizational innovation, while rapid organizational growth would cause control loss problems and produce a shift to the MDF.

In the most recent period (1959–1979), the emergence of finance personnel, the financial strategy of related and unrelated product lines and the use of merger to achieve growth would all affect the adoption of the MDF. Mimetic effects would also be expected in this latter era. Again, these changes would be expected in younger and smaller firms. If Williamson's mechanism of rapid growth as the impetus for switching to the MDF is correct, then this will also be a factor in this era.

DATA AND MEASUREMENT

The data for this project come from a variety of sources. Given the long time frame, there are serious problems of data comparability and measurement. Much of the measurement required coders to make judgments, and many of those judgments were further reduced to crude levels of classification. It is possible that these measurement problems invalidate this study, and readers should proceed with healthy skepticism. Still, many of the results were quite strong and this lends some predictive validity to the measures.

The lists of the 100 largest firms by asset size at each time point are taken from Collins and Preston (1961) for the years 1919–1948 and Fortune Magazine (1960, 1970, 1980) for the years 1959–1979.[8] The lists were made compatible by including certain retail and entertainment firms, like Sears and 20th Century Fox, on the Fortune lists. Strictly speaking, the lists represent the 100 largest nonfinancial corporations in terms of assets at each time point.[9] This definition is broader than the Fortune definition, which requires that a firm be engaged in manufacturing for at least 50 percent of its revenue. The broader definition was chosen by Collins and Preston, who used it to construct their list, and it appears to be more compatible with Chandler's definition of an industrial enterprise. It proved easier to find data on the largest nonfinancial corporations by starting from the Fortune lists rather than attempting to construct the Fortune definition back to 1919.

The data have the following structure. For every firm that appears, data were collected for the time point before the firm entered the list, if the firm enters after 1919, and for the time point after the firm left the list, if the firm exited. When firms left the list, their reasons for exiting were coded as lack of growth, merger, bankruptcy, or could not ascertain. For every point, information was gathered on the organization and its status with regard to the list of the 100 largest nonfinancial corpo-

[8] Asset size is only one possible criterion. Others include sales or number of employees. Asset size tends to favor firms in manufacturing with a large investment in physical plant. Asset size formed the basis of the Collins and Preston list and the Fortune 500 lists also report both sales and assets. Further, assets are more generally and reliably reported as one goes further back in time.

[9] It could be argued that the 100 largest firms truncate the sample by selecting on an important dependent variable, i.e., size. While the 100 largest firms will tend to be more stable in size and growth patterns than smaller firms, the processes outlined here will be apparent even in these organizations. It would also be difficult to collect data on the 500 largest firms or some other sampling frame sufficiently far back into time, and the effects of this truncation are difficult to avoid.

rations. The data were then organized into files reflecting changes over decades, i.e., 1919–29, 1929–39, 1939–48, 1948–59, 1959–69, 1969–79.[10]

The dependent variable in the analysis is whether or not the firm switched to the MDF during the decade. It is coded "0" if the firm did not switch and "1" if it did. These data were obtained from a number of sources: Moody's Manuals, Chandler (1962) and Rumelt (1974).[11] Moody's Manuals describe corporate organization by defining the legal form of the organization (for instance, holding company), if the corporation operates through subsidiaries and if the corporation is organized divisionally. When the corporation is organized divisionally, Moody's describes these divisions by listing the heads of the divisions. From these titles, one can ascertain whether the divisions are functional, geographic, or product based. For instance, in 1929, U.S. Steel has divisions described as "mining operations," "shipping lines," "smelting and refining," etc. These divisions imply a functional form of organization. Two coders independently coded structure into categories elaborated earlier. In cases of disagreement among coders, the author went back to the sources and made a judgment. Chandler and Rumelt were used as checks on decisions, and when coders disagreed with either source, these were also examined and resolved by the author.

Chandler's argument was operationalized in the following way. Strategies were coded into the following categories: product dominant; product related; and product unrelated. Rumelt (1974) and Moody's Manuals were used for these codings.[12] Product dominant implies that the firm is producing primarily one type of product (at least 70 percent of their output), even though different end products might result. Product-related strategies imply substantial multiple product lines that are related or market extensions; no single product line accounts for more than 70 percent of output (for instance, chemical companies producing paint and explosives). Product-unrelated strategies imply that firms are engaged in unrelated businesses for a substantial portion of their revenue (again, no one product line could account for more than 70 percent of revenue).[13] Ling-Temco-Vought, for instance, produced steel and guided missiles, and owned an auto rental agency at one time point. These strategies are reflected in two dummy variables, with product dominant as the omitted category. The measurement is evaluated at the first time point.

One other measure of strategy is number of mergers. Mergers are a growth strategy that might reflect a product-related or -unrelated strategy that would necessitate the MDF as an organizational form. The number of mergers was coded from two sources, Moody's Manuals and the Federal Trade Commission Report on Mergers, 1947–1979 (1981). The FTC Report gave information on all mergers involving assets greater than $1 million. Moody's Manuals reported all significant mergers engaged in by firms over each decade.[14]

Williamson's argument regarding the effects of coordination were indexed utilizing the following logic. If transaction costs become problematic as firms grow, then relevant measures indexing those effects should tap size and growth. Assets in millions of dollars at the first time point and percent change in assets over the decade were used as measures of size. These measures were transformed to 1967 dollars. Assets were used instead of sales because assets were more frequently reported for firms in the earliest panels. These data were also coded from Moody's Manuals. One could argue that percent change in assets is the most

[10] The year 1948 was used because Collins and Preston's list refers to that year. Their major source of data was an FTC Report (1957).

[11] Rumelt's sample is a sample of the 500 largest firms at three points in time: 1948; 1958; 1968. He generates his data for all of the firms that appear on each of the lists for all three time points. His data are used when companies in his sample are also in the sample used here.

[12] Rumelt (1974) utilizes a somewhat different distinction that can be collapsed into these three categories. The coding was done here by two coders and Rumelt was used as a check. When coders disagreed, the author resolved the issue.

[13] The 70% rule was chosen following Rumelt (1974). In his study, he found that firms were either well above or well below the 70% line for a single dominant product. This is a somewhat arbitrary dividing point, but the measures are consistent across studies. One would have liked to use some more precise rule, for instance, product lines as defined by Standard Industrial Classification (S.I.C.) scores. This was impossible to do because the data were unavailable for most cases very far back in time. As one went farther back in time, it was sometimes impossible to separate product lines by relative sales since that data was unavailable. In this situation, the verbal description of products produced was used to make an informed judgment. Distinctions between product related and product dominant would imply something like products being produced across two-digit S.I.C. scores with some logical link (for instance, petroleum companies producing petrochemicals), while product unrelated would imply products being produced across two unrelated two-digit S.I.C. scores.

[14] A better measure of mergers would probably be assets purchased through mergers. Unfortunately, this data was unavailable prior to 1948.

important indicator of the costs of coordination since it directly measures growth.

The population-ecology model proposed by Hannan and Freeman was operationalized using two measures, the size of the firm at the first time point and the age of the firm. Assets in millions of dollars were used as the measure of size. The age of the firm was coded from Moody's Manuals. When firms came into existence as the result of large mergers, the date of the merger was used as the birth of the firm.

The political power struggle was indexed in the following way. The president's or chief executive officer's name was collected for each firm on the list at all relevant time points. These names came from Moody's Manuals. Then, the president's entry was found in Who's Who in America, Who s Who in Business and Industry, and other sources. From the description given of each president's career, a decision was made as to how the person came up through the firm. This decision was reached on the basis of previous job titles. In about 90 percent of the cases, the data were available and the decision was clear-cut. The following categories were coded as dummy variables: manufacturing, sales and marketing; finance; general management; entrepreneur; lawyer; and unable to ascertain (no data). The general management category reflects whether an individual held titles in different parts of the firm (for example, plant manager and vice-president in charge of finance). Manufacturing personnel formed the omitted category and the measurement refers to the initial decadal point.

This measure can be justified in the following way. The leader of a large organization reflects who is in control of the organization and what is the basis for that control (Pfeffer, 1981; Zald, 1970b). Leaders also serve a symbolic role that affirms organizational strategy and the contingencies present in the environment. The top leaders in the organization and their origins in the firm are thus a good measure of what department or function is in control of the firm and how the firm is likely to behave subsequently.

DiMaggio and Powell's argument is more difficult to operationalize. The issue is how to capture a mimetic effect. A measure of such an effect must capture part of the relevant environment. It could be argued that firms watch other firms in similar environments. Industries would appear to be good theoretical proxies for the environment. For this reason, a variable was created that measured the percentage of the firms in each industry code (measured at the two-digit S.I.C. Code level) that had made the transition to the multidivisional form at the beginning of the decade. While this is only one possible source of mimetic effects, it seems like a good start at operationalizing an important theoretical force. The distribution of this variable can be seen in Table 3.

The data set has an odd structure. Some of the firms are entering the list as others leave it. Since 100 firms is an arbitrary cutoff point, it is necessary to attempt to control for the effect of arrival, staying, and exit on the adoption of the MDF. Two dummy variables were constructed reflecting this fact and the omitted category contained those staying on the list.

The statistical model employed here relies on a biological analogy. Typically in cancer research (although the model applies to many different examples), one has a sample of patients with some disease who are at risk of death. One observes these patients over some time interval and then attempts to understand the causes of death. Since the time interval has an artificial ending point, the data is right censored. In the sample here, there is a similar situation. Over the interval, firms which have not made the transition (i.e., are at risk) are observed, and some adopt the MDF (i.e., they die in the interval). By applying a logit model to the successive panels in which the initial condition is that firms have not made the transition to the MDF, one can in effect estimate the odds of changing structures. The data analysis was performed utilizing the logit specification in GLIM (1981).[15]

The biological analogy can be carried one step further. In subsequent periods, one can only observe those cases who have not died and one frequently loses cases through sample attrition (i.e., subjects move) or one can gain cases into the sample (i.e., new subjects). In the situation here, cases in the second period which do not make the transition (i.e., those still at risk) are the only ones that can be observed, and they are joined by new cases (those newly arrived on the list) and some cases leave the list (i.e., sample attrition). By modeling explicitly such factors as age and whether the firm has newly entered the list, is exiting the list, or staying on the list, one can control these potential sources of bias.

It should be noted that the test of population-ecology theory is weak for three reasons. First, Hannan and Freeman argue that larger and older firms would have lower rates of organizational change than smaller or

[15] One could stack the time periods and examine the causes of the MDF over the entire interval. This would result in a model like those presented in Allison (1983) or Kalbfleisch and Prentice (1980). This strategy was not pursued because part of the theoretical interest was to show how effects varied by periods. Hence, a panel design was chosen.

younger ones. In the data analyzed here, the sample is restricted to the 100 largest firms. Hence, the only rates observed will be those of the largest firms. Hannan and Freeman's hypotheses, insofar as they can be tested, will be restricted to size and age differentials in the population of the largest firms. As shall be shown, these firms underwent substantial reorganization. Whether their rates were higher or lower than those of smaller firms requires additional data.

Second, since the birth of new organizations is not being observed here, Hannan and Freeman's claim that new organizations provide new organizational innovations cannot be assessed. If any organization came into existence with the MDF, it would not appear in our sample because that organization would not be at risk to make the transition to the MDF. Therefore, the data analysis will not be oriented to this issue. It should be noted, however, that the MDF began as an innovation of large firms such as DuPont and General Motors (Chandler, 1962), and thus this organizational innovation did not emerge from new firms.[16]

Third, the sample is not strictly a population in Hannan and Freeman's sense of the term. One would need to study a single niche, or species (industry), and study the entire population over a suitable time frame. The 100 largest firms reflect, from Hannan and Freeman's point of view, a heterogeneous population that is not the complete sample of firms in any one industry. Further, the fact that firms enter and leave the list makes it difficult to assess the types of arguments that population ecologists rely on as they require event histories of the entire population over the time interval, which makes data gathering quite problematic.

While the population-ecology theory is important, the other theories also have plausibility. Hannan and Freeman's theory can only be tested in this context to the extent that one can examine the effects of size and age on organizational innovation in a population of large firms over a long time span. Studying large firms is defensible for a number of reasons. First, the large firms form a core sector that dominates the American economy (Averitt, 1968; O'Connor, 1973). These firms are an important object of study in their own right. Second, the organizational practices of these firms provide examples for appropriate firm behavior and organization. The behavior of large core firms probably provides a role model to other firms that are affected by their example (DiMaggio and Powell, 1983).

RESULTS

It is of great value to consider some descriptive statistics before one proceeds to the multivariate models. Table 1 contains information on the number of times firms appear on the lists. Over the 60 years, 216 firms appear on the list of the 100 largest firms and 51 firms appear on all lists, while 95 firms make only one or two appearances. The distribution is bimodal and firms tend to remain on the list for long periods or else they stay for only one or two periods. This shows both remarkable stability and change in the identities of the largest firms in the American economy.

Table 2 shows the patterns of adoption of the MDF by decades. The top panel shows the overall pattern, while the bottom three panels break the adoption of the MDF down by whether or not the firm is entering, staying, or leaving the list of the 100 largest firms. In 1929 only 1.5 percent of the firms had adopted the MDF, while by 1979 this had risen to 84.2 percent. The largest increases occur between 1948 and 1969, when the number of firms utilizing the MDF increased 52.7 percent. Rumelt (1974) observed a similar pattern of diffusion with a somewhat different sampling scheme.

The issue of the relationship between status on the list and adoption of the MDF can be resolved by looking at Table 2. Generally, firms staying on the list had high rates of adoption, as do those entering the list. Those leaving the list follow similar patterns, with two exceptions. From 1948 to 1969, firms leaving the list appear to be less likely to have adopted the MDF. A chi-square test was performed on each panel to determine if the association between mobility status and the adoption of the MDF was statistically significant. The results are reported at the bottom of Table 2. There was no statistically significant relationship between mobility status and the MDF in any decade except 1959–69 (χ^2 = 10.51, 4 df,

Table 1. Number of Times Companies Appear on the List

Number of Appearances	Number of Firms
6	51
5	22
4	22
3	26
2	51
1	44
	216

[16] It is an empirical question as to the source of most organizational innovations. It is one of the purposes of this research to stimulate further quantitative research on that question.

Table 2. Number and Percent of Firms that Have Adopted the Multidivisional Form (MDF) at the Beginning of the Decade, Adopt the MDF during the Decade, and that do not Adopt the MDF for the Entire Decade, by Status on the List (Stayer, Comer, Leaver)[a]

	1919–29	1929–39	1939–48	1948–59	1959–69	1969–79
Total Sample						
No MDF[b]	129 (98.5)[c]	108 (92.3)	91 (79.8)	61 (50.4)	39 (31.2)	19 (15.8)
Adopt MDF	2 (1.5)	7 (6.0)	14 (12.3)	37 (30.6)	27 (21.6)	15 (12.5)
MDF t_1	0 (0.0)	2 (1.7)	9 (7.9)	23 (19.0)	59 (47.2)	86 (71.7)
	131	117	114	121	125	120
Stayers						
No MDF	67 (97.1)	74 (89.0)	68 (79.1)	38 (48.1)	20 (26.7)	11 (13.7)
Adopt MDF	2 (2.9)	7 (8.5)	12 (14.0)	23 (29.1)	14 (18.7)	13 (16.2)
MDF t_1	0 (0.0)	2 (2.4)	6 (7.0)	18 (22.8)	41 (54.7)	56 (70.0)
	69	83	86	79	75	80
Comers						
No MDF	31 (100)	17 (100)	12 (85.7)	8 (38.1)	7 (28.0)	4 (20.0)
Adopt MDF	0 (0.0)	0 (0.0)	2 (14.3)	9 (42.9)	10 (40.0)	1 (5.0)
MDF t_1	0 (0.0)	0 (0.0)	0 (0.0)	4 (19.0)	8 (32.0)	15 (75.0)
	31	17	14	21	25	20
Leavers						
No MDF	31 (100)	17 (100)	11 (78.6)	15 (71.4)	12 (48.0)	4 (20.0)
Adopt MDF	0 (0.0)	0 (0.0)	0 (0.0)	5 (23.8)	3 (12.0)	1 (5.0)
MDF t_1	0 (0.0)	0 (0.0)	3 (21.4)	1 (4.8)	10 (40.0)	15 (75.0)
	31	17	14	21	25	20
Chi-Square	1.82	4.16	6.48	6.80	10.51	3.45
df	2	4	4	4	4	4
Significance level	.40	.38	.16	.15	.03	.49

[a] Stayer = firm on list over entire decade; Leaver = firm leaves list during decade; Comer = firm enters list during decade.

[b] No MDF = number of firms that do not adopt MDF; Adopt MDF = number of firms that adopt MDF during the decade; MDF t_1 = number of firms that have MDF at beginning of decade.

[c] Number of firms in category, percentage in parentheses.

significance level = .03). Here the firms who stayed on the list and those newly arrived on the list have high percentages with the MDF, while those leaving the list have a majority without the MDF. As stated earlier, all firms are included in the analysis, and it is an empirical question whether leaving the list affects adoption of the MDF or other factors account for these differences (i.e., strategy, etc.). One notable result is that stayers on the list have high rates of adoption of the MDF and these are similar to the newly arrived firms. These results are preliminary evidence that newly emergent large firms are not more likely to have the MDF, as population-ecology theory might predict (assuming that newly entered firms are younger).

In order to get a sense of the industry distribution of the spread of the MDF, Table 3 is presented. The relationship between the spread of the MDF and Chandler's argument is confirmed. Industries where product-related strategies dominated, like machine, chemical, and transportation industries, adopted the MDF in large numbers relatively early; while industries that were more likely to be vertically integrated, like mining, metalmaking, lumber and paper, and petroleum, adopted the MDF later and to a lesser extent. Except for mining, metalmaking, and miscellaneous industries, all industries had high rates of adoption by 1979. Another way to interpret this table is that organizations actually come to resemble those around them. Food, lumber and paper, and petroleum industries all adopt the MDF, though they do so at a later date. The empirical analysis should establish whether the causes of the shift are due to strategy or mimicry.

The results of the decade-by-decade analysis appear in Table 4. It should be noted again that each successive model is based on a population of firms that have not made the transition to the MDF. In order to appear in the 1948–59 panel, a firm could not have already adopted the MDF. The number of cases at the bottom of the table reflects the number of firms who are

Table 3. Number and Percent of Firms that Made the Transition to the Multidivisional Form at the First Time Point, by Industry

Industry		1929	1939	1948	1959	1969
Food	Total	14	16	14	8	8
	#MDF	0	2	3	5	6
	%	0.0	12.5	21.4	47.2	75.0
Mining	Total	6	2	6	4	0
	#MDF	0	0	0	1	0
	%	0.0	0.0	0.0	25.0	0
Lumber and Paper	Total	4	3	5	7	6
	#MDF	0	0	0	3	5
	%	0.0	0.0	0.0	42.9	83.3
Metals	Total	19	19	16	15	16
	#MDF	0	1	1	4	9
	%	0.0	5.3	6.3	26.7	56.3
Machines	Total	10	12	11	22	18
	#MDF	0	1	7	15	15
	%	0.0	8.3	63.6	68.2	83.3
Transport	Total	9	8	12	14	13
	#MDF	1	1	3	9	10
	%	11.1	12.5	25.0	64.3	71.7
Chemical	Total	10	12	11	13	16
	#MDF	1	2	4	10	13
	%	10.0	16.7	36.4	76.9	81.3
Petroleum	Total	19	18	21	22	20
	#MDF	0	0	0	6	16
	%	0.0	0.0	0.0	27.3	80.0
Miscellaneous	Total	26	24	25	20	23
	#MDF	0	2	5	6	13
	%	0.0	8.3	20.0	30.0	52.2

in the population at risk but who have not yet made the transition to the MDF. This number drops over time as the number of firms that have not made the transition decreases. Cases where data were missing were also excluded from the analysis. The 1919–29 panel is left out of the analysis because only two firms adopted the MDF (i.e., DuPont and General Motors).

In the 1929–39 panel, one is observing the causes of early adoption of the MDF. The firms that made the transition to the MDF are innovators and one would expect the internal strategy, power, size, and age variables to be the most important causes of the MDF. To some degree, this is the case. Firms with product-related strategies are more likely to make the transition to the MDF than firms with product-dominant strategies.[17] Further, firms headed by presidents with sales and marketing or finance backgrounds were also more likely to make the transition to the MDF than firms headed by manufacturing presidents. These results show that the key actors in the organization responded to strategy and that the rationalities implied by sales and marketing and finance strategies lead to the implementation of the MDF. The only other statistically significant result was that within the population of the largest firms, those that were older were more likely to make the transition to the MDF. This is contrary to the theoretical expectations of population-ecology theory. There was also no support for Williamson's argument.[18]

In the years 1939–1959, similar patterns emerge. A product-related strategy and a merger strategy for growth both implied an increased likelihood for implementation of the MDF. In this period, there is some evidence that growth leads to the adoption of the MDF. The 1948–59 decade, however, is the only period in which there is such an effect and, therefore, the transaction-cost perspective is not a good explanation for the implementation of the MDF. It was previously argued that this period would be the first in which a mimetic effect would appear. There is a consistent positive effect whereby if other firms in the industry are changing to the MDF, a firm is more likely to do so. Again, there is little support for a population-ecology view of this process and, indeed, age is positively related to the implementation of the MDF. Finally, the presence of a sales and marketing president increases the likelihood of adopting the MDF in the 1939–48 panel, while the presence of a finance president increases that likelihood in the 1948–59 panel.

In the final two panels, strategies indexed by mergers and product mix are strong influences on organizational decisions to change to the MDF. There is a continued mimetic effect whereby firms in industries with other firms who have already changed to the MDF are more likely to do so. There is no evidence that older or larger firms are less likely to implement the MDF and indeed in the 1959–69 panel, both are positively related to the implementation of the MDF. As mentioned above, growth in assets has no statistically significant relationship to adoption of the MDF. In the 1959–69 panel, if presidents came up through sales or finance, the firm was more likely to transition to the MDF. These effects do not appear in the last panel, although the presence of a finance president has a large positive, but statistically insignificant effect on that outcome.

The model of organizational behavior that seems most consistent with this data would

[17] Until 1948 there were almost no firms with product-unrelated strategies. Hence, that measure was excluded from the analysis for the earliest two decades.

[18] These models were also run using dummy variables for industry. These measures had no effect on the adoption of the MDF. Since there was no strong theoretical reason to keep them in the model, they were removed.

Table 4. Results of a Logit Model Estimating Whether or not a Firm Adopted the Multidivisional Form over the Decade as a Function of Various Factors (0 = nonadoption, 1 = adoption)

	1929–39		1939–48		1948–59		1959–69		1969–79	
Variables	b	SE(b)	b	SE(b)	b	SE(b)	b	(SE(b)	b	(SE)b
Related Strategy[a]	1.39**	.47	2.52**	.72	.76*	.32	.14	.65	1.10*	.47
Unrelated Strategy					.15	.38	.88*	.39	.67*	.32
Mergers	.76	.90	.21*	.10	.49	.58	.38*	.16	1.26*	.60
Indmdf	.48	.53	.23*	.10	.05**	.02	.15*	.08	.062*	.03
Age	.14**	.06	.034*	.016	−.007	.20	.06*	.03	−.004	.004
Assets t_1	.0006	.001	.001*	.0005	.0004	.0005	.0003*	.0001	.0008	.0009
% Change Assets	1.46	2.32	.89	.89	1.23*	.53	.03	.08	−.07	.08
Sales president	2.71**	1.04	1.12*	.54	.68	.45	1.12*	.58	.26	1.16
Finance president	2.44**	.99	2.62	2.12	.67*	.32	2.11*	1.01	2.05	1.21
Lawyer president	−.12	.28	.15	.60	−.42	.61	−.73	.64	.19	1.04
Entrepreneur president	.26	.72	−.17	.74	−.25	.47	−.30	.83	.14	.47
Manager president	−.67	.39	1.40	.87	.16	.51	.70	.64	.40	.82
No data on president	2.40	2.10	.57	.90	−.54	.63	−.54	.34	.18	.30
Comer	−.31	.73	.33	.73	−.86	.58	1.28	.88	.84	.57
Leaver	.16	.24	−.43	.29	−.25	.49	.38	.74	.18	.30
Constant	−1.82	1.61	−8.70**	6.68	−7.39	5.18	−1.82	3.36	−1.23	4.61
N	108		98		91		57		31	

* $p < .05$, ** $p < .01$.

[a] Variables defined in text; Indmdf = % of firms in industry that made the transition to MDF by the first point.

emphasize the fact that those in control of large firms acted to change their organizational structures under three conditions: when they were pursuing a multiproduct strategy; when their competitors shifted structures; and when they had a background in the organization such that their interests reflected those of the sales or finance departments. There is little evidence that these actors were highly constrained by the size or age of their organizations. Further, the kinds of coordination problems presented by growth that have concerned Williamson do not appear to be an important explanation for the MDF. It is also interesting to note that status with regard to the list did not have a statistically significant relationship to the probability of shifting to the MDF.

DISCUSSION AND CONCLUSIONS

Three issues are taken up in this section: (1) what has been learned about the dissemination of the MDF; (2) what can be said about theories of organizational change in general; and (3) what directions future research might go.

The MDF began in the 1920s as an innovation of two corporations. Its most rapid period of dissemination was the postwar era, and by 1979 it was the preferred organizational form for the large corporation. As a postscript to Chandler, it can be said that Chandler's view of the spread of the MDF was an important part of the story. However, it is clear that Chandler underestimated the role of actors who were committed to a certain view of how large organizations should have grown. The power perspective suggests that key actors with certain interests who have the resources to implement their point of view on appropriate corporate strategy, and hence structure, would choose to implement the MDF net of strategy and come to use the MDF as a structure that would enhance and extend their power. In this sense, Chandler overestimated the ability of actors to interpret markets and make rationally efficient decisions. Chandler also has very little feel for the fact that these large organizations operate in similar environments and hence watch one another and come to resemble one another independent of considerations of strategy. This paper provides evidence that the decision-making process in these large firms was not based solely on market-driven strategies.

The evidence presented here suggests a model of organizational change that stresses three things. First, someone in the organization must interpret the internal and external environment of the organization. This interpretation may be based on real or perceived problems of the organization. It will not necessarily directly reflect market forces or perfect rationality. Actors cannot be assumed to understand what is occurring in the internal and external environments. Second, these actors' interpretations will reflect their structural positions, and their solutions will reflect the interests of those structural positions. The interpretations of key organizational problems may themselves be constructions. Third, the actors must have some resource base either within the organization or the environment whereby they have the power to enforce their solution in the organization. This model of organizational change does not imply that the most important organizational problems are being solved. In-

stead, it suggests that actors have to construct such problems, have the claim to solve those problems, and be able to implement their solutions. It is also the case that the organizational change may or may not aid the organization in surviving. In the case of firms, actors must be oriented toward profit making, but there are many strategies that could aid or hinder that goal. In the end, the actions of key actors may or may not work to preserve the organization. This is, however, a separate issue from the one being addressed here: i.e., the causes of organizational change.

Any theory of organizational change must also take into account the fact that the leaders of organizations watch one another and adopt what they perceive as successful strategies for growth and organizational structure. The picture one obtains is that organizational change will occur in a murky environment guided by what key powerful actors perceive and their abilities to implement change. Their ideas will be disseminated if key actors in other organizations perceive that the innovation is successful.

A number of important avenues of research can be suggested from this work. First, it is important to consider other types of organizational change and examine the efficacy of various models of such change simultaneously and quantitatively. It is clear that further theorizing and empirical work must incorporate multiple dimensions of causes in order to explain organizational change. The empirical validity of transaction-costs theory, for instance, is quite low. Despite Caves's (1980:89) assertion that economists can more adequately understand profit-making corporations, this paper shows quite clearly the inadequacy of this approach. It is necessary to continue to test models that contain both sociological and economic variables. Approaches that emphasize only one set of factors would probably not have discovered the multiple effects and certainly would not evaluate competing models. Second, it would be quite interesting to see the diffusion of the MDF to smaller firms and to try to understand that process. The network of linkages between firms seems an interesting and important avenue of research in understanding that diffusion. Organizations in similar industries might come to resemble one another, and it would be of interest to see how the large firms affect the small ones.

Third, the link between the corporate power struggle and various shifts in strategy needs to be explored. The interesting question is, does strategy cause a certain type of structural power base to dominate the firm or vice versa? Chandler views strategy as shaped by the market and the firm's technical capacities. It is plausible that the power perspective outlined here is an alternative way to understand how strategies are agreed upon. Fourth, it would be useful to ascertain whether or not the MDF aided the firm's ability to grow. Here evidence has been offered as to the causes of the implementation of the MDF, but not its consequences (for an attempt to do so, see Armour and Teece, 1979).

Some caveats are relevant. First, questions about the sampling scheme and problems of selection bias are in order. This paper has only looked at one type of organizational change for the largest firms in the economy. Such change may operate differently for different size firms and different types of organizations. Second, because firms enter and exit the list, some organizations and their experiences are lost, creating a potential censoring problem of unknown magnitude.

The theories that are operationalized here are complex and there may be difficulties in their operationalization and interpretation. In particular, this is a weak test of population-ecology theory. While little support has been found for that point of view here, the test was not very consistent with the theory. It would be of great value to collect data more appropriate to the theory, and incorporate the other variables used here, in order to examine some of population ecology's assertions in contrast to those that de-emphasize the constraint of actors and adhere to views of adaptation.

Theoretically, models of organizational behavior must make explicit the links between key agents in organizations and their abilities to dominate and transform organizations.[19] These agents themselves have interests that are determined by their structural positions, and hence their perceptioins will be shaped and quite bounded rational. There is a sociology underlying economic processes in the sense that what is the optimal path is most often not apparent. Instead, key actors have to construct an analysis of the situation that will be based on their structural positions within the organization and their links to other organizations in the environment. As others have argued, without an understanding of the forces whereby this occurs, it is difficult to see how one can theorize sensibly about interaction and change (White, 1981; Granovetter, forthcoming; Baker, 1984). The case of the multidivisional form illustrates this quite clearly.

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[19] Of course, much recent work in organizational theory has been oriented toward this end. Some of this work was reviewed in the discussion on power (see Hinings et al., 1974; Hickson et al., 1972; Pfeffer, 1981; Zald, 1970b; Perrow, 1970).

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