

**"MULTINATIONAL CORPORATIONS
AS DIFFERENTIATED NETWORKS"**

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MULTINATIONAL CORPORATIONS AS DIFFERENTIATED NETWORKS *

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MULTINATIONAL CORPORATIONS AS DIFFERENTIATED NETWORKS

ABSTRACT

This paper argues that the internal structure in complex, multi-unit organizations such as a multinational corporation (MNC) is not homogeneous throughout the organization, but is systematically differentiated so as to "fit" the different environmental and resource contingencies faced by the different organizational sub-units. Based on a survey of 66 of the largest European and North American MNCs, yielding data on 618 cases of headquarters-subsidary relations, it is shown that the different contextual conditions faced by the different sub-units (national subsidiaries) of the MNC can be meaningfully classified into four generic situations. Furthermore, for each of these situations the exchange relation between the MNC headquarters and subsidiary is characterized by a "fit" governance structure consisting of a differentiated Gestalt of structural elements such as centralization of authority, formalization of rules and systems, and socialization of members. Following the existing literature, these "fit" structures are labeled in this paper as *hierarchical*, *federative*, *clan*, and *integrative*. The total MNC organization is then described as a differentiated network in which each headquarters-subsidary link corresponds to one or the other of these administrative forms.

MULTINATIONAL CORPORATIONS AS DIFFERENTIATED NETWORKS

INTRODUCTION

In a classic series of histories on the emergence of the modern business enterprise, Alfred Chandler (1962, 1977, 1985) traces the structural evolution of business organizations from the small family owned and managed enterprise to the most dominant and visible form of modern organization the large, geographically dispersed, professionally managed multidivisional enterprise. The multinational corporation (MNC) is the quintessential case of the dispersed firm, with individual components located in a number of autonomous political units (Fayerweather, 1978). These organizational sub-units, or subsidiaries, are often embedded in highly heterogeneous environmental conditions (Robock et. al., 1977) and may have developed under very different historical circumstances (Stopford and Turner, 1985). Based on the tenets of differentiation in large multiunit complex organizations advanced by Lawrence and Lorsch (1967), it is readily evident, from the perspective of organization theory, that each subsidiary may be treated as a distinct organizational sub-unit. The MNC may then be seen as a network of differentiated linkages between geographically dispersed and goal disparate organizational sub-units that nonetheless are bound by a formalized base of interaction (Herbert, 1984).

This issue of internal differentiation has significant implications for the literature concerned with headquarters-subsidiary relations in multinationals. While this topic has received considerable attention from researchers (e.g. Fouraker and Stopford, 1968; Stopford and Wells, 1972; Franko, 1976; Bartlett, 1979; Hulbert and Brandt, 1980; Daniels et al, 1984), with limited exception (e.g. Hedlund, 1981), the empirical studies have been biased towards the assumption that the nature of the headquarters-subsidiary relation is similar for all the subsidiaries of a multinational. This assumption is manifest in many different ways. Findings from data acquired from the subsidiaries of many different MNCs located in a single national environment have been used to draw general conclusions regarding the extent of centralization in different MNCs (Hulbert and Brandt, 1980). Contingency arguments, such as the need for a fit between the structure and information processing requirement

(Egelhoff, 1981), or between the organizational form and characteristics of the task environment (Kogono, 1981), have been based on measures of contingency and structural variables for the MNC as a whole. Even for studies that have focused on the contingent effects of different subsidiary characteristics on the structure of the MNC, while the contingency variables such as subsidiary size, age, etc. have been measured separately for different subsidiaries, a single MNC level measure has been used for structural variables such as centralization (Gates and Egelhoff, 1986).

The conclusions of this stream of research have been a series of contradictions with different studies showing positive, negative, or no association between the structural variables and a range of MNC or subsidiary level contingent attributes. Gates and Egelhoff (1986) have summarized these contradictions in the past research on centralization in MNCs, but their own effort, grounded in the assumption of intraorganizational homogeneity, has merely added another set of scattered data points without resolving the ambiguity in any way.

It is our contention that the problem with these studies may well lie not in their measurements, which has been the focus of the previous debate, but in the implicit assumption that variables such as centralization can be operationalized and measured at the level of the total organization for highly diversified organizations such as the MNC. For such structural attributes, internal differences within these firms may well exceed differences in average levels across firms. To cite an example, in a related but different study it was observed that a comparison of Philips, the European consumer electronics company, and Matsushita, its Japanese archrival, will show the latter company to be more centralized if the study were conducted in Germany, and exactly the reverse if it were carried out in Colombia (Ghoshal and Bartlett, 1987).¹ Therefore, to banish all differences among intraorganizational linkages is to fall into what Fischer (1970:172) calls the "reductive fallacy[;] the fallacy of reducing complexity to simplicity, or diversity to uniformity."

While it is almost a truism that there are differences both across and within organizations, much of the effort of organizational theorists over the past two decades has been focussed on developing a contingency model for explaining differences of the former kind. Yet, given the increasing

proliferation of multi-unit organizations in which different units face very different organizational contexts, a contingency model will remain incomplete until the internal differences within organizations are also encompassed within a broader theoretical framework.

The differentiated network model of the MNC proposed in this paper attempts to address this neglected domain of contingency theory by examining explicitly the differences in the context and structure of headquarters-subsidary relations within the same organizational boundary. The model proposes a "fit" (Schoonhoven, 1981; Drazin and Van de Ven, 1985) between the particular contextual conditions that characterize a subsidiary and the structure of the headquarters-subsidary relation. It is argued that the subsidiary context can be differentiated into four categories based on the joint conditions of its (1) local resource levels and (2) environmental complexity relative to the other subsidiaries in the MNC. The fit structure of the headquarters-subsidary relation in each contextual category is a correspondingly differentiated Gestalt of the following elements: (1) centralization, the lack of subsidiary autonomy in decision making; (2) formalization, the use of systematic rules and procedures in decision making; and (3) socialization, consensus and shared values as a basis for decision making.

This model is based on a research project (Bartlett and Ghoshal, forthcoming), that has included in its first stage case studies of the organizational patterns in nine large multinational corporations (Bartlett and Ghoshal, 1986), and in its second stage a detailed network analysis of headquarters-subsidary relations in three of these organizations (Ghoshal, 1986). In this paper, representing the third stage of this project, the differentiated network model is empirically tested using data on 618 cases of headquarters-subsidary relationships collected by a survey of 66 of the largest European and North American MNCs.

The paper is organized in four sections. Section I develops in detail the theoretical motivation for the differentiated network model. Central to the theoretical argument is the conceptualization of the headquarters-subsidary relation as a mixed-motive dyad in which members have both interdependent and independent interests. It is then shown that each of the four contextual conditions presents a very different situation in terms of the nature of interdependency and

independency in the headquarters-subsidary exchange relation. Centralization, formalization, and socialization are examined as primary structural attributes of headquarters-subsidary relations. Based on the dual consideration of (i) the relative efficacy of each of these elements in addressing the mixed-motive situation described earlier, and (ii) the administrative costs associated with each element, several hypotheses are proposed that describe a fit between the contingent conditions that characterize a subsidiary and the structure of the headquarters-subsidary relation. Furthermore, it is argued that this dual consideration involves both a "congruence" and "systems" approach to fit (Drazin and Van de Ven, 1985), which need to be examined empirically. Section II describes the design, the survey, the questionnaire instrument, and the operationalization and measurement of the constructs, employed in the study. Section III presents both the methods used to test the hypotheses developed in Section I and the results of these tests. Section IV discusses these results and their implications for the literature on headquarters-subsidary relations and for organization theory.

I. THE DIFFERENTIATED NETWORK MODEL FOR THE MNC

The need for intraorganizational differentiation in multiunit organizations follows quite directly from the contingency perspective in organization theory. It has been well established by authors such as Thompson (1967), and Lawrence and Lorsch (1967) that the structure of organizations, in which term they include formal structural arrangements as well as formal and informal management processes, are and should be differentiated based on the characteristics of the external environment they face. This argument is a direct corollary of the open systems view of organizations and has demonstrated empirical and theoretical support (see, Pfeffer, 1982, for an exhaustive review).

A different motivation for differentiation has been proposed by authors such as Pfeffer and Salancik (1978) and Pfeffer (1981) who have shown that organizational processes are dependent on internal power relationships, which, in turn, are critically contingent upon the internal distribution of organizational resources. In this view, then, resource dependency is the key determinant of the structure of internal exchange relationships within complex organizations.

A synthesis of these two views has been proposed by Lawrence and Dyer (1983), but they have treated the ~~entire~~ organization as their unit of analysis and have used different industrial contexts to derive different environmental complexity and resource scarcity situations. It is our view, that this synthesis may readily be extended to multiunit organizations, such as MNCs, in which different components, such as the various national subsidiaries, face vastly different environmental and resource contingencies.

Headquarters-Subsidiary Relations as a Mixed-Motive Dyad

Adopting an exchange theoretic perspective (Levine and White, 1961, Emerson, 1962, 1975; Aiken and Hage, 1968) headquarters-subsidiary relations may be treated as a dyadic exchange relation involving a series of resource transactions embedded in a structured context. Headquarters-subsidiary relations may then be conceived as a mixed-motive situation (Schmidt and Kochan, 1977). This view would recognize that headquarters-subsidiary relations involve both (i) interdependent² interest situations, e.g. multi-point competition with a global competitor (Hamel and Prahalad, 1985), in which each member is internally motivated to transact because each perceives that it will be better able to attain its goals by interacting than by remaining autonomous (Thompson, 1967), and (ii) independent interest situations, e.g. a transfer-pricing decision, in which the motivation to interact may be asymmetrical; including the extreme case when one member is motivated to interact but the other is not. Interaction in this case may, however, be mandated by the headquarters as a result of the authority relationship that exists relative to the subsidiary.³

The above conceptualization of the nature of headquarters-subsidiary relations enables us to examine more clearly the contingencies posed by the different conditions of environmental complexity and local resource levels on the nature of interdependency and independency.

Exchange Contingencies Posed by Different Contexts

Following Lawrence and Lorsch (1967), Thompson (1967), and Jacobs (1974), increased environmental complexity, such as intense competition or technological volatility, results in increased

interdependency as both headquarters and subsidiary are posed with a situation of mutual vulnerability. Imperfect knowledge and fluctuations in the environment induces both the headquarters and the subsidiary to engage in reciprocal exchange relationships to make the realization of even independently disparate goals more predictable over time. The interaction in these circumstances is usually characterized by a high degree of cooperation and problem solving as opposed to high levels of conflict and bargaining (March and Simon, 1958; Schmidt and Kochan, 1977).

On the other hand, as the resource levels of the subsidiary increase, the independent interests of the subsidiary and headquarters may diverge. The subsidiary may desire greater autonomy including the commitment of resources to the pursuit of local interests that are not necessarily in concord with headquarters interests. From the headquarters perspective, however, the subsidiary represents a pool of rich resources in an overall resource distribution that cannot be altered at will and indeed tends to persist over time; a point that has been theoretically made by Zeitz (1980) and empirically substantiated for MNCs by Kogut (1980). This creates a situation of headquarters dependency⁴ on the subsidiary (Prahalad and Doz, 1981) and a possible power⁵ conflict (Blau, 1964). Bargaining and conflict are the potential forms of interaction in this situation, since each party may attempt to attain its own goals at the expense of the other (March and Simon, 1958; Schmidt and Kochan, 1977).

Based on the above arguments and as summarized in Figure 1, a four-fold classification scheme for the contextual conditions faced by the subsidiary in headquarters-subsidiary relations is proposed; viz. (i) C1: low environmental complexity and low local resource levels (ii) C2: low environmental complexity and high local resource levels, (iii) C3: high environmental complexity and low local resource levels and (iv) C4: high environmental complexity and high local resource levels. Each of these four contingent conditions presents a very different situation with regard to the nature of dependency and interdependency in the exchange relation between the headquarters and the subsidiary. Since structure is dialectically related to the nature of dependency and interdependency in an exchange relation (Aiken and Hage, 1967; Hall, 1972; Cook, 1977), in that it both constrains

the relation and in turn is constrained by it, it follows that each of the above situations will be correlated with different structural features.

The Different Structural Elements of Headquarters-Subsidiary Relations

Since the landmark studies of the Aston Group (Pugh et. al., 1968, 1969) centralization and formalization have become central constructs in the analysis of the structure of internal relations in complex organizations. Following Schein (1971) who argued for the importance of socialization as another primary structural element, we believe that centralization, formalization, and socialization, analyzed singly and together, constitute a fairly comprehensive characterization of the structure of headquarters-subsidiary relations. A further rationale for considering these three structural constructs has been suggested by De Bodinat (1975), who showed that each had a very different effect on the distribution of power and influence in the dyadic exchange relationship between the headquarters and subsidiary of a MNC.

Centralization has been the focus of several studies of headquarters-subsidiary relations (Garnier, 1982; Gates and Egelhoff, 1986) and refers to a governance mechanism in which the decision making process is hierarchically organized with the headquarters often making most of the crucial strategic and policy decisions. Since centralization shifts the locus of power asymmetrically in favor of the headquarters, it can lead to severe dissonance if the subsidiary is a powerful actor in the exchange relation. It is thus positively correlated primarily with situations in which the subsidiary is dependent on the headquarters. This proposition is consistent with the negative association between subsidiary size and centralization observed by Alsegg (1971) and Hedlund (1980). Centralization is also inversely related to situations of high interdependency since it causes decisions to reflect the competencies and perspectives of the headquarters only and constrains reciprocity in exchange relations. It is therefore hypothesized that:

H1: Centralization is (a)negatively correlated with environmental complexity; and (b)negatively correlated with local resource levels.

Formalization may be interpreted as the routinization of decision making and resource allocation

(Nelson and Winter, 1982) and has been studied in this sense as an element of headquarters-subsidary relations by Hedlund (1980, 1981). Formalization decreases the power of both the headquarters and the subsidiary as it constrains the exchange relation to an impersonal set of rules that often assume a power independent of the motivations of the actors in the exchange relation (Weber, 1968). Thus formalization is, most importantly, positively correlated with situations of potential conflict between the headquarters and subsidiary. Formalization also increases with higher interdependence as it provides the structured context (Burgelman, 1984) for reciprocity in exchange.⁶ It is therefore hypothesized that across the different subsidiaries in a MNC:

H2: Formalization is (a) positively correlated with environmental complexity and (b) positively correlated with local resource levels.

Socialization is a process that leads to domain consensus and shared values (Van Maanen and Schein, 1979). By pooling the goals of the subsidiary and headquarters into an inclusive and shared goal, it facilitates cooperation and participative decision making (Ouchi, 1980). Thus, socialization may primarily be expected to be positively correlated with interdependency. Socialization can also mitigate potential conflict by promoting integrative bargaining (Walton and McKersie, 1965). It is therefore hypothesized that across the different subsidiaries in a MNC:

H3: Socialization is (a) positively correlated with environmental complexity and (b) positively correlated with local resource levels.

The theoretical argument, till now, for the existence of a context-structure fit in headquarters-subsidary relations in MNCs has been based on an adaptive equilibrium over time between the nature of dependency and interdependency in an exchange relation and the structural features of the exchange (Blau, 1964; Blau and Schoenherr, 1971; Homans, 1974; Bacharach and Aiken, 1976). In this natural-selection-like view, "fit" is a basic assumption underlying the congruence between organizational context and structure. That is, such an isomorphism can only be presumed to exist for the best performing organizations with the less fit being selected out (Hannan and Freeman, 1977,; Aldrich, 1979; DiMaggio and Powell, 1983). However, as argued by Drazin and Van de Ven (1985), a more complete contingency theory needs to examine more explicitly the link between the

context-structure relationship and performance. Advocating the examination of multiple approaches in contingency theory they argue for the importance of a systems approach to fit. This view asserts that the "understanding of context-structure performance relationships can only advance by addressing simultaneously the many contingencies, structural alternatives, and performance criteria that must be considered holistically to understand organizational design."(p.519)

The theoretical relevance of this assertion for MNCs is readily apparent if one recognizes that while organizational adaptability is enhanced by matching the heterogeneity in the environment by requisite variety in the structure of the organization (Ashby, 1956; Burgelman, 1984), for organizational effectiveness such differentiation must also be accompanied by integrative processes (Lawrence and Lorsch, 1967). Furthermore such integration is problematic because it is constrained by the total coordinative resources available to the organization. Therefore, while differentiation is clearly a necessary condition for organizational effectiveness, it is not sufficient in that it is also necessary to economize on the limited total coordination resources of the MNC. Such an economizing perspective leads to considerations of the comparative administrative costs and advantages of the different elements, albeit without any precise measurement, that may be used to structure exchange relations in MNCs. It suggests that the most efficient structure for each context is not simply the sum of the unidimensional context-structure patterns proposed earlier. It is more likely a structural Gestalt that reflects the trade-offs among the different structural elements and yet has an internal consistency suited for the particular context (Khandwalla, 1973). We turn next to a fuller exposition of this systems approach to examining the context-structure performance⁷ relationship in headquarters-subsidary relations.

The Structure-Context "Fit" in Headquarters-Subsidiary Relations

The logic for the hypothesized fit relations in this section is driven by the simultaneous consideration of the relative costs and efficacies of the different structural elements or what Thompson (1967) so felicitously called "administrative rationality." Socialization of members to share an inclusive goal is the most costly administrative mechanism, involving a significant investment of

administrative resources for both initial socialization and continued cultural fidelity (Ouchi, 1980). Its key comparative advantage is its ability to pool the resources and competencies of both actors involved in the exchange relation, thereby allowing the organization to benefit from the complementarities in those competencies. Formalization is a less costly administrative mechanism, an assertion that is at the core of Weber's (1968) claim that bureaucracy (i.e., the organization that governs primarily through well-developed rules and systems) is the most efficient of all organizational forms. Compared to socialization, formalization requires less administrative resources to institutionalize, and once established needs little administrative energy to maintain. Though formalization provides a structured context for exchange, a comparative disadvantage is the potential inertia it creates and the constraints it may impose on rapid adaptation to changing environmental conditions (Hannan and Freeman, 1977). Centralization is the least expensive administrative mechanism in that it permits administration by fiat (Williamson, 1975). Requiring almost no resources to institutionalize, it does, however, require administrative resources for continuous monitoring and decision making. While comparatively advantageous in terms of control over decision making, decision outcomes reflect the competencies available at the headquarters and underutilize the supplementary or complementary competencies of the subsidiary.

Having developed these premises regarding the comparative costs and benefits of the different governance mechanisms, we can now hypothesize the way in which a MNC may deploy its limited administrative resources most efficiently for the management of national subsidiaries facing different contexts (for a summary of the various hypotheses, see Figure 2).

[Insert Figure 2 about here]

Clearly, the greatest returns to coordinating resources accrue if they are deployed where the MNC has abundant local resources and faces complex external environments (C4). Centralization is most unsuited to this context as it is likely to invoke considerable dissonance since the subsidiary is resourceful and would be unwilling to accept the dependency that centralization implies. While formalization is desirable to constrain autonomous interests and to provide a framework for coordinated decision making, it must be limited because it creates an inertia with regards to

adapting quickly to the environmental pressures. Socialization, though most expensive, is clearly the most appropriate administrative element in this context since its comparative advantage in greatly facilitating interdependence is most beneficial in this situation. While this structural Gestalt is similar to the organic form of organization proposed by Burns and Stalker (1961), it perhaps resembles most closely the structure that Kanter (1983) calls **integrative**.

Subsidiaries with low levels of local resources and facing environments of relatively low complexity (C1) represent the situation when administrative resources are expected to yield the lowest benefit. Economizing on administrative costs is most important in this context. Centralization, therefore, is the fit structure in this situation. It is feasible since the local capabilities are often so impoverished that they almost mandate continuous monitoring and headquarters support in decision making. While centralization does restrict the ability to respond to interdependencies, the use of formalization and socialization is inappropriate in this context as there are few benefits to be gained by facilitating such interdependencies. The overall structure then, that fits this situation may be described as resembling a **hierarchy** (Williamson, 1975).

The abundance of local resources in a subsidiary facing low environmental complexity (C2) is often the legacy of history. These are usually the older subsidiaries of a multinational that owe their resource concentration to historical processes of accumulation. They represent a pool of sticky resources on whose performance the MNC is often dependent. This warrants a greater investment of administrative resources than in the previous context. Centralization is inappropriate because of the potential conflict and dissonance it may create between the headquarters and subsidiary. Socialization wastes administrative resources since the critical interdependencies in this situation are only limited. Formalization is clearly the most suitable administrative mode in this situation since it facilitates exchange in a conflict-prone situation as well as makes it more predictable over time by constraining it to a set of well developed rules and routines. This structure resembles that of federated interorganizational networks such as the United Way (Provan, 1983) and may therefore be described as being **federative** in nature.

Subsidiaries that have scarce local resources in complex environments (C3) are often either very

young and established recently or represent contexts where local organizational resources have not kept pace with rapidly changing external conditions. These are subsidiaries that face a crisis and require significant administrative resource commitments. The critical dependency of the subsidiary on the headquarters for both resources and decision making makes centralization both feasible and necessary. The critical interdependencies, however, cannot be addressed by formalization since the situation is still too premature for standardization and routinization. Socialization as an administrative structure is critical to this situation as it facilitates the pooling of the competencies of the headquarters and subsidiary and the ability for mutuality in decision making that eases implementation. Similar structural forms have been described by Ouchi (1980) and labeled **clans**.

We have shown above how the differentiated network model of MNCs incorporates both a systems and selection-like or congruence approach; each providing both unique and complementary information regarding the relationship between context, structure and performance in headquarters subsidiary relations. The propositions advanced by the model are now examined empirically.

II. MEASUREMENT PROCEDURE AND SAMPLE

For each MNC, measures of environmental complexity, local resources, different structural attributes of the headquarters-subsidiary relation, and performance were required for its different national subsidiaries. This enormous volume of information required from each MNC posed a key measurement dilemma given our competing interest in sampling a reasonable number of MNCs for the purposes of robust statistical analyses. A review of the options available suggested that the only feasible way to collect data was a mail questionnaire survey that would require a single knowledgeable respondent at the headquarters of each MNC to furnish, for each of a number of national subsidiaries of the MNC, single measures for each of the constructs we wished to measure. Such a procedure, however, involved a number of possible shortcomings, such as (i) dependence on a single respondent, (ii) dependence on single indicators for complex constructs, and (iii) the questionable reliability of subsidiary level information being provided by a corporate level respondent. To adopt this procedure, it was necessary to assess the implications of each of these

shortcomings on the reliability and validity of the data. This was done through the following process.

Two different instruments were developed. One was designed for response by headquarters managers and all constructs were operationalized by single variables measured on centrally anchored five-point scales (the final version of this instrument that was used for this study is described in Appendix II-A). The other questionnaire was designed for response by subsidiary managers and sought subsidiary responses for the same constructs used in the instrument described earlier. In this instrument, though, the structural constructs were operationalized through multiple indicators (summarized in Appendix II-B).⁸

A two-stage pre-test was employed. First, both instruments were tested for readability and face validity by two different groups of respondents. One group included ten senior managers participating in an executive education program at MIT's Sloan School of Management. Each had at least eight years of experience working in a large MNC. The second group comprised of four senior academic colleagues at MIT and Harvard who teach courses in research methodology, organizational behavior, and international management. The instruments were significantly revised based on the responses and feedback of these groups.

In the second-stage of the pre-test, both questionnaires were implemented in three large MNCs. In each of these MNCs, two senior headquarters managers responded to the first questionnaire providing single indicators for the various constructs for at least five different national subsidiaries of the company. At the same time, between 6 and 8 managers from each of those subsidiaries responded to the second questionnaire and provided multiple indicators for each of the constructs as applicable to their own subsidiary. Analysis of the data so obtained revealed the following:

1. In each MNC, inter-rater convergence was high for the two headquarters-level respondents. For each variable measured, the ranks of the different subsidiaries were assessed similarly by both respondents as is manifest from the rank correlations shown in Table 1.
2. In each MNC, inter-rater convergence was also consistently high among headquarters and subsidiary level respondents. The rank correlation between the ranks for the different

structural elements for the subsidiaries obtained by aggregating the responses of the subsidiary managers and the corresponding ranks obtained by aggregating the responses of the two headquarters managers are reported in Table 1.

[Insert Table 1 about here]

Based on these findings of high inter-rater convergence among headquarters level respondents as well as the congruence of data obtained through multiple indicators and multiple respondents at the subsidiary level and single indicators and single respondent at the headquarters level, the final survey was carried out using the instrument described in Appendix II-A.

The data used in this analysis are from 66 usable responses to this questionnaire that was mailed to the Chairman or CEO of all the North American and European headquartered MNCs in Stopford's (1983) World Directory of Multinational Enterprises. The Chairman or CEO was asked to respond personally if familiar with all the issues, or else to direct the questionnaire to the senior most manager responsible for the assessment of all international operations.

Appendix I provides details of the response rate and shows the distribution of the sample by headquarter location, annual sales, number of subsidiaries, and industry. It is significant to note that despite the low response rate, the sample of respondents in this study is distributed across geographical boundaries and industries in a manner quite similar to that of the population from which it was drawn. Furthermore, no discernible pattern among the non-respondents could be found.

All measures represent the perceptions of a senior manager in the headquarters for all the subsidiaries. While the issue of objective versus perceptual measures has been the subject of an ongoing debate in organization theory (Downey and Ireland, 1979), we believe the use of perceptual responses based on key informants is appropriate to this study for several reasons. First, given the diversity of environments faced by the sampled organizations, reliable and comparable objective measures were particularly difficult to find. This problem was compounded by the consideration that the same national environment may pose very different contingencies for different MNCs based on factors such as the industry and even within the same industry, the specific strategic orientation of the firm. Second, subscribing to an important theoretical tradition (Stern, 1970; Starbuck, 1976;

Weick, 1980), we believe that the cognitive orientations of senior managers are the key to the process of enactment that leads to a context-structure congruence in organizations. Finally, our interest was primarily to measure differences among the subsidiaries within the MNC. As such, measures were not sought relative to some absolute/objective anchor that was invariant across all the MNCs, but were obtained relative to an internal anchor that represented the average level of the particular variable for the firm.⁹ A key informant or someone responsible for international operations was the perhaps the only source for such a comparative assessment of subsidiary context, structure, and performance. To this end it is reassuring that in 50 of the 66 companies in our sample the respondent was the corporate vice-president responsible for such assessments or someone with even greater responsibility such as the CEO or Chairman.¹⁰

It must be emphasized that the unit of analysis in this study is each headquarters-subsidary relation; thus 618 cases with no missing data are obtained from the 66 MNCs. The focus on differences within MNCs is addressed by measuring the properties of each case as standardized deviations from the mean conditions of the MNC of which it is a part. Table 2 shows the intercorrelations for all the variables.

[Insert Table 2 about here]

III. DATA ANALYSIS AND RESULTS

The logic for the data analysis follows directly from Drazin and Van de Ven's (1985) recommendations for empirically examining the alternate forms of fit in contingency theory. The following stages are involved: (1) A clustering procedure is used to determine the existence of an empirical basis for the four contingent categories proposed; (2) The selection approach in contingency theory is explored by considering the correlations of the structural variables with the contingent variables. The differences in each structural variable and performance across the four contingency clusters are studied using a one-way analysis of variance model; and (3) The systems approach to fit involves selecting the best performing subsidiaries and using these to develop the multivariate structural centroid that may be considered to ideally fit each of the four contexts.

Deviations from this empirically derived ideal structural type are computed as a multivariate distance measure and the hypothesis for fit is tested by looking for a significant negative correlation between this distance measure and the subsidiary performance. ¹¹

Different Types of Subsidiary Contingencies

Theoretically, it was argued that subsidiary contingencies could be meaningfully differentiated into four categories based on the joint conditions of (1) relatively low or high local resource levels of the subsidiary and (2) the associated low or high environmental complexity. While a median split on these two contextual variables could be used to classify the different subsidiaries into these contexts based purely on these theoretical grounds; a clustering approach was used to determine if there was a natural empirical pattern that coincided with this a-priori scheme. McQueen's k-means clustering method was employed using resource scarcity and environmental complexity as the clustering variables. The existence of clusters and the number of clusters was determined using Calinski and Harabasz's C-Ratio, as recommended by Milligan and Cooper (1985) who found this to be the best stopping rule among thirty examined. Four different clusters of subsidiary contingencies were found. ¹² A graphical representation of the four clusters and the cluster centroids is presented in Figure 3.

[Insert Figure 3 about here]

As evident from Figure 3, the four clusters represent combinations of local resource and environmental conditions that are very consistent with the a-priori theoretical scheme. For further analysis, this natural empirical classification is therefore preferred to a forced theoretical classification based on median-splits.

Unidimensional Context-Structure Congruence Relationships

The correlations between the different structural and contingency variables appear in Table 1. There is significant support for all the hypotheses from 1(a) through 3(b). Both resource scarcity and environmental complexity are correlated in the expected direction with centralization, formalization and socialization. These context-structure relationships were examined further by

comparing the mean values for each structural variable and performance across the four contingency clusters. Scheffe's Test was used for the pairwise comparison of means.¹³ The results are reported in Table 3.

[Insert Table 3 about here]

These results provide strong support for the congruence or natural selection like approach in contingency theory. Despite insignificant differences across all the clusters in terms of performance, there are significant differences in structure between some of them. While the most significant pair-wise differences suggest that resource-based contingencies are more important than environmental contingencies, these contingencies considered together show that each structural element is most dominant in a particular context. Thus centralization is highest when the subsidiary has scarce resources and faces a relatively simple environment (C1) and formalization and socialization are highest in the diametrically opposite situation (C4) of low resource scarcity and high environmental complexity; with the converse, i.e. centralization is lowest in C4 and formalization and socialization are lowest in C1, also being true.

The analysis so far has largely employed a congruence approach to contingency theory, showing the existence in equilibrium of particular context-structure relationships that do not necessarily impinge on subsidiary performance. For a more complete contingency theory this analysis must be extended to explore whether deviations from an ideal structural Gestalt- contingency fit can explain variations in subsidiary performance.

A Systems Approach: A Multivariate Test of "Fit"

To test the systems approach, the top performing subsidiaries (Z-Score > 1.0) were selected to determine the ideal structural gestalt in each contextual situation. For these subsidiaries, the mean scores of each structural variable in the different clusters were considered as empirically derived representations of the hierarchical, federative, clan, and integrative mode of organization. These ideal types were tested using one-way ANOVA and MANOVA to determine if the patterns actually differed. A comparison was also made between these results and the theoretically derived structural

forms shown in Figure 2 to determine if the derived values matched the hypothesized ordinal relationships. The results are shown in Table 4. The significant F-statistic ($p < .01$) for every structural variable shows that these ideal types are very different. An overall MANOVA using all three structural variables was also significant ($F = 32.9; p < .001$). Furthermore, the empirically-derived profiles are very well matched to the theoretically proposed profiles (Figure 2).

[Insert Table 4 about here]

Having found support for the empirically derived structural profiles, deviations from these ideal profiles for the remaining subsidiaries were calculated using a Euclidean weighted distance metric. The resultant distance calculations are between the structure of a focal subsidiary and its respective ideal type, according to the focal unit's contingency category. The distance measure is calculated as follows:

$$\text{Dist} = \sqrt{\sum [\text{Bs}(\text{Xis} - \text{Xjs})]^2}$$

where Xis is the score of the ideal unit on the s th structural dimension, Xjs is the score of the j th focal unit on the s th dimension, and Bs is a weight given by the standardized beta or contribution of the s th dimension in a multiple regression with performance as the dependent variable and all the structural dimensions as the independent variables.

To test the usefulness of the systems approach towards a more complete contingency theory of headquarter-subsidiary relations, the calculated distance measure was correlated with the performance of the subsidiary. A negative correlation would demonstrate "fit" since the greater the distance from the respective ideal type, the lower the hypothesized performance. The results of this analysis are shown in Table 5. As predicted, there is a significant negative correlation between subsidiary performance and the distance measure of the deviation of the structure of the HQ-subsidiary relation from its ideal type ($r = -.14; p < .001$). Table 5 also shows the component correlations between distance and performance within each contextual category. A significant negative correlation is observed for C4 ($r = -.17; p < .05$) and C3 ($r = -.18; p < .01$) subsidiaries. The correlations were insignificant for C1 and C2 subsidiaries. This suggests that while overall there is information to be gained by the systems approach, it is perhaps more relevant to situations of high environmental

complexity; a reasonable finding since the process of structural adaption to the environment that leads to fit in the natural selection view is more likely to have reached its ideal equilibrium in a stable environment.

[Insert Table 5 about here]

IV. DISCUSSIONS AND IMPLICATIONS

The empirical analysis provides support for the differentiated network model. It is clear that within a MNC, the various national subsidiaries are and should be differentiated in terms of both the complexity of their environmental context and their local resource levels. Furthermore, depending on the nature of these contingencies there is a "fit" structure of the headquarters-subsidiary relation that leads to improved subsidiary performance. Thus, as described in the theory section, an **integrative** structure fits subsidiaries that face **complex environments** and have **abundant local resources**; a **hierarchical** structure fits subsidiaries that face relatively **stable environments** and have **limited local resources**; a **federative** structure fits subsidiaries that face **stable environments** and have **abundant local resources**; and a **clan** like structure fits subsidiaries that face **complex environments** and have **limited local resources**.

Our results underscore Drazin and Van de Ven's (1985) view that both a congruence (natural-selection-like) and contingent (systems) approach to fit need to be studied simultaneously for the unique and complementary information they provide on the context-structure-performance relationship in organization theory. Our study showed the existence of a strong pattern of differentiation of headquarters-subsidiary relations within a MNC independent of any performance consideration. This internally differentiated context-structure congruence was explained by a natural-selection-like argument for fit. In this view congruence is seen to be the result of an adaptive process that leads to an equilibrium between the structure of the headquarters-subsidiary relation and the contextual contingencies the subsidiary faces. Fit or improved performance is an implicit underlying assumption since the unfit are assumed to have been selected out over time. At the same time we also found empirical support for the systems approach and the argument that for each contingent situation

there is a unique structural Gestalt that explicitly leads to improved subsidiary performance. This Gestalt differs from the structure predicted by the congruence view alone since it based on an economizing perspective that is attendant to the trade-offs that arise in a comparative evaluation of the relative efficacies and administrative costs of different structural elements.

An interesting empirical result is that while in the selection-like-approach the resource contingencies of the subsidiary are more important than contingencies due to environmental complexity in determining the context-structure fit, the reverse is true in the systems approach. These findings maybe interpreted as suggesting that, from the standpoint of improving subsidiary performance administrative discretion is extremely limited in situations where the subsidiary faces stable environments. In these cases local resource levels and the associated power-dependence distribution drive differentiation and, as indicated earlier, these resource structures tend to persist over time and indeed cannot be altered by administrative free will (Zeitz, 1980). In more complex and volatile environments, however, administrative choices are more salient since there are structures that can more effectively address critical interdependencies in addition to being congruent with the power distribution in the exchange relation (Thompson, 1967). While the above discussion of the circumstances under which selection or managerial adaptation is more dominant is limited to the context of headquarters subsidiary relations, it provides some direction to the more general theoretical debate on this subject initiated by Hannan and Freeman (1977) and summarized by Astley and Van de Ven (1983).

It is important to recognize that the above interpretation hinges on the conceptualization of the headquarters-subsidiary relations as a mixed-motive dyadic exchange relation with interdependent and independent interests. While this conception was used as an abstract intervening logic for the context-structure relationships proposed and observed in this study, it needs to be modeled and studied more explicitly in future research. To this end, we feel, that a greater interchange between research in interorganizational theory and intraorganizational theory is needed since the analysis of interactions between organizational units has progressed somewhat autonomously in these two domains largely due to divergent substantive and empirical foci and not because of irreconcilable

theoretical differences.

Our basic thrust in this paper is to advocate modeling complex multiunit organizations such as MNCs as differentiated networks. We have focussed, however, on the dyadic headquarter-subsidary relation as the unit of analysis. Admittedly, headquarter-subsidary relations are a limited aspect of the differentiated network model. Subsidiary-subsidary relations are also an important part of a network model for MNCs and need to be considered separately and jointly. Moreover, our analysis has involved deconstruction of the network into its constituent dyadic relations. While more complex, it is possible to consider triadic or even higher orders of analysis (Fombrun, 1983) including in the extreme case properties of the entire network such as overall effectiveness (Walker and Townsend, 1985).

The latter presents a promising direction for further research since it could also address the other major limitation of this study, namely our neglect of differences across MNCs. A more complete contingency model than we have presented would require considering patterns of differentiation both within and across organizations. A potential approach is to view organizational networks as being embedded in larger networks of external constituents. The resource dependencies, then, of different parts of the focal organizational network on the external constituents in its "action set" (Aldrich and Whetten, 1982) as well as the relations among these external constituents may significantly affect the patterns of behavior within the network (Pfeffer and Salancik, 1978). An analysis of these interactions, we believe, represents an important and relatively unexplored research area and is the central focus of a study we have recently initiated.

It is often a mind-wracking challenge to summarize the findings of an entire study in one pithy proposition, but it can become a fairly straightforward matter if the genius of Thompson is available for assistance: "Under norms of rationality, organizations facing heterogeneous task environments seek to identify homogeneous segments and establish structural units to deal with each." (1967: Proposition 6.1; p. 70)

NOTES:

1. In our ~~large~~ sample survey the ratio of within-company variance to across-company variance for all the contingency and structural variables employed in the study varied from 9.1 to 27.6 providing further support for focussing on within company differences.
2. The interdependency referred to here is of the reciprocal kind in Thompson's framework and not sequential or pooled interdependency. The most important characteristic is the reciprocal aspect signifying a true interpenetration of headquarters and subsidiary interests.
3. This lack of absolute autonomy is the crucial difference between the nature of exchange in intraorganizational versus interorganizational fields. This has been offered as the reason for the inappropriateness of exchange theoretic notions in intraorganizational relations (Cook, 1977), but this restriction in our opinion is invalid because some of the most prominent advocates of this theory (Emerson, 1962) have alluded to the usefulness of exchange theory for the analysis of relations among organizational subunits; a potential that has been admirably demonstrated by Thompson (1967) and Aiken and Hage (1968).
4. The term dependence is used in the same way proposed by Emerson (1962) and Thompson (1967). In this view, an organization is dependent on some element of its task environment in proportion to the organization's need for resources or performances which that element can provide and in inverse proportion to the ability of other elements to provide the same resource or performance.
5. This follows directly from the definition of power as the antipode of dependence in exchange formulations (Emerson, 1962)
6. This view of formalization is a departure from the classical conception that formalization presents inertial barriers to change and must hence be negatively correlated with increased environmental complexity (Blau and Schoenherr, 1971; Hannan and Freeman, 1977). Our view is based on observations in Burgelman's research (1984) and our own case research where organizations were seen to establish special governance mechanisms such as task forces and problem-solving teams to address crucial environmental contingencies. These non-formal, non-routine, administrative elements did not supplant the existing formalized administrative systems but existed simultaneously with them and in fact derived legitimacy from the formal structural context.
7. Performance here refers to economic performance. It is operationalized as an assessment of the operational effectiveness of each subsidiary relative to others in the same MNC, measured against prior expectations along output dimensions such as financial and strategic performance. We recognize that others such as Steers (1977) consider this to be only one of several aspects of organizational effectiveness.
8. For a more detailed explanation of the measurement procedure employed in the subsidiary-level survey, see Ghoshal and Bartlett (1987).
9. We readily admit that a more complete contingency theory would also involve considerations of absolute differences across firms. As we suggest in the discussion this represents a fruitful avenue for further research.
10. While the results in this study are based on all 66 MNCs there were no discernible differences in the findings when all the cases from the 16 companies in which the respondent was not at least a corporate vice-president were dropped in the analysis.

11. A ANCOVA approach was considered inappropriate in this case as both the contingency variables, resource scarcity and environmental complexity, are insignificantly correlated with performance and significantly correlated with the structural variables; violating the assumptions regarding their use as covariates in ANCOVA techniques (Tabachnick and Fidell, 1983).

12. $C\text{-Ratio} = [\text{trace}(B)/(k-1)]/[\text{trace}(W)/(n-k)]$, where n and k are the total number of items and the total number of clusters in the solution respectively. The B and W terms are the between and pooled within cluster sum of squares and cross product matrices. In our analysis the C-Ratio varied from $n = 2$ to $n = 8$ as 600, 473, 656, 571, 610, 560, and 544 respectively. The maximum at the four cluster solution indicates the existence of four different types of subsidiaries based on these clustering variables (Everitt, 1980). The robustness of the membership in the various clusters was checked by comparing the k-means 4-cluster solution with the solution from Ward's method. 91% of the cases were classified into the same cluster by both methods.

13. Scheffe's-Test helps find additional information besides a significant omnibus F-ratio in an ANOVA design. It involves the planned orthogonal comparison of group means to determine which of the treatment group means differ significantly from which others (Scheffe, 1953).

FIGURE 1: Classification of Subsidiary Context and Nature of Interdependency and Dependency in each Context

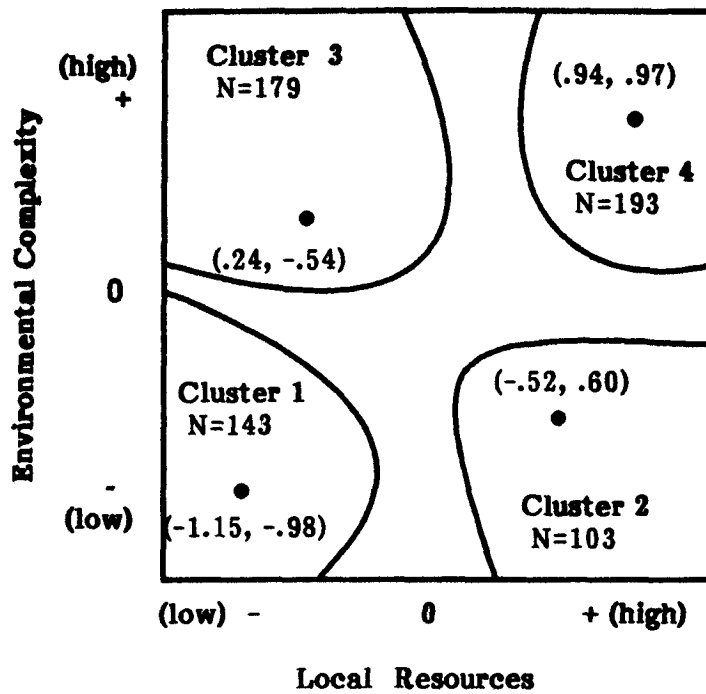
Environmental Complexity	(high)	C3 <i>Interdependency: High & Subsidiary Dependent</i>	C4 <i>Interdependency: High & Headquarters Dependent</i>
	(low)	C1 <i>Interdependency: Low & Subsidiary Dependent</i>	C2 <i>Interdependency: Low & Headquarters Dependent</i>
		(low)	(high)
		Local Resources	

FIGURE 2: Hypothesised "Fit" Structure of Headquarters-Subsidiary Relation in Each Context

Environmental Complexity	(high)	CLANS <i>C: Moderate</i> <i>F: Low</i> <i>S: High</i>	INTEGRATIVE <i>C: Low</i> <i>F: Moderate</i> <i>S: High</i>
	(low)	<i>C: High</i> <i>F: Low</i> <i>S: Low</i> HIERARCHY	<i>C: Low</i> <i>F: High</i> <i>S: Low</i> FEDERATIVE
		(low)	(high)
		Local Resources	

Note: 'C' indicates centralization, 'F' indicates formalization, and 'S' indicates socialization, in each of these ideal structural Gestalts.

FIGURE 3: Empirically Derived Clusters of Subsidiaries Based on Contextual Conditions



Note: (x,y) represents the standardized value of the local organizational resources 'x' and the environmental complexity 'y' at each of the cluster centroids shown.

TABLE 1: Spearman's Rank Correlation for Assessing Inter-Rater Convergence on Selected Variables

<u>MNC to which raters belong:</u>	<u>HQ-HQ Raters</u>			<u>HQ-Sub. Raters²</u>		
	<u>A</u>	<u>B</u>	<u>C</u>	<u>A</u>	<u>B</u>	<u>C</u>
<u>Clustering Variables</u>						
1. Environmental Complexity ¹						
a. Technological Dynamism	.63	.79	.76			
b. Competition	.88	.63	.71			
2. Local Resources	.79	.84	.76			
<u>Structural Variables</u>						
3. Centralization	.71	.69	.86	.95	.70	.75
4. Formalization	.92	.88	.83	.65	.50	.70
5. Socialization	.62	.59	.43	.60	.75	.70
<u>Dependant Variable</u>						
6. Performance	.84	.76	.73			

Notes:

1. No correlations are available for environmental complexity directly since this is merely an additive scale of Technological Dynamism and Competition.
2. Only structural variables were assessed for convergence of headquarters and subsidiary rater assessments.

TABLE 2: Correlation Matrix for Selected Standardized Variables (N=618)

	<u>1</u>	<u>1a</u>	<u>1b</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	μ^2	SD ²
<u>Clustering Variables</u>										
1. Environmental Complexity ¹									.00	.96
a. Technological Dynamism	.88*								.00	.95
b. Competition	.86*	.55*							.02	.95
2. Local Resources	.50*	.56*	.33*						.02	.95
<u>Structural Variables</u>										
3. Centralization	-.27*	-.32*	-.15*	-.48*					.00	.91
4. Formalization	.31*	.35*	.20*	.50*	-.18*				.00	.88
5. Socialization	.26*	.35*	.08	.51*	-.22*	.42*			.00	.93
<u>Dependant Variable</u>										
6. Performance	-.01	.10	-.12	.12	-.06	.06	.28*		.00	.95

* $p < 0.001$

Note:

1. Environmental Complexity is an additive scale (Cronbach's $\alpha = 0.7$) of the two items Technological Dynamism (1a) and Competition (1b).

2. While all variables are normalized, the normalization is within each MNC accounting for the slight departures of the overall means from 0.00 and the Std. Devs. from 1.00

TABLE 3: Differences in the Mean Values of Selected Variables Across Clusters

	<u>Cluster Membership</u>				<u>Scheffe's Test</u>	<u>F</u>
	<u>1</u> N=143	<u>2</u> N=103	<u>3</u> N=179	<u>4</u> N=193		
<u>Structural Variables</u>						
3. Centralization	.43	-.23	.28	-.47	(2,4) (1,3)	42.0*
4. Formalization	-.50	.20	-.24	.48	(2,4) (1,3)	51.9*
5. Socialization	-.44	-.28	.20	.51	(2,4) (1,3)	43.6*
<u>Dependant Variable</u>						
8. Performance	.04	.05	-.17	.10	All pairs	2.6

* F-values in ANOVA ($p < .001$)

Note: Scheffe's Test is a pairwise comparison of differences in group means. The pairs listed in the column are those groups for which the means are not significantly different ($p < .01$).

TABLE 4: Differences in the Mean Values of Top Performing Subsidiaries Across Clusters**

	<u>Cluster Membership</u>				<u>Scheffe's Test</u>	<u>F</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>		
	<u>N=30</u>	<u>N=16</u>	<u>N=15</u>	<u>N=49</u>		
<u>Structural Variables</u>						
3. Centralization	.40	-.46	.12	-.56	(3,2) (3,4)	10.8*
4. Formalization	-.52	.21	-.20	.44	(3,4)	13.2*
5. Socialization	-.17	.08	.32	.84	(3,4)	12.0*

* F-values in ANOVA ($p < .001$)

** Top performing subsidiaries are those with Z-scores > 1.0

Note: Scheffe's Test is a pairwise comparison of differences in group means. The pairs listed in the column are those groups for which the means are significantly different ($p < .01$).

TABLE 5: Correlations of Distance Measures with Subsidiary Performance (Excluding High Performing Units)

	<u>Performance</u>	<u>N</u>	<u>p-value</u>
<u>Distance</u>			
All Subsidiaries	-.14	508	.001
Cluster 1	-.08	113	.201
Cluster 2	-.11	87	.160
Cluster 3	-.18	164	.012
Cluster 4	-.17	144	.022

APPENDIX I:

RESPONSE PATTERN

1. Total Questionnaires mailed ¹	438
2. No response	215
3. Returned due to wrong mailing address	31
4. Respondents declining participation ²	50
5. Respondents who completed the questionnaire	76
6. Total number of responses used for the analysis ³	66

DISTRIBUTION OF SAMPLE COMPANIES FOR SELECTED CHARACTERISTICS

1. <u>Location of HQ</u>	<u>North America</u>			<u>Europe</u>	
		36		30	
2. <u>Annual Sales (billions)</u>	<u>< 1</u>	<u>1 - 5</u>	<u>5 - 10</u>	<u>> 10</u>	
	4	43	8	11	
3. <u>Number of Subsidiaries</u> ⁴	<u>1 - 5</u>	<u>6-10</u>	<u>11-15</u>	<u>16-20</u>	
	10	19	25	12	
4. <u>Major Industry</u> ⁵	<u>Aerospace</u>	<u>Building Products</u>	<u>Chemicals</u>	<u>Drink & Food</u>	<u>Electrical/ Electronics</u>
	2 (7)	3 (18)	7 (43)	7 (62)	3 (34)
	<u>Health Products</u>	<u>Industrial Equipment</u>	<u>Metals</u>	<u>Motor Vehicles</u>	<u>Office Equipment</u>
	3 (28)	9 (43)	11 (55)	3 (27)	2 (13)
	<u>Paper & Wood</u>	<u>Petroleum Products</u>	<u>Rubber</u>	<u>Textiles</u>	<u>Others</u>
	2 (25)	7 (34)	2 (9)	2 (8)	3 (32)

Notes to Appendix I:

1. This includes all the 261 North American and 177 European multinationals in the *World Directory of Multinational Enterprises* which describes the 500 largest industrial corporations in the world that had significant international investments during 1981. A minimum test of multinationality was met by satisfying one of the following criteria: (a) the firm had 25% or more of the voting equity of manufacturing or mining companies in at least three foreign countries; (b) the firm had at least 5% of its consolidated sales or assets attributable to foreign investments; (c) the firm had at least \$ 75 million sales originating from foreign manufacturing operations. The *Directory* does not constitute a census of all large multinationals. Nevertheless, it is estimated that the 500 parent companies together control well over 80% of the total stock of foreign direct investment.
2. The reasons offered by the declining respondents can be subdivided into:
(i) Undergoing major reorganization (16%); (ii) Questionnaire not suited to scope of organization's international operations (32%); (iii) Company policy to decline (46%); and (iv) Other reasons (6%).
3. The distribution of the respondent's titles by actual number is as follows:
(i) Chairman/CEO (14); (ii) Vice-Chairman/Executive Vice-President (8); (iii) Director/Vice-President of International Operations/Corporate Planning (28) (iv) General Manager (5); (v) Corporate Staff (11).
4. These represent the number of countries of the 19 specified in the questionnaire in which the parent reported wholly owned subsidiaries. These countries were Argentina, Australia, Brazil, Canada, Colombia, France, Italy, Ireland, Japan, Malaysia, Mexico, New Zealand, Singapore, Taiwan, Thailand, United Kingdom, United States, West Germany, and Venezuela. These countries were chosen for their large stocks of foreign direct investment.
5. These industry classifications are also based on the *World Directory of Multinational Enterprises*. The number in parentheses represent the total number of companies in each industry in the population to which the questionnaire was mailed.

APPENDIX II: OPERATIONALIZATION AND MEASUREMENT OF CONSTRUCTS

II-A: HEADQUARTERS LEVEL INSTRUMENT (Instrument Finally Employed in the Study)

Environmental complexity is an additive 5-point scale consisting of two equally weighted variables, *local competition* and *technological dynamism* (Cronbach's $\alpha=0.7$). These variables were proposed by Lawrence and Dyer (1983) as important constituents of environmental information complexity. *Competition* was measured by - "On a scale of 1 [not much competition] to 5 [extremely intense competition], rate the intensity of competition your company faces in each of the following markets. (This was followed by a list of 19 countries, with a centrally anchored 5-point scale associated with each and the option of specifying the non-existence of a subsidiary in each case. The same pattern was adopted for all the other questions). *Technological dynamism* was measured by - "On a scale of 1 [very slow] to 5[very rapid], indicate the relative rate of product and process innovations [for the industry as a whole] that characterizes each of the following markets."

Local organizational abilities/resources. This was measured by - "Some national organizations in your company may have relatively advanced physical resources [such as technology, capital] and managerial capabilities. Some others in contrast may not have such resources to the same extent. On a scale of 1 [low] to 5 [high], rate the overall level of resource availability in your national organizations in each of the following countries."

Centralization. This was operationalized as the opposite of autonomy measured by - "Different national organizations in your company may enjoy different levels of autonomy for deciding their own strategies and policies. On a scale of 1 [very low] to 5 [very high], rate the extent of local autonomy by each of the following national organizations."

Formalization. This was measured by - "The extent to which policies and systems are formalized may vary within the company, being different for different national organizations. On a scale of 1 [low formalization] to 5 [high formalization], rate the extent of formalization of policies and systems [through instruments such as manuals, standing orders, standard operating procedures, etc.] in each of the following national organizations."

Socialization. This was measured by - "Some of your national organizations, compared to others may be relatively more in tune with the overall goals and management values of the parent company. Let us call this the extent of shared values. On a scale of 1 [low shared values] to 5 [high shared values], rate each of the following national subsidiaries."

Performance. This subjective measure was based on the following question - "Please evaluate the average overall performance over the last three years (based on financial, strategic and other considerations, that you feel are relevant) of each of the following national organizations. Rate each organization on a scale of 1 [much lower than expected] to 5 [much better than expected]."

Perceptions of relative strategic importance, governmental regulation, impact of budgetary reductions, communications flows, innovativeness, and ease of innovation adoption, were also obtained but were not used in this study.

II-B: SUBSIDIARY LEVEL INSTRUMENT (Employed for Pre-Test)

Centralization. Operationalized as the opposite of autonomy and measured by estimates of subsidiary managers on the extent of headquarters and/or subsidiary influence on the following four decision situations: (i) introduction of a new product, (ii) changes in product design, (iii) changes in manufacturing process, and (iv) career development plans for senior managers. For each of these situations, the relative influences could be scored on a 5-point scale representing: 1 - headquarters decides alone; 2 - headquarters decides but subsidiary can and does provide suggestions; 3 - both headquarters and subsidiary have roughly equal influence on the decision; 4 - subsidiary decides but headquarters can and does provide suggestions; and 5 - subsidiary decides alone.

Formalization. Measured by the assessment of subsidiary managers of the extent of truth or falsehood of the following three statements: (i) for most tasks, the headquarters have provided a fairly well-defined set of rules and policies, (ii) to the extent possible there are manuals that define the courses of action to be taken under different situations, and (iii) the headquarters continuously monitors to ensure that rules and policies are not violated. Responses could be scored on a 4-point scale representing: 1 - definitely true; 2 - more true than false; 3 - more false than true; and 4 - definitely false.

Socialization. Measured by aggregating the responses of subsidiary managers on the following three indicators: (i) extent of time the respondent actually worked in the headquarters, scored as 1 if the duration was one year or more and 0 otherwise; (ii) perception of having a mentor at the headquarters, positive responses being scored as 1 and negative responses as 0; and (iii) the number of headquarters visits per year, scored as 1 if the count was one or more and 0 otherwise.

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