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THE CONTINGENCY THEORY OF ORGANIZATION: AN EXAMINATION OF THE RELATIONSHIPS OF CLIMATE AND PERSONALITY WITH FIRM AND INDIVIDUAL PERFORMANCE IN A DYNAMIC ENVIRONMENT

By

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ABSTRACT

THE CONTINGENCY THEORY OF ORGANIZATION: AN EXAMINATION OF THE RELATIONSHIPS OF CLIMATE AND PERSONALITY WITH FIRM AND INDIVIDUAL PERFORMANCE IN A DYNAMIC ENVIRONMENT

By

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An individual's personality constitutes the patterns of attitudes and needs developed through their experiences, and which influences their behavior. In a similar fashion, an organization's structure evolves as a firm attempts to deal with the uncertainties of its external environmental demands.

The objectives of this research were to (1) explore the relationship between organizational structure and individual behavior and processes and (2) to provide empirical support for the contingency theories of organization structure by testing the validity of organizational attributes generally associated with the dynamic form of organization structure.

The non-destructive testing industry was chosen for study on the basis of the technological and market volatility reported by a series of experts in the field. Two

high and one low performing firm were selected for closer examination.

Results indicate that firms which had successfully adapted to the dynamic environment studied produced climates significantly less constraining to individual performance than did competitors who had not structured themselves in a manner consistent with the demands of the market and technological environments.

Perceptions of role conflict and tolerance of role conflict were associated strongly with individual performance. Individuals in highly boundary relevant positions reported higher levels of role conflict than individuals in positions low in boundary relevance.

Highly boundary relevant positions in the firms studied measured low in role ambiguity, while the positions located within the structure away from organizational boundaries measured high in ambiguity. Reports of role ambiguity were significantly correlated with level of organizational performance. Tolerance of role ambiguity results were non-significant in tests analyzing the variance between high and low performing organizations and high and low performing individuals.

The research introduced empirical data from dynamic organizations to the research extent on contingency theories of organizational structure. It was also an attempt to

begin establishing the validity of theoretical connections between organizational structure and individual behavior and processes, forming the next logical link in a potential chain of contingency based relationships.

To Daddy

with love

from his little girl

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To Henry
for pointing the way

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for maps and sunshine

To Dick
for a sense of perspective and tolerance

To Jim
for wiping away the tears of joy and frustration

and, To my family
for a lifetime of confidence, encouragement, and gentle guidance along all the roads I have chosen to take.

My thanks.

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CHAPTER I

WHERE DOES IT HURT?

INTRODUCTION AND BACKGROUND

An Introduction to Contingency Theories of Organizational Structure

Contingency theories of organizational structure developed from a body of studies written in the late 1950's and early 1960's. Basic to these theories is the concept of the organization as an open system, in which the behaviors of individuals and groups within the organization are interdependent with the environments in which they exist. An organization is thus viewed as being in a continuous state of interaction with its environments; monitoring, assessing, and internalizing the significant changes which occur, and adapting its structure to the new conditions relevant to its efficient operation. The environment contains many potential sources of pressure for organizational change, but among these sources the organization need only be sensitive to the select few which have direct bearing on its operations. Those institutions, groups, individuals, and other organizations which exist beyond the boundaries of a focal organization, directly providing input, consuming output, or exerting significant

pressure on the decisions the organization makes are considered part of the firm's relevant environment. Suppliers, customers, investors, creditors, labor unions, public pressure groups, and government agencies are likely to be integral parts of most organizations' relevant environments, although the specific set which defines these environments may vary considerably from industry to industry, from organization to organization. At any given point in time, there will be some external forces closer than others to an organization, and which thereby are capable of exerting more influence.

For several decades, organizational research centered its efforts on the search for optimal managerial methods; principles which could serve a manager well in all situations. Such prescriptive guides to action were, indeed, developed by the Classical and Administrative schools of thought, but failed to survive the test of efficacy in application in the workplace. No single method of organization or administration has yet to prove optimal across a variety of situations, although there appear to be strategies which work better in <u>particular</u> situations. This situational, or contingency approach to organization reconciles a good portion of conflict found in the previous research in the Classical and Human Relations schools. The classical, or mechanistic approach, appears to work well in organizations existing in relatively stable

environments, while the less structured, human relations approach appears to work better under conditions of relative uncertainty, or dynamic environments.

After analyzing the results of interviews conducted in twenty Scottish and English firms, Burns and Stalker (1961) developed a conceptual framework which characterized organization structures on a continuum. The extremes of the continuum were defined, at one end, by mechanistic structure, and, at the other, by organic structure. (See Figure 1.)

Mechanistic, or bureaucratic systems are characterized by hierarchic patterns of control, authority, and communication. Patterns of formal interaction are precisely laid out and strictly observed. Production methods are highly standardized and slow to change. Tasks are specifically and narrowly defined, resulting in a sense of abstractness in each individual task; the part loses identity from the whole (Tosi & Carroll, 1976). Decision-making responsibility is centralized. Hierarchical firms demand loaylty from their employees, placing emphasis on knowledge of internal operations rather than on more general skills, knowledge, and experience (Burns & Stalker, 1961).

Conversely, the organic, or dynamic organization structure develops in response to volatile environmental conditions. The firm must be ready to handle unpredictable

Mechanistic Structure	Factor	Organic Structure
slow; predictable	environmental change	rapid; unpredictable
centralized	control/authority/ responsibility	decentralized
formalized	interaction patterns	nonformal
standardized	production techniques	vary with project
high/narrowly defined tasks	task structure	low/changing, broadly defined tasks
low	general skill level of employees	high
internal	knowledge	cosmopolitan

Figure 1.--The mechanistic-organic continuum of organization structure.

demands for action. Tasks in such dynamic organizations are subject to continual redefinition, and require high levels of skill and versatility. As projects change, authority and responsibility relationships are adjusted to meet the new requirements (Tosi & Carroll, 1976). Control and communication are decentralized through the organization network. Emphasis is placed on cosmopolitan knowledge and technical abilities rather than organizationally determined power.

Woodward's research (1965) provided considerable support for Burns and Stalker's theory. After ten years of study in one hundred British firms employing one hundred to eight hundred people, Woodward discovered a strong positive relationship between success and organizational structure when she classified firms according to their levels of technological complexity (unit and small-batch production, mass production, and continuous-process production). Successful unit production firms had common organizational characteristics, as did the mass and continuous-process production subgroups. The successful large-batch firms tended to be organized along mechanistic (bureaucratic) lines. Duties and responsibilities were clearly defined. The successful continuous-process and unit production firms, however, were less tightly organized, had more permissive management, greater delegation of authority, and tended to place less emphasis on written

definitions of duties and responsibilities. Woodward's case studies provided confirmation not only for the proposed link between technology and the appropriateness of organization structure, but also, according to Filley, House and Kerr (1976), demonstration that the link is causal, not coincidental.

The environment may be conceptualized as a combination of several types of sectors; external sectors may be simple or complex, static or dynamic (Jurkovich, 1974). When they are simple and certain, a mechanistic organization will be an appropriate form of adaptation and when the external sectors are dynamic, the organization form should be organic (Burns & Stalker, 1961). Both organic and mechanistic organizations are composed of generic types of subsystems (Katz & Kahn, 1966), but the specific form these subsystems take varies from industry to industry. For example, the production subsystem, the technical core, may be highly routine and repetitive or it may be an "intensive" technology (Thompson, 1967). Innovative subsystems also differ (according to Lynton, 1969), depending on whether the environment is placid or turbulent.

Environment and Organization Structure

Levels of certainty in an organization's environment may be thought of as ranging from stability at one extreme to volatility at the other (the analytical structure

that follows is more fully developed in Tosi and Carroll, 1976).

This does not mean to imply that no changes ever occur in "stable" environments; it means rather that changes are relatively minor, infrequent, and predictable. Conversely, under highly volatile environmental conditions, changes are rapid, of great magnitude, and unpredictable.

Although the complete environment contains a large number of elements of which the organization must be aware, it has been argued that the market a firm serves and the type and source of technology account for the greatest amount of variance observed in organizational structure (Burns & Stalker, 1966). The combination of environmental sectors (market and technological), and volatility conditions (stability-volatility), when placed on two axes, creates four distinct organizational types. (See Figure 2.) These dichotomies are a matter of theoretical convenience, useful for purposes of analysis but in no way represent the full spectrum of variation found between the two anchors of the continuum.

Burns and Stalker (1961) describe, in general terms, the characteristics of firms dealing strictly with volatile environments or stable environments (cells I and IV of Figure 2). Firms in cells II and III, however, operate with organizational subsystems that interact with a combination of stable and volatile elements. The firm

in cell II faced with a stable market and a volatile technology, will be most sensitive to changes in the technological environment. This type of firm is called "technology-dominated mixed." An organization existing under conditions of a stable technology and a volatile market (cell III) may be called a "market-dominated mixed," since it must be ready to adapt to changes in its market environment, while the relevant technological environment, by virtue of its stability, would make few demands for change (Tosi & Carroll, 1976).

		Technology: stable	Technology: volatile
Market: stable		mechanistic or hierarchic I	technology-dominated mixed II
Market: volatile		III market-dominated mixed	IV organic or dynamic

Figure 2.--The contingency theory of organization structure.

These four distinct theoretical organization types, each peculiar to its particular market and technological states, are made up of the same five generic subsystems--production, boundary spanning, adaptive, maintenance, and managerial--within their organizational boundaries (Katz &

Kahn, 1966). The general characteristics of these subsystems, however, and the relationships among them will vary greatly from organizational type to type.

Organizational Subsystems

Organizations are composed of five basic subsystems (Katz & Kahn, 1966; refer to Table 1 and Figure 3 for a graphic representation of the subsystems, their functions and interrelationships). The production subsystem incorporates those activities involving the transformation of materials input to final output. Boundary spanning subsystems are responsible for the procurement of input for the production subsystem, and distribution of the output generated by the production activities. The adaptive subsystem is responsible for monitoring changes in the relevant external environment, and relaying the information to the managerial subsystem for use in planning, coordination, direction, and control activities aimed at the total system. The maintenance subsystem attempts to smooth the interaction of all the subsystems, developing performance standards and implementing the decisions made by the managerial subsystem.

In the paragraphs following, an integrative model is developed outlining the form and inter-relationships of the various subsystems as they appear in organizations dealing with different degrees of environmental turbulence.

Table 1.--General subsystem functions.

Production	-	Produces the product, service, or idea which is bought/consumed by the public
		"Technical Core" of organization (Thompson, 1967)
Boundary Spanning	-	Connects organization with external points of contact
		Secures raw materials and human input
		Distributes finished goods output
Adaptive	-	Monitors the activities of the firm's relevant environment
		Monitors performance and efficiency levels to insure profitability and sufficient capital for future investment
Maintenance	-	Seeks to smooth the activities and problems of other subsystems responsible for morale, reward systems, socialization, discipline, training, performance appraisal, etc.
		Sets performance standards
Managerial	-	Controls, coordinates, and directs the activities of the firm's subsystems responsible for adjustments of the total system to external environments
		Determines general policy and strategies of interacting with the environment
		Resolves internal conflict between units

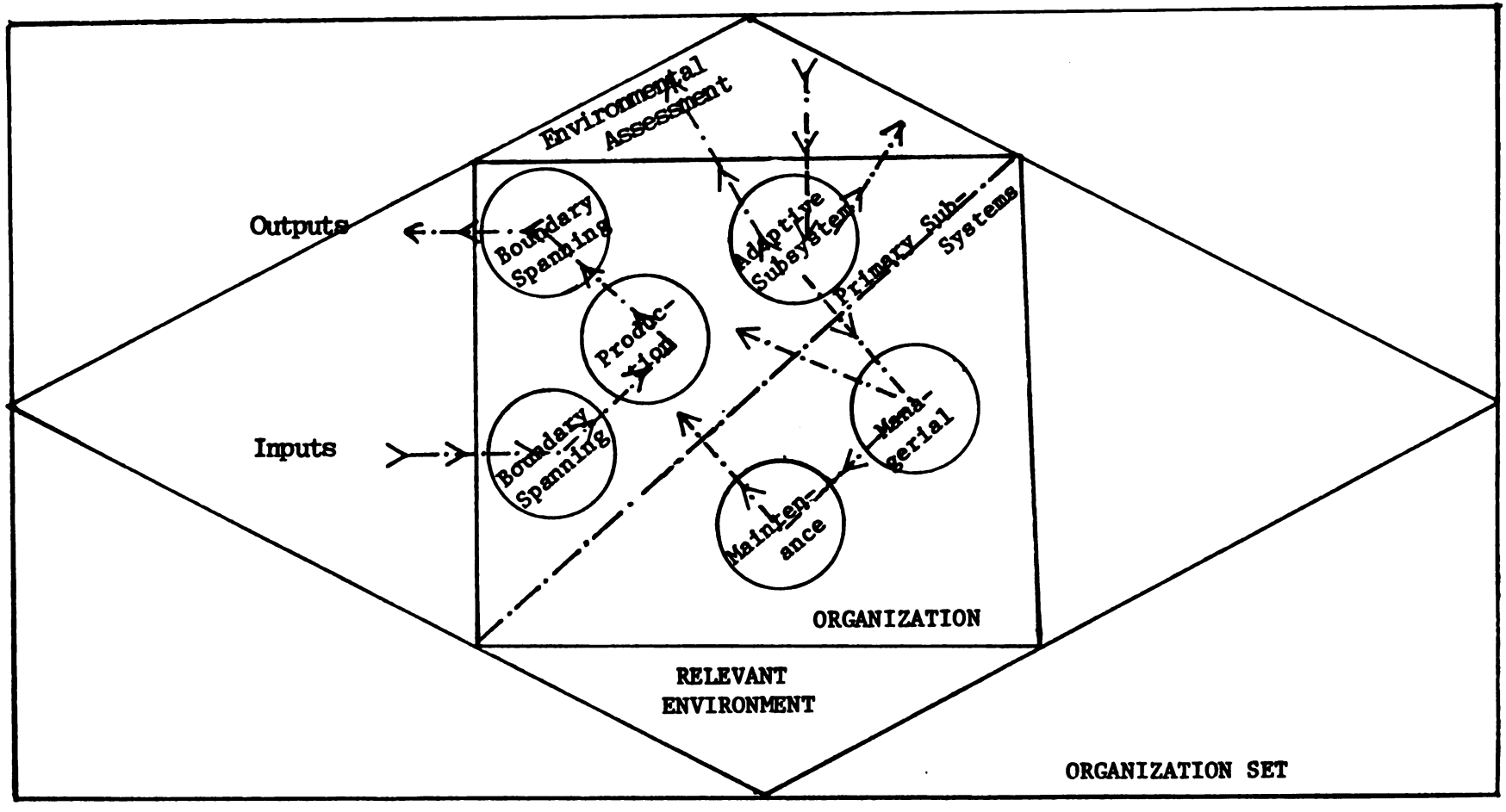

Figure 3.--Organizational-environmental interaction.

The Mechanistic, Hierarchical Organization

Production Subsystems

The production subsystem of the mechanistic organization is characterized by a high degree of repetitiveness. Methods are well and narrowly defined, standardized, and highly repetitive. Members are often assigned only a few tasks, with a very short work cycle. Operatives have little control over the tasks performed, or the method used to complete them. Such extreme division of labor abstracts individuals' tasks to such a degree that workers may feel they are making little contribution to the creation of a complete product. Individual tasks lose their identity in the numerous tasks which combine along an impersonal assembly process to form the stable organization's product.

Work activities, standardized and segmented into very small units, require only very low levels of skill. Since workers are easily replaceable, given an adequate labor force, they will be dependent upon the organization, but not vice versa. This lack of security in the hierarchical firm's production subsystem gives rise to a need for an effective method of protection against potential arbitrary action of managers. Labor unions perform this function.

Boundary-Spanning Subsystems

Because the hierarchical organization's market is relatively static, the channels of distribution for their products or services will be fairly well defined and standardized. As methods of distribution become ineffective, new channels will arise, but this will likely be a slow process. The hierarchical organization's distribution subsystem will exercise a great deal of influence over other segments of the distribution channel.

Products or services of firms in stable industries will usually be quite similar in function and form. Products of competing firms can thus be substituted for one another. Product differentiation in such industries is created largely through advertising as each firm attempts to create its own market segment. Price competition may be prevalent in mature product markets.

In the stable environment, sources of raw materials will be well developed and clearly defined. Captive suppliers are common and, as with the distribution sector, sources of materials input to the firm will probably not change until suppliers prove to be inefficient, or uncompetitive from a cost standpoint. Repetitive production systems function most effectively when they proceed at a constant rate. Maintaining raw materials and finished goods inventories buffers the production subsystem so that

it need not be disrupted as seasonal influences alter product demand levels.

Adaptive Subsystems

Under stable environmental conditions, adaptive subsystems will have a fairly simple structure. Information is plentiful, and easily gathered. As the organization gains experience, it learns which portions of the environment to monitor, and will likely develop standard methods of adapting to changes. This high degree of environmental stability offers the hierarchical firm the opportunity to make long-range plans and capital commitments. Low risk levels enhance its ability to use external sources of capital. Technological changes in the firm's product (output) may occur from within the organization as researchers and engineers concentrate their efforts on product improvement and increasing production efficiency.

Maintenance Subsystems

The focus of the hierarchical organization's maintenance subsystem will be on performance measurement and evaluation. The evaluation criteria will be developed from data combined in records of past performance. The purpose of the maintenance subsystem is to increase internal effectiveness. Internal effectiveness is more critical to the survival of the mechanistic firm than to

the other organization types, since increasing returns are realized internally. Thus, this subsystem will have a great deal of organizational influence in stable environments.

Managerial Subsystems

There will be centralized control in the hierarchical organization. An individual's organizational power will be based upon position, flowing from the authority, responsibility, and communication will be relatively clearly defined by the managerial subsystem, as will be each job's content. There should be a small number of managers (relative to the operators) in mechanistic organizations, leading one to expect great homogeneity of attitude among the high-level executives; promotions will be awarded not only for proven abilities, but also for the consistency of one's point of view with current management.

The Organic, Dynamic Organization

Production Subsystems

Production subsystems in organic organizations will be composed primarily of general-purpose equipment, since the application and sequencing of operations will vary from project to project. Routine, repetitive production procedures will not work well here. The "intensive" technology of the dynamic firm's production subsystem is a custom one; the selection, combination, and ordering

of technological application is determined through an evaluation of the particular project at hand. As environments and projects change, so will the technologies used.

Boundary-Spanning Subsystems

Dynamic organizations will not have multi-link distribution channels, since the fluctuation of the environment does not allow the routinization of the distributive function and its transfer to outside jobbers. Channels of distribution will be unstructured, changing with environmental demands. Highly skilled individuals will be needed in the marketing areas to read the changing demand structure.

Those involved in procuring raw materials must be skilled in locating new sources of input, as both the level and type of raw material needed will be in a state of flux. Keeping in close contact with a variety of suppliers is essential to the smooth operation of the procurement function.

Adaptive Subsystems

The activities of the adaptive subsystem are vital to an organization's existence and, in the dynamic firm, they take on added significance. The unpredictability of the timing, magnitude, and direction of environmental changes makes personal skill in environmental monitoring

and interpretation a necessary attribute for members of adaptive subsystems. Market research and data interpretation activities will be extensive. Research and development concentrates on pure, rather than applied research. Although members will be highly trained, they will be required to update their skills, or to leave the organization, as relevant aspects of the environment change. Since the skills required may change as the environments change, the organization may use a strategy of hiring new personnel rather than retraining current members.

Maintenance Subsystems

Historical data will have little utility under volatile environmental conditions, leading to subjective control and evaluation standards. Evaluation will focus on the procedures followed to complete a task; in evaluation, process will be more important than the actual results (Tosi & Carroll, 1976). It is assumed that a logical sequence of steps can be determined and that if one proceeds according to these steps, results will be satisfactory.

Personnel in the dynamic firm will probably have only short-range commitments to the organization; their focus will tend to be on their own profession rather than on the organization in which they operate (Tosi & Carroll,

1976). When the firm no longer needs the abilities an individual has to offer, the employee will either be relieved or move on voluntarily. Professionals working in dynamic industries are willing to exercise their skills in most any organization so long as they are able to practice in their profession.

Control in the organic firm will reside in the individual with the greatest expertise, or the greatest financial interest. If expertise is the power base, the organization's pattern of influence will change as the nature of the firm's projects changes. If influence derives from financial interest, the organization will be an extension of the owner's intersts; decisions will reflect the owner's desires.

Managerial Subsystems

Due to extensive environmental fluctuation, managerial subsystems in dynamic organizations will not be characterized by set, well-defined procedures. Since guidelines will change frequently to meet new environmental requirements, managerial subsystems in dynamic firms will be relatively less structured than they are in other organizational types.

As needs for particular skills arise, individuals move from project to project. Over time, an employee may be exposed to several different superiors and authority

structures. He may also experience stress from the role ambiguity and uncertainty fostered by this rather continuous change in patterns of authority, communication, and interaction.

To decrease the levels of environmental uncertainty, the managerial subsystems may tend to push the organization toward more stable market or technological sectors of the environment. Such a shift would facilitate planning, control, and the firm's ability to make long-term commitments to its members and creditors, but simultaneously diminish its ability to adapt to environmental change. New firms enter the field to take the place of those dynamic firms making the transition to more stable environments. Because of the flexibility demanded by volatile environments, dynamic firms will tend to be smaller than hierarchical firms.

Discussion

There is, of course, no such thing as "pure" organizational type. Variations in actual structural characteristics make each organization different in its details from every other organization. The classifications given here are intended to order thoughts about organizational structure into coherent patterns.

This interactive model of organization structure assumes that organizational types and methods of subsystems'

environmental interaction will vary directly with changes in the relevant market and technological environments. There are, however, other factors which must be taken into consideration. Multidivisional organizations may have a wide variety of substructures within them, some dealing with very stable markets and technologies, others dealing with volatile environments. Such firms must take great care to avoid imposing inappropriate organizational structures on any of their subunits. The mechanistic structure appropriate to the production system of a firm, for example, would create havoc if forced upon one of its internal research units. The autonomy a research scientist demands is violated at the expense of diminishing his value to the firm. Each segment of a conglomerate must be allowed to respond to the demands of the environments with which it must deal, changing its structure and processes in efforts to remain consistent with and survive in its environmental context. Only through appropriate adaptation will the continued well-being of the firm or subunit be insured in the long run.

The Individual in the Organization

In an organizational context, an individual's roles are defined by the behavior sequences exhibited in interaction with others, both within and across organizational boundaries. Specifics of role behavior vary with

Table 2.--Subsystem structure and characteristics within the structure-environment model's four organizational types.

Table 2.--Subsystem structure and characteristics within the structure-environment model's four organizational types.

Subsystem Organization Type	Mechanistic, Hierarchical	Dynamic
Production	-Tasks generally narrowly defined, highly routinized, repetitive, require little skill, workers easily replaceable, low job security, workers commonly unionized, individuals have little control over production methods or task assignments	-Primarily composed of general purpose equipment -Sequence of operations varies from project to project -Non-repetitive, non-routine operations
Boundary-Spanning	-Well-defined standardized channels of distribution over which organization may have very strong influence -Production differentiation will occur through advertising media -Well-developed and defined raw materials sources; large industries may have captive suppliers	-Unstructured channels of distribution -Marketing must be taken on as internal function -Unstructured pattern of raw materials acquisition services due to fluctuation in needs as projects change
Adaptive	-Set rules will evolve for dealing with any changes -Environment information will be easily accessible -Engineering and R & D activities will focus on applications (product development) -Emphasis will be on internal cost reduction for increased profitability	-Members must be highly skilled in environmental interpretation due to extreme variability -Members must continually update skills -Members often highly educated -Market research is extensive

Table 2.--Continued.

Subsystem Organization Type	Mechanistic, Hierarchical	Dynamic
Maintenance	-Historically developed & validated control systems -Emphasis will be on performance measurement and evaluation -As major locus of information this subsystem will have great organizational influence	-Control & performance evaluation are likely to be subjective -Personnel likely to hold only short-range commitments to the firm -Control will reside in individual with greatest expertise or financial interest -Stronger focus on process rather than outcome
Managerial	-Managerial control will be based on position and the power that position affords -Monitoring and control operations will enforce rigid standards -Hierarchy of authority/responsibility will be concise -Jobs will be well-defined -Relatively small number of managers (relative to operatives) -Advancement through ability and acceptability of one's point of view	-Loosely structured -Few policy guidelines for decision processes -Structure and authority shift as projects change -Attempts to move organization toward stability/certainty -Project management

Table 2.--Continued.

Table 2.--Continued.

Subsystem Organization Type	Tech-Dominated Mix	Market-Dominated Mix
Production	-Intensive technology (general purpose equipment applied according to demands of project) -Highly skilled personnel	-Programmed production, stable technology -Low skill requirements -Low job security (unionization will be common) -Performance measured by objective cost criteria -Changing product design
Boundary Spanning	-Fairly stable channels of distribution -Changing raw materials needs and sources -Skim market followed by price competition	-Channels of distribution -Raw materials needs and sources all fluctuate with market demands -Pricing controlled by marketing subsystem
Adaptive	-Major policy and strategy decisions from those reading technological environment -Emphasis on R & D rather than applications engineering -Simplistic market research	-Major policy and strategy decisions from those reading market environment -Little R & D -Extensive market research

Table 2.--Continued.

Subsystem Organization Type	Tech-Dominated Mix	Market-Dominated Mix
Maintenance	-Difficult to establish stable control measures and cost data in technological units -Control and cost data readily available from marketing units -Research is high status unit	-Difficult to establish stable control measures in marketing units -Difficult to develop historical cost data -Marketing is high status unit
Managerial	-Hierarchical authority structures in technological sector -Potential problem achieving accord between stable and dynamic units of the firm	-Hierarchical authority structures in technical sectors -Flexible authority structures in marketing and distribution sectors -Potential problem achieving accord between stable and dynamic units of firm

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the incumbent's personality, their perceived expectations and rewards, and the demands of the role set. Frequently, individuals are confronted with a situation in which their roles demand behavior which conflicts with their own value system (inter-person role conflict), with information sent to them by others in the role set (inter-sender role conflict), or with the demands other roles place on them (inter-role conflict). When an individual is subjected to sets of behavioral demands which are inconsistent with one another, he is said to experience role conflict. It may also happen that an individual lacks sufficient information regarding expected role behavior, performance levels, means of fulfilling known expectations, or rewards for successful completion of a desired task. In such cases, role ambiguity is said to exist.

The presence of role ambiguity or conflict, then, would logically increase the probability that an individual would experience some degree of dissatisfaction with the role(s), in that he must spend time seeking clarification of behavioral expectations (reduce role ambiguity) or resolving the conflict he perceives to exist between two sources of role information (reduce role conflict). The dissatisfaction experienced may manifest itself in the form of physical or psychological stress, decreased job interest or involvement, or decreased innovative behavior, as affected individuals begin to seek sources of

clarification and satisfaction (Miles, 1975; House & Rizzo, 1972; Ivancevich & Donnelly, 1972; Lyons, 1971; Rizzo, House & Lirtzman, 1970; Kahn & Wolfe, 1964). The salience of role conflict and ambiguity, then, lies in their potential to decrease individual performance through deleterious effects on the individual's attitudes, behavior, psychological and physical well-being. The organization is in turn affected indirectly through resultant impacts on turnover, absenteeism, performance levels, anxiety, loyalty, trust, satisfaction, etc. The specific causes of the types of effects role ambiguity and conflict have on individuals' ability to adequately perform their various roles have not been fully clarified by the research available to date, as the definitions of the ambiguity and conflict constructs, and the sites, subjects, and methodologies have varied greatly (Sell, Brief & Schuler, 1976; Rizzo, House & Lirtzman, 1970).

The most extensive investigation of the dimensions of the role ambiguity and conflict constructs was conducted by Kahn, Wolfe, Quinn, Snoeck and Rosenthal in 1964, in which the authors collected fifty-three independent measures from role senders, role incumbents, and organization environments in six firms, and followed up with a national survey which utilized self-report measures of perceived conflict and ambiguity, sent conflict and ambiguity and the organizational context of 725 individuals.

Kahn et al. reported that role conflict was associated with job-related tension and dissatisfaction, and a variety of interpersonal outcomes, including lower levels of trust, liking, and respect for role senders. Incidents of role conflict were also found to be greater among those individuals whose roles involved contacts across organizational boundaries, or a large number of contacts across departmental boundaries. An inverse relationship between closeness of supervision, and role conflict, and the stringency of rules governing behavior and role conflict was also observed. Gross, Mason, and McEachern (1958) found significantly negative correlations between three measures of job satisfaction, career satisfaction, and role conflict, and a positive relationship between perceived role conflict and experiences of tension and anxiety among 105 school superintendents and 508 school board members.

In 1970, Rizzo, House, and Lirtzman used factor analysis to develop scales to measure the concepts of role ambiguity and conflict, then attempted to correlate the constructs with other variables. They found the scales tended to correlate negatively with measures of need fulfillment and positively to anxiety and propensity to leave the organization. On an organizational level, goal conflict and inconsistency, delay in decisions, distortion and suppression of information, and violation of chain of

command were closely associated with high degrees of role conflict and ambiguity. Low degrees of role conflict and ambiguity were in evidence where organizations emphasized formalization, planning, horizontal communication, adaptability to change, adequacy of authority, and personal professional development. These patterns tend to fit with what one would predict from role theory and previously discussed research.

Tosi (1971) found role conflict to be directly related to job threat and anxiety, and inversely related to job satisfaction. No significant relationship was found between these constructs and effectiveness. Replication of the study by Hamner and Tosi (1974) used a different sample, and produced much the same results, although the effectiveness measure was excluded. In addition, role conflict was found to be negatively related to amount of reported influence, and role ambiguity joined the rank with role conflict in a positive relationship with job threat and anxiety, and a negative relationship to job satisfaction and influence.

Lyons (1971) investigated the moderating effects of need for clarity (the obverse of ambiguity) on the relationships between role clarity and propensity to leave the organization, voluntary turnover, job tension, and job satisfaction of some 156 nurses in several community hospitals. Significantly stronger relationships existed

between role clarity and turnover for individuals classified as high in need for clarity than for those classified as low on the same measure. Both Lyons (1971) and Ivancevich and Donnelly (1974) have shown that an individual's need for role clarity may moderate the relationships between role ambiguity and personal outcomes.

House and Rizzo (1972) treated role conflict and ambiguity as intervening variables between potential sources of conflict and ambiguity and various personal outcomes. Their results provided weak support for the hypothesis that role conflict operates as an intervening variable between formal organizational practices and organizational effectiveness, respondent satisfaction, and propensity to leave. Role ambiguity did, however, intervene as expected.

Both role ambiguity and role conflict appear to be important intervening variables which mediate the effects of various organizational practices on both personal and organizational outcomes. It is also evident that different types of people respond differently to role conflict and ambiguity. In an attempt to generate information on groups other than members of the relatively stable organizations used in prior research, Miles (1975) began to look at the effects of role ambiguity and conflict on 202 research and development engineers employed by government missile research laboratories. The results indicate that

the consequences of role conflict and ambiguity for R & D professionals are increased job-related tension and decreased job satisfaction. The constructs also contribute to a decrease of respect for and distrust of role senders. Role ambiguity accounted for decreases in participants' liking of the role sender and was significantly related to levels of perceived personal effectiveness as well. Role conflict was not significantly related to these two measures of personal outcomes.

As the market and technological environments of an organization become more volatile, the need for adaptive structures within the organization and the skill necessary for monitoring the significant external changes increases. Integrative, adaptive, and boundary-spanning activities to coordinate the total organizational effort become more influential in response. As the external environment becomes increasingly unpredictable, it would be reasonable to expect employees to experience more role ambiguity and conflict, especially those individuals who must deal directly with the uncertainties of the environment beyond organizational boundaries.

Given the definition of role conflict as incongruity or incompatibility of expectations regarding an individual's role enactment, and role ambiguity as a discrepancy between the role information available to an individual and the information deemed necessary for

successful performance in a role, what happens when we extend these concepts to an extra-organizational context? Individuals whose roles include a significant amount of interaction with members of the organization's external environment in addition to the contacts within the structure have added potential sources of variance to their set of role expectations (Kahn et al., 1964). It is conceivable that the variety of demands placed upon an individual from within his own organization which produce conflict have common organizational objectives as their base. But when demands emanate from points external to the structure, it is much more likely that the intent of those behavioral requests is less than consistent with demands originating from within the organization itself (Manton, 1975). It is thus feasible that role conflict which is based on the inter vs. intra-organizational expectations cannot be significantly reduced (Walker, Churchill & Ford, 1975). Indeed, it may serve well to define the function of boundary-spanning activities (Katz & Kahn, 1966) in terms of the role player's need to resolve the inherent conflict of environmental demands and resources availability with organizational needs and capacities.

A study by Walker, Churchill and Ford (1975) found that perceived role conflict was significantly higher among field salesmen in ten companies, representing seven different industries, than their managerial counterparts, but

that the level decreased over time. This suggests that the amount and nature of an individual's training in the boundary-spanning functions may serve the organization well by indirectly increasing performance effectiveness through the training-generated decrease in levels of perceived ambiguity and conflict.

In 1975, Manton collected data to support this notion in a study of the effects of boundary relevance on perceived ambiguity and conflict among the management force of an aerospace firm. Role conflict was positively and significantly correlated with boundary relevance (the degree to which one interfaces with the external environment); role ambiguity was not. In his research, Manton included measures of the degree of contact respondents had with the external environment, the importance of the contacts, and the structure of the role set in terms of internal and external contacts, and found that as each of the factors measured increased, so did perceived role conflict. Length in position was not checked as a potential moderator.

Kahn et al. (1964) regard boundary-spanning positions as being predisposed to role conflict, in that the person in the role must interact in a context in which he has no formal authority. In the analysis of a national sample, Kahn found that persons reporting high frequencies of inter-organizational boundary-spanning contacts

experienced significantly higher levels of conflict and job tension than persons reporting relatively little work-required extra-organizational contact. The same effects were observable among individuals reporting high levels of inter-organizational and interdepartmental contact.

Boundary spanners are also identified as highly vulnerable to role conflict by Adams (1972), who conceptualizes their position as a target of influence attempts from both within and beyond the organization's boundaries. Role conflict could easily result for those holding such "target" positions.

Organizational Conformity and Clarity

Several studies have found that organizational environments characterized by high levels of hierarchical control, highly specialized, narrowly defined task structures, or strict rules orientation, tend to elicit low achievement motivation (McClelland, 1961), a high degree of conflict (Argyris, 1957), and low receptivity to change (Korman, 1971). By definition, then, an organization which must cope with rapidly changing external environments would be low on measures of organizational conformity, if, indeed, it was dealing successfully with its environmental demands. Receptivity to and ability to change are critical to the survival of the organic organization (Tosi,

1976; Burns & Stalker, 1971; Perrow, 1970). Although veiled by considerable controversy, the flatness or tallness of an organization's structure may well serve to produce the same kinds of dysfunctional behavior noted with hierarchical control (Porter & Lawler, 1974; Carpenter, 1971; Carzo & Yanousas, 1969; Porter & Siegel, 1965; Worthy, 1950; Richardson & Walker, 1948). While making a projection that tall organizations by nature may be characterized by high degrees of hierarchical control may be seriously questioned, research tends to support such projections (Ivancevich & Donnelly, 1975; Ghiselli & Siegel, 1972; Jones, 1969; Porter & Siegel, 1965; Worthy, 1950). In a study of the relationship of organizational structure to anxiety-stress, job satisfaction, and performance (Ivancevich & Donnelly, 1975), flat structure and a relative absence of strictly enforced procedures (organizational clarity for the individuals in the sample) correlated significantly with satisfaction and performance. Members of the taller, more bureaucratically inclined structure commonly complained of oversupervision by their superiors, describing this feature of their job as "restrictive," "stifling," "constraining," and indicative of "lack of trust" (organizational conformity). These individuals also reported significantly greater amounts of anxiety, stress, and lower levels of both performance and satisfaction. Although it would be erroneous to conclude that

flatter organization structures are unequivocally superior to their medium and tall counterparts, we may project from such results as these that there are some distinct differences in the way people react to specific types of organization structure.

Need for Independence

In conjunction with the Kahn et al. (1964) and Lyons (1971) studies, the results reported by Johnson and Stinson (1975) indicate that the concepts of role ambiguity and role conflict should not be viewed as necessarily aversive states. It is possible that some individuals tolerate role conflict and ambiguity in such a fashion that their existence is either (1) not perceived as significant or (2) tolerated in such a manner that it does not interfere with the individual's reported levels of satisfaction or affect his performance on the job.

In their extensive 1967 study of organizational structure, Lawrence and Lorsch speculated that managers in the high performing firms in both dynamic and stable environments had personality needs somewhat different from their less successful counterparts. Managers in the dynamic firm seemed to prefer greater levels of independence, and had considerably more tolerance for ambiguity than managers of firms operating in stable environments. Lawrence and Lorsch made no attempt to confirm these

observations, but reaffirmed the importance of the organization's fitting not only the demands of the relevant environment, but also the needs of its members. Contingency theory thus suggests that there are individual characteristics which lend themselves to a superior performance which is systematically related to the state of the environmental situational variables (Tosi, 1976; Storey, 1974; Lyons, 1971; Lawrence & Lorsch, 1967; Trow, 1957).

Reason for the Study

There is, as yet, little published research which tests contingency theory, although numerous studies have used it as a theoretical base. In spite of the methodological questions which have been raised on the reported research, the concept of a contingency approach to the study of organizations seems inevitable, and its further examination and subsequent refinement warranted. This research is, in part, designed to examine the relationships between organizational structure and administration and individual and firm performance in a dynamic organizational environment.

In connecting contingency theories of organizational structure with theories of socialization and work orientation (Tosi, 1976; Presthus, 1965), interesting questions arise. An individual's early socialization

experiences are generally thought to provide a basis for the values, attitudes, aspirations, and expectations people bring with them to the workplace. Although the specific needs employment fills for individuals may vary widely, we may categorize general orientations to work as "professional," "external," and "organizational" (Tosi, 1976; Presthus, 1965). Although this taxonomy suffers the limitations of any classification scheme, in using it as a theoretical base for discussion it might well be proposed that the proportion and location of individuals in dynamic organizations with particular orientations toward work will differ from what would be found in mechanistic organizations. If particular patterns of organization structure and managerial style are more effective in eliciting high individual and organizational performance under differing environmental circumstances, then are there characteristics of individuals which likewise correspond with high performance in a particular environmental setting? Are some people better suited to work in organic systems than in bureaucratic, and vice versa?

A second purpose of this study is to examine the relationship of certain personality characteristics which may be related to higher levels of performance in dynamic organizations. An exploration of the "fit" between organizations, their environments and climates, and an individual's orientation to the working environment will

contribute to the understanding of the complex interrelationships, and hopefully be of value to those attempting to construct compensation systems, train managers, build organization structures and communication patterns, design jobs and performance feedback systems, and the like. What is needed at this point in time is research designed to determine personal characteristics most significantly related to performance in various combinations of organization and task structures (Morse & Lorsch, 1970).

The purpose of this research, then, is to explore the relationship between selected personality characteristics and organizational climate, with individual and firm performance in dynamic organizations, and, secondly, to partially replicate the work of Lawrence and Lorsch (1967) in order to accumulate additional evidence of the relationship between organization structure and firm performance in volatile organizational environments.

Research Objectives

The specific objectives of this research are, then, to (1) test the validity of the dynamic cell of the structure-environment model as it relates to individual characteristics and their performance and (2) provide empirical validation for the relationship between organizational environment and appropriateness of organizational structure.

Hypotheses

On the basis of current research literature, the following hypotheses were developed for empirical testing in an attempt to answer some of the basic questions theories of organizational structure raise.

H_1: The degree of organizational conformity perceived by high performing individuals in high performing firms in dynamic environments will be less than in low performing individuals in low performing organizations in the same environment.

H_2: The degree of perceived organizational clarity among high performing individuals in high performing firms in dynamic environments will be greater than among low performing individuals in low performing firms in that environment.

H_3: In dynamic environments, the perceived opportunity for incidents of role conflict and ambiguity will be higher in high performing firms than in low performing firms.

H_4: Role conflict and ambiguity will be perceived as being higher in sections of the organization dealing most directly with the external environment.

H_5: High performing individuals in successful dynamic firms will

a. be more tolerant of role conflict

b. be more tolerant of role ambiguity

c. have a greater need for independence than will low performing individuals in unsuccessful firms in the same environment.

CHAPTER II

INSERT TAB "A" INTO SLOT "B" WHILE TWISTING "X" WITH LATERAL FORCE OF INDEX FINGER AND . . .

METHODOLOGY

Selection of Industry, Firm, and Subjects

In order to assess the volatility of organizational/industrial environments, we begin by looking at the characteristics of such environments identified by the researchers who developed contingency theories of organizational structure.

The relevant environment of any given organization is composed of those groups, individuals, and other organizations existing beyond the boundaries of the organization, which directly provide input, consume output, or exert significant pressure on the decisions and, thereby, on the functioning of that organization. The market and technological environments within which an organization exists are posited to explain the largest amount of variance observed in organizational structure (Tosi & Carroll, 1976).

Market environments may vary along several dimensions, including the timing, source, location, duration,

and intensity of demand for specific product or service physical and performance characteristics.

The structure of an organization's technological environment will dictate the tools and techniques available for the organization's use in its production subsystem processes. Technology includes not only the specific technological instruments or machines used, but also their method of application in the production processes as well.

The timing and magnitude of change taking place in these environments is important in determining the appropriateness of a particular organizational structure (Lawrence & Lorsch, 1967) in a volatile environment, change is rapid, intense, and relatively unpredictable. The type of customer, or the demand structure of a consumer group, may change significantly in a short time period. Levels of demand may vary widely. When technology is volatile, new techniques and applications are rapidly generated and affect the methods of production and the basic character of the product itself.

An a priori estimate of the environmental volatility of a series of industries was made, from which the non-destructive testing equipment (NDT) industry was chosen for study. Non-destructive testing is a major method of materials evaluation which includes ultrasonic, Eddy current, magnetic particle, X-ray and gamma

radiography, and penetrant testing. Industries using NDT methods include nuclear power, chemical, petroleum, aerospace, and automotive. The materials evaluation field has experienced phenomenal growth in the past decade, developing from an infant industry to a $200,000,000 per year business, of which NDT is a large part.

In order to validate the a priori volatility assumption, an expert panel of five active participants in the non-destructive testing field was assembled and portions of the Lawrence and Lorsch (1967) environmental characteristics questionnaire (Appendix A) were administered to the panel. Responses reinforced the validity of the initial a priori estimate by coinciding with the characteristics noted in the Lawrence and Lorsch (1967) research and similar studies, as indicative of environmental volatility.

The panel then was asked to generate a list of non-destructive testing equipment design and manufacturing firms and to evaluate the performance of each firm. No evaluative criteria were outlined; the panel was to generate its own. Each member of the panel had been working in the NDT field a minimum of ten years, and was in no way affiliated with any of the firms chosen for participation in the study. Panelists were members of firms that used NDT equipment, and most had run comparison tests of the performance of various manufacturers' equipment.

Members were all in positions to make final purchase decisions about the NDT equipment their firm used.

The panel evaluated firms primarily on the basis of product performance in use. Product dependability, workmanship, and quality of local representation were secondary criteria in the decision process. Firms unanimously elected as "successful" (3) and "unsuccessful" (1) were selected from the panel's list and were asked to participate in the study. The cooperation of three firms was achieved. Orion and Tiresius were both classified as highly "successful," and Mercutio was deemed "unsuccessful" in the panel's judgment.

Table 3 provides a brief comparison of the characteristics of each of the three firms.

Instrument Construction

Climate

The climate dimension included measures of organizational conformity (constraining aspects of organizational structure) and organizational clarity (positive aspects of structure). The items used to measure these constructs were drawn from Litwin and Meyer (1968). Scale reliabilities were not reported in the original study.

The four-item scale used to measure organizational conformity (α = .51) included the statements:

Table 3.--Organization specifications.

Specification	Orion	Tiresius	Mercutio
Rating	successful	successful	unsuccessful
Size	43	21	104
Location	midwest	midwest	east coast
Ownership	privately held	privately held	publicly held
Major Technology	eddy current eddy current systems design	eddy current instrumental magnetic	ultrasonics eddy current magnetic particle x-ray
Structure	informal/organic	informal/organic	formalized/ mechanistic
Span of Operations	international	international	international
Service Operations	in-house	in-house	in-house
Years in Operation	15	10	15 under current parent firm

New and original ideas are not prevented from receiving consideration by excessive rules, administrative details and red tape.

If you don't conform to standard practices around here, you will be looked upon critically by your superior.

Unnecessary procedures are kept to a minimum in this unit.

There are a lot of rules, policies, procedures, and standard practices one has to know to get along in this unit.

Subjects responded by indicating the degree to which they agreed or disagreed with the statements on a one to seven scale.

Five items were used to measure organizational clarity ($\alpha = .71$). Respondents indicated their agreement on a one to seven scale, to the statements:

> The assignments in this section are clearly defined.
>
> The policies and organizational structure of this unit have been clearly explained.
>
> Things seem to be pretty disorganized around here.
>
> Our productivity sometimes suffers from a lack of organization and structure.
>
> I feel I am a member of a clearly and precisely structured team.

Role Conflict

Items used to measure role conflict were drawn from Rizzo, House and Lirtzman (1970). Statements to which subjects responded on a seven-point scale, ranging from very true to very false, were:

> I have to do things that should be done differently.
>
> I receive an assignment without the manpower to complete it.
>
> I have to buck a rule or policy in order to carry out an assignment.
>
> I work with two or more groups which operate quite differently.
>
> I receive incompatible requests from two or more people.

I do things that are apt to be accepted by one person and not accepted by others.

I receive an assignment without adequate resources and materials to execute it.

I work on unnecessary things.

In this study Cronbach's alpha was .73.

Role Ambiguity

Measures of role ambiguity were also drawn from the work of Rizzo, House and Lirtzman (1970). The items to which subjects responded on a seven-point scale were:

I feel certain about how much authority I have.

Goals and objectives for my job are clear and planned.

I know that I have divided my time properly.

I know what my responsibilities are.

I know exactly what is expected of me.

Explanation is clear of what has to be done.

I this study the scale's reliability was .84.

Tolerance of Role Ambiguity and Conflict

In order to measure respondents' ability or desire to tolerate the presence of role conflict and ambiguity in their jobs, subjects were asked to respond to the Rizzo, House and Lirtzman (1970) scales, indicating the degree to which they would like or dislike the various aspects of conflict and ambiguity in their jobs. For example:

> I have to do things that should be done differently. Howwould/do you feel about this characteristic in your job?

Need for Independence

Three items were drawn from Vroom's original sixteen-item scale to measure need for independence (α = .30). Subjects were asked to respond from one (never) to seven (always) on the following statements:

> How often do you carry out subordinates' suggestions without changing them?
>
> How much do you usually want the person who is in charge of a group you are in to tell you what to do?
>
> To what extent do you feel you ought to clear things with your superior before deciding on a course of action?

Data-Collection Procedure

During an interview with each firm's chief executive, a list of employees was generated and coded with performance data. Each president was asked to rate individuals in his firm on a one to five scale; one being superior, three average, and five unacceptable. Performance ratings were then entered in the "company code" blank on the last page of the questionnaires, and the employees' names written on slips of paper clipped to the questionnaires' cover sheet. When the process was complete, employees were contacted in small groups in their work areas and informed that the research project was part of a

doctoral dissertation and responses would in no way affect their pay, promotion, or tenure with the organization. Employees were also informed that individual responses would not be distinguishable once identification tags were removed, as the data would be pooled for analyses. Presidents all allowed employees to use corporate time to complete the questionnaires. A 100% sample was taken at each research site.

Presidents were asked to identify subordinates critical to the operations of the firm in order that additional data on environmental volatility might be collected from them. Each critical subordinate was asked to respond to the Environmental Demands Questionnaire in addition to the dissertation research instrument. Responses were consistent with those of the panel on the same measure.

Questionnaires were left on site with self-addressed envelopes and brief letters of introduction/ explanation for employees absent from work the day of data collection.

Statistical Design

In order to examine the relationships between firm performance, individual performance, and the dependent variables organizational conformity and organizational clarity, two two by five analysis of variance (ANOVA) designs were employed, to test the main and interaction

effects of the variables. Two levels of firm performance were plotted against five levels of individual performance. A schematic representation of this design appears in Figure 4.

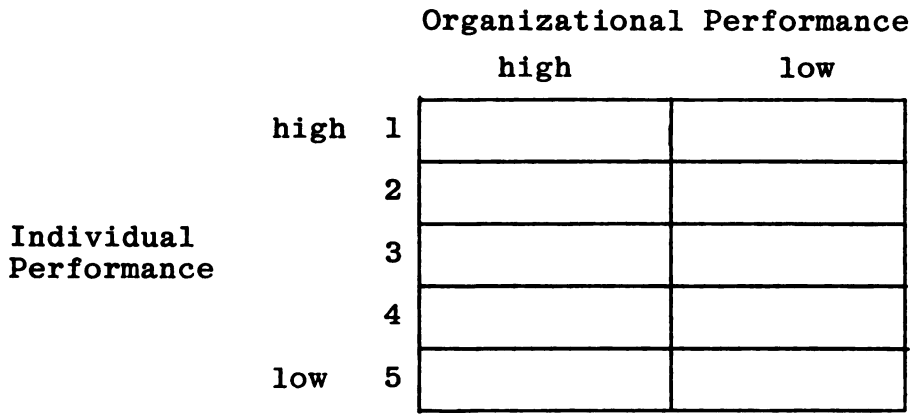

Figure 4.--Schema of research design testing performance effects on dependent variables organizational conformity and organizational clarity.

In order to determine the effects of role conflict and ambiguity on firm performance a one-way analysis of variance was used which took the basic format of the design outlined in Figure 5, to test for trends in the dependent variable across categories of the independent variable. One-way analysis of variance designs similar to the one depicted in Figure 5 were used to test the effects of tolerance of role conflict and ambiguity, and need for independence on the independent variable individual

performance, and to test the effect of boundary relevance on levels of perceived role conflict and ambiguity.

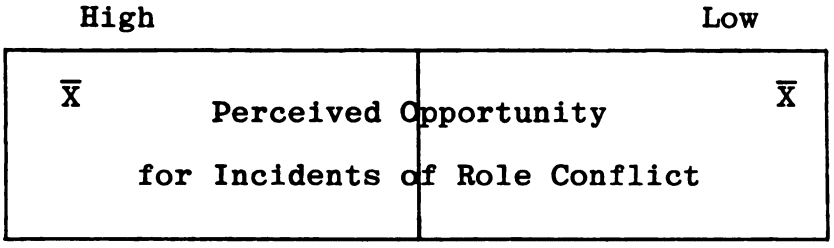

Figure 5.--Schema of research design testing the effects of role conflict and ambiguity on firm performance.

The actual analysis of data involved calculation of internal scale reliabilities, analysis of variance in the research designs, and, where the analyses indicated significant effects, a Scheffé test was applied to the results to determine the precise location of the significant deviations from the grand mean. Results of these tests are reported in Chapter III.

CHAPTER III

HOW'S THE PATIENT, DOC? or WHATEVER HAPPENED TO THOSE FUNNY-LOOKING HYPOTHESES I SAW YOU WITH? (THOSE WERE NO HYPOTHESES, THOSE WERE MY LIFE.)

RESULTS

Description of Sample by Organizational Subgroup

Of the 104 questionnaires distributed to individuals in the low performing firm, ninety were returned and used in subsequent analyses. Of the sixty-three administered in the high performing firms, sixty were returned and used, for an average return rate of 93.1%.

In the high performing organizations, the mean age of respondents was 32.07 years in a range from nineteen to seventy years. Length of respondents' careers in non-destructive testing averaged 8.34 years, 74% having spent four years or less with their current employer and 79% having spent four years or less in their current position in the organization. Forty-five of the respondents in high performing firms were male. Eighty-seven percent of the sample earned less than $20,000 per year, and some 68% received between zero and 15% annual salary increases over the past five years. Forty-seven percent attended one or

Table 4.--Questionnaire distribution: return rates.

Firm	Firm Size	# Distributed on Site	# Returned on Site	# Returned Via Mail		Total Return %
Orion	42	42	30	9		92.8%
Tiresius	21	21	19	2		100.0%
Mercutio	104	104	80	10		86.5%
	167	167	129	21	Average Return Rate	93.1%
		167		150		
					Overall Return Rate	89.8%

more professional seminars each year, while 40% held at least a bachelor's degree.

The high performing firms had three structural levels in their organizations, devoting 26.3% of their manpower to applied research and 38.6% of their total manpower to manufacturing operations.

The lower performing firm's employees averaged 40.46 years in age and had been with the organization 8.35 years. The average individual had been in the non-destructive testing field 12.13 years, and had spent 5.6 years in his current position.

Eighty-five percent of the firm's employees earned under $20,000 per year, and some 73% experienced salary increases of less than 10% per year over the past five years. Fifty-six percent of the low performing firm's members were male (n = 52). Ninety-three percent attended three or fewer professional development activities per year, and some 83.3% of the sample did not complete an undergraduate college education.

The low performing firm was reported to have three to six structural levels (the variance of response to this item was high), devoted 5.4% of its manpower to applied research, and 55.9% of its human resources to manufacturing functions. Summaries of these comparative data may be found in Tables 5 and 6.

Table 5.--Comparison of sample subgroups on personal data.

Criterion	Organizational Performance					
	High			Low		
	$\bar{X}$	Mode	Range	$\bar{X}$	Mode	Range
* Age	32.07	24	19-70	40.46	39	19-63
Sex		male	m-45 f-21		male	m-52 f-38
* Years with company	4.3	1	1-18	8.35	5	1-30
* Years in field	8.35	2	1-38	12.13	4	1-38
* Years in present position	3.83	2	1-34	5.6	1	1-29
Salary level	1.69	1(<10k)	1-5	1.71	1(<10k)	1-5
* Average annual salary increase	2.36	1	1-6	1.75	1	1-7
Professional activities attended	1.91	1	1-7	1.54	1	1-7
* Educational level	3.4 (b.a.)	3	2-7	2.64 (<college)	2	1-7

Table 6.--Comparison of sample subgroups by percentage of workforce by functional areas.

Functional Area	Organizational Performance	
	High	Low
Purchasing	5.3%	6.5%
Marketing	5.3%	5.4%
* Applied Research	26.3%	5.4%
Exploratory Research	1.8%	2.2%
* Manufacturing	38.6%	55.9%
Clerical	12.3%	11.8%
Administrative	5.3%	6.5%

Responses to Environmental Demands Instrument

The president and the subordinates he identified as critical to the operation of the firm were asked to complete the "Measures of Environmental Demands" questionnaire. (See Appendix A.) Responses were compared to each other and to the remarks made by the panel of non-destructive testing experts to see whether respondents' perceptions were consistent with one another. Following is a summary of pooled results. Where significant departures from predominant opinions occurred, they are noted.

> On what basis does a customer evaluate and choose between competing suppliers in the NDT industry?

The ability to solve customer problems through meeting specific test requirements was the most frequently

cited basis for consumer purchase decisions. Other items included were reliability and flexibility of product, quality, service, and the reputation a firm had established via consumers' experience with the product line.

> What, in order of criticalness and difficulty of achieving effective resolution, are the major problems an organization encounters when competing in the NDT industry?

Maintaining corporate technical capacity, low volume production, keeping up with change without "overreacting," keeping track of customer needs and demands, finding and keeping technically competent personnel, educating consumers in product use and applications, procurement scheduling, inventory control, keeping in contact with customer needs at the critical time, and meeting the competition were all included in responses to this item. The most pressing problems were perceived to be maintaining the technical capacity of the firm and keeping up with changes in consumer demands.

> How important is each functional area in determining final product characteristics?

Firms all agreed that the standards set by the market had to be integrated into the manufacture of an NDT product, and it was up to the engineering/design people to operationalize the needs communicated to them by the sales force. "Consumer needs affect . . . [product design] almost 100%."

Have there been any significant changes in the market or technological conditions of the NDT industry in the past ten years?

Interestingly, there was a resounding affirmative response to this question by all respondents, except a single, but very high level official of Mercutio (the low performing firm), who perceived the environments to be "slowly but steadily growing." All others cited continuous changes in both the market and technological environments of their firm. Rapid advancements in technology, both in terms of the tools of the trade (acoustic emission, gamma radiography, lasers, etc.), and the techniques of application were noted as well as "continuous changes in markets and levels of customer sophistication."

To what extent have there been major modifications in the following activities in your firm over the past ten years?

Product line: Both Tiresius and Orion (the high performing firms) indicated complete changeover in their product lines, with the continuous addition of newly developed instruments. Mercutio, on the other hand, quite consistently responded that changes in their product line had only been minimal--"a couple" new designs had emerged, but there had really been "little change."

Marketing techniques: Consistent responses among the Orion and Tiresius respondents reflected significant changes involving "major revamps" in the operation of their marketing forces. Similar changes were indicated

in a majority of the responses from Mercutio, but, here again, the same high level manager of the firm indicated that "no change" had taken place in the marketing techniques of the firm.

Manufacturing facilities: Again, both Tiresius and Orion noted "vast improvements" and "greatly increased sophistication" in their manufacturing facilities, while Mercutio registered a resounding "not much" to inquiries about recent changes in their manufacturing facilities. Within all three firms, opinions were unanimous.

Amount and direction of research effort: Orion and Tiresius noted that research had been given considerable attention in their firm from the corporation's birth, and their investments in these efforts continued to grow with the firm. Orion indicated that research efforts had doubled in the past four years. Mercutio again provided contrast in their indication of the increased accountability and "return on investment orientation" of their research expenditures. All respondents agreed that research efforts at Mercutio had "reduced considerably in recent years."

Personnel: Orion and Tiresius reported "greatly increased" standards for their personnel from a level which was "high . . . to begin with." The technical skills of the firms were noted as "advancing" and "continually being up-graded," while Mercutio registered mixed responses to an inquiry of changes in the background, training, and

technical skills of their personnel. Responses varied from "no major changes" to "upgrading of personnel is one of our key objectives."

The following series of questions attempted to assess the impact of environmental volatility on various functional areas of the organizations. Being that responses were coded numerically on a one-seven scale, the mean response will be presented for each firm's response set.

> How clearly stated are the job requirements in each of the following functional areas? (1 = very clear, 7 = not at all clear):

	Orion $\bar{X}$	Tiresius $\bar{X}$	Mercutio $\bar{X}$
Research	5.20	3.50	2.65
Manufacturing	3.00	3.61	3.50
Marketing	2.40	2.89	2.25

> How difficult is it for each functional area to complete its assigned tasks, given the limitations of the technical and economic resources which are available to it? (1 = little difficulty, 7 = extremely difficult):

	Orion $\bar{X}$	Tiresius $\bar{X}$	Mercutio $\bar{X}$
Product Development	3.80	4.00	5.25
Manufacturing	3.60	3.50	4.50
Selling	3.60	3.50	4.596

> Which time frame most nearly describes the typical length of time involved before feedback is available to each functional area concerning the success of its job performance?

	Orion		Tiresius		Mercutio	
	$\bar{X}$	Mode	$\bar{X}$	Mode	$\bar{X}$	Mode
Research	5 mo.	X	4.5 mo.	1 yr.	11 mo.	6 mo.
Manufacturing	1 mo.	X	3 wks.	1 mo.	2.5 wks.	1 mo.
Marketing	2 wks.	1 wk.	5 mo.	1 mo.	6 wks.	X

The following questions were related to organizational structure. Again, responses will be pooled unless significant deviation from the norm is in evidence.

What is the average span of control for managers?

This question was misinterpreted by a great majority of the respondents; therefore, no results are reported.

How much time elapses between reviews of departmental performance?

Responses ranged from "weekly" to "yearly," with no real consensus being reached within any single firm, although it appears that all used monthly reviews in some departments, and annual reviews in others, accounting for the apparent diversity of opinion both across and within individual respondents.

How specific are departmental performance reviews?

Tiresius consistently reported general oral reviews for its employees, while Orion used <u>both</u> general oral and general written reviews. Mercutio recorded an equal number of references to general oral reviews and detailed statistical reviews.

How important are the department's formal rules?

Tiresius and Orion both indicated that rules existed only on minor, routine procedures. The modal response in Mercutio described the organization as maintaining comprehensive rules on its routine procedures.

How are performance evaluations conducted?

Tiresius reported that no formal evaluation took place in its operations, while Orion reflected some degree of discrepancy regarding the conduct of performance evaluations. The same lack of consensus was indicative of Mercutio's responses to this item.

How many structural levels are there in this organization?

The presidents and critical subordinates of all firms indicated the existence of some two to six structural levels in their organizations. Tiresius indicated three, Orion, on the average, indicated four, and Mercutio, from a range of three to six, had a modal response of four.

How long has this firm been in operation?

Orion -- ten years

Tiresius -- twenty years

Mercutio -- fifty years

What was the average pay raise received by professional personnel employed at this firm last year, in dollars?

The mean response made by Mercutio's respondents was $1200. Orion recorded a $950 increase in professional salaries, and Tiresius averaged a response of $1370.

How many employees left the firm last year?

Tiresius lost three employees in one year (total employment = twenty-one), Orion lost approximately seven workers (from a total staff of forty-two), and Mercutio's reports averaged to a total turnover of ten individuals, although an unusual amount of discrepancy existed in each person's estimate. The range of responses was from a minimum of one to a maximum of twenty-one from a total manpower level of 128.

What are the dominant competitive issues facing this firm?

The general theme of keeping abreast of market and technological changes dominated response to this inquiry, including concerns of increased domestic and the potential entrance of new foreign competition. Mercutio expressed a concern for capturing a larger market share so the "efficiencies of greater volume" could accrue to the firm.

The overall performance of this organization should be rated as _____% of ideal.

Orion estimated their overall performance to be 85% of its potential, Tiresius ranked at 76%, and Mercutio estimated their performance at 79% of ideal.

The trend of organizational performance over the last six years indicated a near doubling on all measures

(sales, before-tax profits, return on investment before tax) in Orion and Tiresius. Mercutio, as expected, indicated some serious difficulties on these fronts, reporting all measures substantially below the 1970 base rate (performance indicators ranged from 5 to 75% of the 1970 base).

Subscale Response Patterns and Reliabilities

Response levels for each of the constructs used as dependent variables are reported in addition to scale reliabilities. Two reliability coefficients were computed: Cronbach's alpha (α) and a standardized item alpha (α_s).

The standardized item alpha is closely related to alpha. Standardized item alpha standardizes the observations on each item by dividing item observations by the items' standard deviation. The computational formula is

$$\alpha = \frac{k\bar{r}}{1 + (k-1)\bar{r}},$$

where $\bar{r}$ is the average correlation between items. For two-item scales, standardized item alpha is equivalent to the standard Spearman-Brown split-half coefficient.

Response Patterns and Reliabilities for Organizational Conformity Scale

The lowest response level on the four-item organizational conformity scale was 140 of a total sample of 150. The average number of respondents was 141.5 per item. On

a listwise deletion option, the total number of responses used in the calculation of the scale reliabilities was 130. The alpha level was reported at .507; standardized item alpha was .511. Scale standard deviation was calculated at 3.730. Means and standard deviations for item responses are listed in Table 7, item intercorrelations appear in Table 8, and the correlations of the organizational conformity measure with other scales used in the research are combined in Table 15.

Table 7.--Item response levels, means, and standard deviations for organizational clarity and organizational conformity subscales.

Item		N (of 150)	$\bar{X}$	α
Organizational Clarity	1	140	4.843	1.395
	2	143	4.161	1.613
	3	143	4.427	1.705
	4	141	3.809	1.800
	5	141	4.404	1.656
		$\bar{X}$ = 141.60		
Organizational Conformity	1	142	5.169	1.429
	2	142	4.282	1.527
	3	142	4.592	1.581
	4	140	4.479	1.611
		$\bar{X}$ = 141.50		

Table 8.--Inter-item correlation matrix for organizational conformity scale.

Organizational Conformity Item	Organizational Conformity Item			
	1	2	3	4
1	--			
2	.28453	--		
3	.26146	.02855	--	
4	.18718	.38739	.09577	--

Response Patterns and Reliabilities for Organizational Clarity Scale

The mean response rate for the five-item organizational clarity scale was 141.6, with no item response level lower than 140 nor higher than 143. Listwise deletion brought the total number of cases to 130 for computation of the scale reliability. Cronbach's alpha registered .705, and the standardized item alpha registered a reliability of .706. Item means, standard deviations, and response levels are reported in Table 7, item intercorrelations in Table 9, and correlations between the organizational clarity measure and other scales used in the research appear in Table 15. Total scale standard deviation equaled 5.485.

Table 9.--Inter-item correlation matrix for organizational clarity scale.

Organizational Clarity Item	Organizational Clarity Item				
	1	2	3	4	5
1	--				
2	.48599	--			
3	.18277	.23767	--		
4	.13865	.14455	.51693	--	
5	.37518	.39255	.44994	.32569	--

Response Patterns and Reliabilities for Role Conflict Scale

A minimum of 135 subjects responded to the sixteen-item role conflict scale, with a mean response rate of 143.25 per item. Listwise deletion for non-response to an item reduced the total number of subject inclusions to seventy-two for computation of scale reliabilities. The reliability coefficient alpha was .725, and the standardized item alpha equaled .722. Item means, standard deviations, and response levels appear in Table 10, item intercorrelations in Table 11, and the Pearson r-score of the conflict scale with other scales used in the research may be found in Table 15. Totaled across the scale, the standard deviation equaled 12.203.

Table 10.--Item response levels, means, and standard deviations for role conflict and role ambiguity subscales.

Item	N (of 150)	$\bar{X}$	α
Conflict			
1	146	3.171	1.637
5	147	3.007	1.964
9	147	2.469	1.473
13	147	4.361	2.251
17	146	3.377	1.816
21	147	4.313	1.940
25	147	3.565	2.014
27	147	2.463	1.623
	$\bar{X}$ = 143.25		
Conflict Tolerance			
2	135	3.363	1.637
6	140	3.093	1.892
10	140	3.150	1.787
14	140	4.214	1.918
18	141	3.014	1.769
22	140	3.207	1.580
26	141	2.986	1.805
28	141	2.716	1.917
	$\bar{X}$ = 139.75		
Ambiguity			
3	147	4.912	1.919
7	147	4.585	1.912
11	146	5.096	1.515
15	147	6.048	1.316
19	147	5.510	1.559
23	147	4.993	1.698
	$\bar{X}$ = 143.66		
Ambiguity Tolerance			
4	142	4.655	1.979
8	140	4.671	1.969
12	140	5.050	1.629
16	141	5.709	1.709
20	140	5.364	1.760
24	140	4.979	1.879
	$\bar{X}$ = 140.50		

Table 11.--Inter-item correlation matrix for role conflict scale.

Conflict Item #	Conflict Item #															
	1	2	5	6	9	10	13	14	17	18	21	22	25	26	27	28
1	—															
2	.01140	—														
5	.41600	.18479	—													
6	.16673	.35152	.05430	—												
9	.23398	-.02504	.26390	-.08979	—											
10	.03448	.19614	.06148	.45841	-.05374	—										
13	.39292	-.10006	.26721	.06809	-.01971	.20975	—									
14	.10982	.07030	.06499	.20838	-.01733	.32425	.45080	—								
17	.19843	-.05752	.16792	.02284	.09233	-.01772	.02705	.06215	—							
18	.01281	.29937	.07760	.59272	-.13190	-.63511	.05650	.31939	-.12388	—						
21	.29275	.00296	.29055	-.03466	.16369	.17303	.41854	.04064	.46303	.01172	—					
22	-.06547	.31000	.00127	.37456	.02829	.38603	.05060	.38995	-.23280	.46897	-.05620	—				
25	.29794	-.14890	.35633	-.15859	.29929	.03248	.23602	-.16802	.06743	-.17765	.38503	-.16853	—			
26	-.04691	.25066	.07051	.47335	-.02036	.49981	-.00946	.27939	-.14335	.59844	-.06501	.39231	-.27100	—		
27	.30790	.07274	.12142	-.08518	.14810	-.06033	.12770	.04980	.16809	-.04347	.17336	-.05412	.14416	-.10645	—	
28	.03759	.28662	.06940	.47364	-.07978	.61166	.01730	.23294	.02066	.48313	.02686	.23997	-.13368	.62893	-.16310	—

Response Patterns and Reliabilities for Role Ambiguity Scale

Between 140 and 147 subjects responded to items in the role ambiguity scale. Again, listwise deletion of a case when a single item was left blank by respondents brought the number of cases included in the reliability calculations down to seventy-two. Alpha was reported at the .835 level, and the standardized item alpha was .841. The mean level of response was 143.66 of the 150 subjects in the study. More detailed item statistics appear in Tables 10, 12, and 15. The total scale standard deviation on a twelve-item base was 12.072.

Response Patterns and Reliabilities for Need for Independence Scale

Response rates ranged from 144 to 148 on the need for independence subscale. The standard deviation of the total scale was 2.597 on the three items. Cronbach's alpha registered at .392, and a standardized item alpha of .388 was calculated. A summary of item and scale statistics may be found in Tables 13, 14, and 16.

Scale Statistics

Summaries of scale statistics appear in Tables 15 and 16. Response levels on items were generally high, and reliabilities, except in the case of the need for independence scale, were deemed acceptable. Unless

Table 12.--Inter-item correlation matrix for role ambiguity scale.

Ambiguity Item #	Ambiguity Item #											
	3	4	7	8	11	12	15	16	19	20	23	24
3	—											
4	.52865	—										
7	.32130	.33118	—									
8	.09780	.44322	.69569	—								
11	.09864	.00776	.31625	.19358	—							
12	-.13686	.08359	.13298	.20696	.44133	—						
15	.36408	.33766	.33550	.27016	.27022	.14050	—					
16	.02247	.36549	.20466	.47279	.04824	.33748	.55974	—				
19	.17384	.27041	.29030	.38164	.23864	.10654	.59670	.36000	—			
20	.06660	.29746	.37518	.39927	.21392	.33045	.40568	.53548	.64946	—		
23	.25669	.33157	.47501	.34560	.39565	.26644	.38043	.22681	.46211	.34949	—	
24	.07563	.40628	.28454	.48711	.17081	.31093	.15518	.37629	.28154	.39755	.59370	—

Table 13.--Item response levels, means, and standard deviations for need for independence subscale.

Need for Independence Item #	N (of 150)	$\bar{X}$	α
1	144	4.038	1.271
2	148	3.750	1.329
3	145	4.579	1.540
	$\bar{X}$ = 145.66		

Table 14.--Inter-item correlation matrix for need for independence scale.

Need for Independence Item #	Need for Independence Item #		
	1	2	3
1	--		
2	.04549	--	
3	.17822	.30027	--

Table 15.--Inter-scale correlations.

Scale	Scale				
	Conflict[a]	Ambiguity	Organizational Clarity	Organizational Conformity	Need for Independence
Conflict	—				
Ambiguity	.0028[b]	—			
Organizational Clarity	.0574	.5632*[b]	—		
Organizational Conformity	.1029	.3148*	.6380*	--	
Need for Independence	-.0089	-.0648	-.0255	-.0490	—

*$p \leq .001$.

[a]All correlation coefficients were computed on the basis of 150 cases. Each entry in the table includes a Pearson correlation coefficient and a report of the correlation's significance.

[b]Due to the nature of the wording of the role ambiguity items, the correlation is actually negative; i.e., a high score on role ambiguity items indicates low ambiguity, while on the role conflict and organizational clarity items, high scores indicate high levels of conflict or clarity.

Table 16.--Scale reliabilities.

Scale	α[a]	α_s[b]	N Items	N Cases[c]
Organizational Conformity	.50718	.51152	4	130
Organizational Clarity	.70572	.70652	5	130
Role Conflict	.72533	.72232	16	72
Role Ambiguity	.83592	.84121	12	72
Need for Independence	.39293	.38833	3	72

[a]Cronbach's alpha.

[b]Standardized item alpha.

[c]Listwise deletion.

otherwise indicated, scales used in subsequent analyses included all items listed in the scale data presented in the preceding tables. No items were dropped for purposes of increasing scale reliabilities; all were manipulated in units similar to those proposed by the originators of the various measures.

Ratings on Individual Performance

During interviews with each firm's president, lists of corporate employees were coded with ratings of individuals' performance. Each president was informed that employees were to be rated on a scale from one to

five, one being indicative of superior performance, three indicating average performance, and five being well below average or unacceptable performance levels. Mercutio's ratings resulted in ten individuals with superior ratings, twenty-four people were above average, twenty-three were cited as average performers, twenty-two were classified as below average, and fourteen individuals received unacceptable performance ratings, from a total sample of ninety-three. The ratings approximate a normal distribution with a decidedly negative kurtosis. No specific parameters were set for those making the performance assessments. Any portion of the scale could be used, and each ranking could be used an unlimited number of times.

Although given the same instructions, Tiresius and Orion's performance ratings followed a much different pattern. In the two firms combined, nineteen individuals were ranked superior (nearly quadruple the number so ranked by Mercutio on a per capita basis), twenty-eight were noted as above average, and ten were cited as average performers. No employees of either Tiresius or Orion were ranked below average or unacceptable. The distribution resulting from their rankings approximates a normal distribution on a kurtosis criterion, but failed when evaluated in terms of mean, standard deviation, and skewness on the five-point scale basis.

The distinct inconsistency between the individual performance rankings submitted by the two subgroups of the sample posed difficult problems in terms of the analytical design originally proposed. Analysis of variance attempts to account for levels of a dependent variable across categories of an independent variable. In this particular instance, the analysis was designed to locate variance in values of organizational clarity, conformity, and role conflict and ambiguity across levels of individual performance within an organizational performance subgroup (as depicted in Figure 6), and across levels of organizational performance within the confines of a particular level of individual performance (as pictured in Figure 7). This is the basic function of analysis of variance, and it operates quite smoothly over a variety of circumstances, including designs in which an unequal number of cases fall in each cell of the matrix. Factorial designs with unequal cell frequencies are quite common in behavioral research.

Distinct problems arise, however, when one or more cells in the matrix are void. Analysis of variance is a technique which attempts to account for variation in measures of a dependent variable. Regardless of the amount of variance accounted for by the dependent variable to that point, empty cells cause this explained variance to be considered unexplained. This results in high levels of error variance in the analysis, and a paucity of

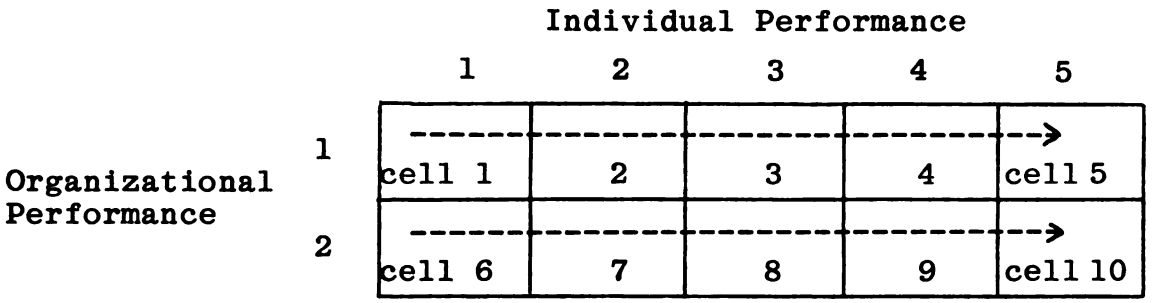

Figure 6.--Analysis of variance: predicting levels of individual performance within organizational performance.

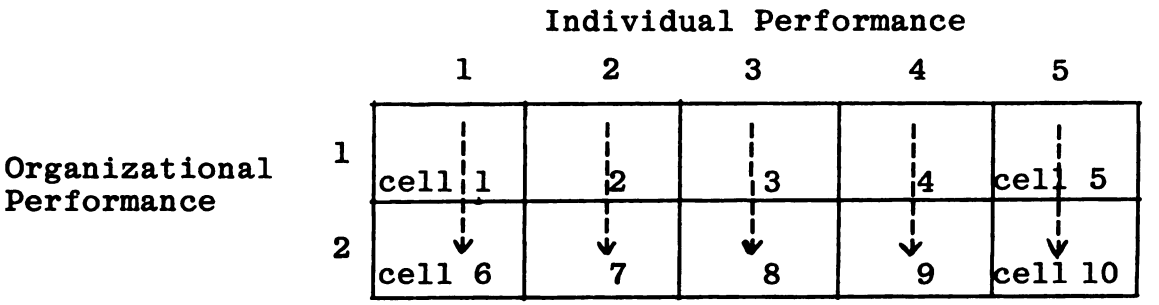

Figure 7.--Analysis of variance: predicting levels of organizational performance within individual performance.

variance then appears to be explained by the dependent variable.

Collapsing the two by five design to the two by three design dictated by the research hypotheses offered no respite from the dilemma. Combining individual performance levels into "above average," "average," and "below average" categories still left a cell unoccupied by any measure of the various dependent variables. (See Figure 8.) If, indeed, data did fall into the empty cell, the analysis may well have resulted in tests with acceptable levels of significance.

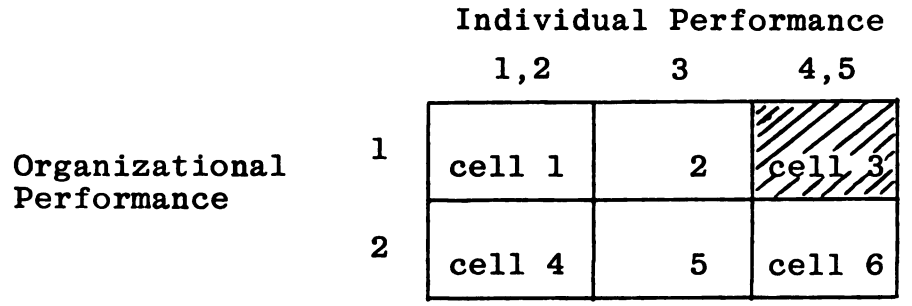

Figure 8.--Analysis of variance: collapsing a 2 x 5 factorial design to a 2 x 3 design.

Standardized Splits in Individual Performance Ratings

In order to combat the problems posed by the occurrence of two empty cells on the independent variable combinations which formed the analysis of variance matrix, individual performance scores were standardized within firms. Mean scores for each firm's scale were set equal to fifty, scores one standard deviation above the mean were assigned a value of sixty, and scores one standard deviation below the mean assigned a value of forty. This resulted in the split by organizational subgroups noted in Table 17.

A somewhat more normal distribution was thus imposed on the individual performance ratings of Orion and Tiresius in order to render an analysis of variance design operable.

The solution, then, put in terms of the research hypotheses, resulted in a tripartite split on individual performance scores, with interaction effects of the two independent variables, organizational and individual performance, predicted on the various dependent variables, organizational conformity and clarity, role conflict and ambiguity, and need for independence. (See Figure 9.)

Table 17.--Standardized split of individual performance ratings.

	Individual Performance			
	Above Average	Average	Below Average	
High performing firms	19	28	10	N=57
Low performing firm	34	23	36	N=93

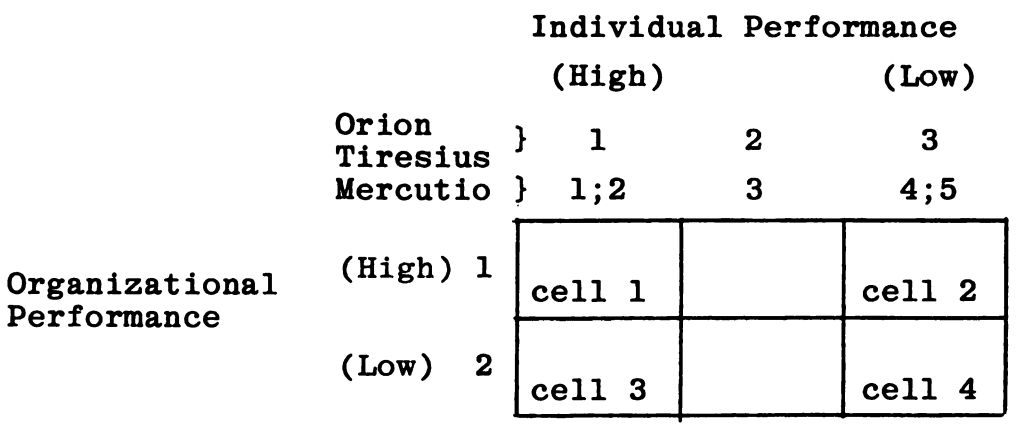

Figure 9.--Analysis of variance: predicted interaction effects in cells one and four using a tripartite split on individual performance.

Results Related to Hypothesis One

Evidence relevant to the examination of Hypothesis One was provided by a two by two factorial analysis of variance, treating organizational conformity as the dependent variable, and individual and organizational performance as the independent variables. Two levels of firm and individual performance were examined in a fixed effects model. Hypothesis One proposed a significant interaction effect on the extremes of both performance measures; i.e., the degree of perceived organizational conformity among high performing individuals in high performing firms would be less than the amount perceived by low performing individuals in low performing firms in dynamic environments. The results of this analysis are presented in Table 18. The F-statistic for the interaction effect of the two independent variables was .003, at a .959 level of significance. Organizational performance had a main effect at F = 3.197 and a corresponding .077 significance level. Individual performance contributed little to the amount of explained variance.

Results Related to Hypothesis Two

The second research question investigated in this study hypothesized an interaction effect of individual and organizational performance on the dependent variable, organizational clarity. As the results listed in Table 19

Table 18.--Hypothesis One: analysis of variance table for perceived organizational conformity.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Main effects	11.035	2	5.517	2.564*
Organizational performance	6.879	1	6.879	3.197*
Individual performance	2.398	1	2.398	1.114
Two-way interaction	.006	1	.006	.003
Organizational x individual performance	.006	1	.006	.003
Explained	11.040	3	3.680	1.710
Residual	202.261	94	2.152	

*$p \leq .10$.

Table 19.--Hypothesis Two: analysis of variance table for perceived organizational clarity.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Main effects	1.354	2	.677	.315
Organizational performance	.001	1	.001	.001
Individual performance	1.325	1	1.325	.617
Two-way interaction	.155	1	.155	.072
Organizational x individual performance	.155	1	.155	.072
Explained	1.509	3	.503	.234
Residual	201.882	94	2.148	

indicate, the F-value for this effect was .072 at a significance level of .789. The main effects of organizational performance and individual performance on organizational clarity resulted in F-ratios of .001 and .617, respectively, at .982 and .434 levels of significance.

Results Related to Hypothesis Three

A one-way analysis of variance to test the effects of firm performance on perceptions of role conflict and role ambiguity rendered no significant differences in levels of felt role conflict across levels of firm performance, but did uncover differences in felt role ambiguity significant at the .038 level. A Scheffé test for homogeneity of subgroups within the sample tested produced a mean of 4.8894 for individuals in high performing firms, and a mean of 5.2421 for individuals in low performing firms (Tables 20 and 21).

Results Related to Hypothesis Four

The predicted effects of boundary relevance on levels of perceived role ambiguity and perceived role conflict were marginally supported. An F-value of 2.145 at a .145 significance level tended toward support for the role conflict portion of the hypothesis, although we can certainly not be definitive in treatment of this hypothesis as substantially supported by the empirical

Table 20.--Hypothesis Three: analysis of variance table for perceived role conflict.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	.2369	1	.2369	.477	.491
Within groups	73.5359	148	.4969		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.34

Subset 1

Group 1 mean = 3.6706 Group 2 mean = 3.7525

Table 21.--Hypothesis Three: analysis of variance table for perceived role ambiguity.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	4.3954	1	4.3954	4.361	.038
Within groups	149.1692	148	1.0079		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.34

Subset 1	Subset 2
Group mean = 4.8894	Group mean = 5.2421

evidence. For the role ambiguity-boundary relevance relationship, an F-ratio of 2.593 produced a significance level of .110 (Tables 22 and 23).

Results Related to Hypothesis Five

The hypothesized relationships between individual performance, tolerance of role ambiguity, and tolerance of role conflict produced F-values of .209 and .132 in the data analysis. Significance levels were .649 and .717, respectively (Tables 24 and 25). A one-way analysis of variance on the need for independence measure across individual performance levels produced an F-ratio of 2.756, significant at the .100 level (Table 26).

Table 22.--Hypothesis Four: analysis of variance table for role conflict-boundary relevance relationship.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	.9471	1	.9471	2.145	.145
Within groups	.3865	139	.4416		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.34

Subset 1

Group 1 mean = 3.6882 Group 2 mean = 3.9399

Table 23.--Hypothesis Four: analysis of variance table for role ambiguity-boundary relevance relationship.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	2.7472	1	2.7472	2.593	.110
Within groups	147.2894	139	1.0596		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.34

Subset 1

Group 1 mean = 5.0349 Group 2 mean = 5.4636

Table 24.--Hypothesis Five A: analysis of variance table for tolerance of role conflict.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	.1365	1	.1365	.132	.717
Within groups	99.4425	96	1.0359		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.35

Subset 1

Group 1 mean = 3.8410 Group 2 mean = 3.9159

Table 25.--Hypothesis Five B: analysis of variance table for tolerance of role ambiguity.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	.3135	1	.3155	.209	.649
Within groups	145.2113	96	1.5126		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.35

Subset 1

Group 1 mean = 4.9081 Group 2 mean = 5.0220

Table 26.--Hypothesis Five C: analysis of variance table for need for independence.

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Between groups	3.1301	1	3.1301	2.756	.100
Within groups	109.0275	96	1.1357		

Scheffé test for homogeneity of subsets

Ranges for .10 level = 2.35

Subset 1

Group 1 mean = 3.9340 Group 2 mean = 4.2926

CHAPTER IV

SO WHAT?
DISCUSSION AND IMPLICATIONS OF RESULTS TO ORGANIZATIONAL THEORY AND PRACTICE

In the following pages, an effort to draw together the findings reported in Chapter III is made, and implications and applications of the results to organizational theory and practice are assessed.

The initial two-way analyses of variance examining the relationships between organizational performance, individual performance and organizational performance, individual performance and organizational conformity displayed non-significant interactions (Tables 18 and 19).

The divergence from long-standing theories of organizational behavior warranted additional investigation into the characteristics of the data, and how its peculiarities produced the unexpected results.

In an effort to clarify these points, supplemental analyses were run, including simple t-tests of differences between cell means and discriminant analyses. Where data from these analyses provide significant information for the interpretation of results, they are reported.

The Relationship Between Organizational Conformity, Firm and Individual Performance in a Dynamic Environment

Receptivity to significant changes occurring in the relevant environment of the firm is critical to the survival of the organization existing within the context of rapidly changing market and technological environments. If a firm is to remain viable in its operations, it must monitor changes in its relevant environment, assess the potential impact of these changes on its operations, and make appropriate adjustments in its structure or processes to cope with the changes deemed significant. As markets and technologies become increasingly stable, and thereby more highly predictable as well, the importance of environmental monitoring decreases, and keeping abreast of change is less an issue for the firm's survival.

When organizations must face unpredictable fluctuations in demand structures and technological tools and techniques, monitoring and assessing external variations and adjusting internal operations to fit the new environmental requirements become critical issues in survival efforts.

Organizational conformity constitutes the constraining aspects of structure generally associated with bureaucratic organizations, e.g., hierarchical control, specialized, narrowly defined task structures, and strict rules orientation (Litwin & Meyer, 1968). An organization

which depends upon the accuracy and celerity of its responses to change for survival in its external environment would necessarily register lower levels of perceived organizational conformity than firms functioning under conditions of relative environmental certainty. It also follows, then, that successful firms in dynamic environments would report lower levels of organizational conformity than their less successful counterparts.

Table 27 records the cell means obtained when the relationship between organizational conformity and high and low performing firms and individuals in a dynamic environment was tested, producing a main effect of organizational performance ($p = .077$), a non-significant individual performance main effect, and a non-significant interaction effect. However, on a post priori basis, it appeared that high performing individuals in high performing firms did, indeed, perceive lower levels of organizational conformity than low performing individuals in the low performing firm. In order to test this, a t-test was run, comparing the means of the groups in cells one and four, which confirmed the post priori estimate. The results of this test are reported in Table 28.

The organizational conformity construct also contributed significantly to the differentiation of subgroup members on the basis of both organizational performance and individual performance. (See Tables 29 and 30).

Table 27.--Analysis of variance: cell means of organizational conformity among high and low performing individuals in high and low performing firms in a dynamic environment.

		Individual Performance[a]	
		High	Low
Organizational Performance	High	5.08 I	4.68 II
	Low	III 4.42	IV 4.01

[a]The wording of items in this scale is such that a high score indicates low levels of perceived organizational conformity, and a low score is indicative of high levels of perceived organizational conformity.

Table 28.--Organizational conformity: T-test of difference between response means.

Variable	$\bar{X}$[a]	α	Standard Error	F-Value	Sig. of F
Organizational Conformity					
High performers in successful firms	4.99	1.036	.238	.236	.092
Low performers in unsuccessful firms	4.01	1.592	.425		

[a]A slight difference between the means used for the analysis of variance reported in Table 27 and the means reported here is due to the method of data deletion on the SPSS programs, version 6.5. In the analysis of variance, deletion of missing data was performed in a listwise fashion, while in the t-test results above, deletion was on a pairwise basis.

Table 29.--Discriminant analysis: organizational performance.

Variable	F	Wilk's Lambda	Rao's V	Change in Rao's V
Ambiguity	4.361	.971*	4.361	4.361*
Organizational conformity	6.005	.933**	10.585	6.224*
Ambiguity tolerance	5.987	.896***	17.088	6.503**
Need for independence	.354	.894***	17.491	.403
Organizational clarity	.308	.892***	17.845	.354
Conflict tolerance	.301	.891**	18.194	.349
Conflict	1.595	.881**	20.061	1.866

*p ≤ .050.
**p ≤ .010.
***p ≤ .001.

Table 30.--Discriminant analysis: individual performance.

Variable	F	Wilk's Lambda	Rao's V	Change in Rao's V
Conflict	3.205	.968	3.205	3.205
Conflict tolerance	8.302	.890***	11.875	8.670***
Organizational conformity	4.150	.852***	16.638	4.763*
Ambiguity tolerance	2.016	.834***	19.080	2.442
Need for independence	1.481	.821***	20.932	1.852
Ambiguity	1.230	.810***	22.512	1.580
Organizational clarity	.621	.804***	23.330	.817

*p ≤ .050.
**p ≤ .010.
***p ≤ .001.

Discriminant analyses attempt to statistically distinguish between two groups of cases through the mathematical combination of discriminating variables into linear functions which maximize the separation of the groups. Once a set of variables is found which provides satisfactory discrimination for cases with known group membership, a set of classification functions may be derived which will permit the classification of new cases with unknown memberships.

In differentiating high performing and low performing firms, responses to the organizational conformity measure showed the second largest increase in Rao's V of all variables in the study. The significance of the difference between high and low performing firms on the basis of organizational conformity was .011. The discriminating power of the construct as measured by Wilk's lambda was also significant (.006).

The study found, then, that in addition to a significant main effect of organization performance on organizational conformity that levels of perceived organizational conformity among high performing individuals in high performing firms were significantly lower than perceived by low performing individuals in low performing firms in a dynamic environment. For high performers in successful firms the internal organizational environment was felt to be less constraining to individual performance efforts, and across organizations studied, successful firms provide

climates for their employees which were reported to be significantly less constraining than the climate in unsuccessful firms.

Relationship Between Organizational Clarity, Firm and Individual Performance in a Dynamic Environment

Organizational clarity, the obverse of organizational conformity, produced results similar to those found with organizational conformity as the dependent variable. The cell means for the analyses of variance performed on the organizational clarity data are recorded in Table 31. In this instance, however, no significant main or interaction effects occurred. Differentiation between high and low performing individuals or high and low performing firms was not possible on the basis of responses to the organizational clarity measure, although on a post priori basis, it appeared that the combination of the extremes of performance as suggested in the second hypothesis (i.e., high performing individuals in high performing firms and low performing individuals in low performing firms) did, indeed, result in significantly different responses on the organizational clarity measure.

A t-test was performed on cells I and IV of the organizational clarity data to verify the apparent divergence between the levels of perceived organizational clarity among high performers in successful organizations

and low performers in unsuccessful organizations. The results of this test affirmed the hypothesized relationship. High performing individuals in high performing firms perceived significantly greater levels ($p = .013$) of organizational clarity than low performing individuals in low performing firms.

Table 31.--Analysis of variance: cell means of organizational clarity among high and low performing individuals in high and low performing firms in a dynamic environment.

		Individual Performance	
		High	Low
Organizational Performance	High	4.26 I	4.02 II
	Low	4.22 III	3.98 IV

In a discriminant analysis, measures of ambiguity, ambiguity tolerance, organizational conformity, and role conflict explained greater amounts of variation between high and low performing firms than did organizational clarity, although, as indicated by the value of Wilk's lambda, the construct did explain a significant amount of the difference between successful and unsuccessful firms after these four variables were taken into account. The

absolute contribution of the organizational clarity construct to the ability of the discriminant function to differentiate high from low performing firms was negligible (Table 30).

Table 32.--Organizational clarity: T-test of difference between response means.

Variable	$\bar{X}^a$	α	Standard Error	F-Value	Sig. of F
Organizational Clarity					
Cell I	4.26	.945	.217	3.59	.013
Cell IV	4.04	1.790	.478		

[a]Cell means reported here vary slightly from those recorded in the analysis of variance table on the same dependent variable (Table 31), because of the method of case deletion on version 6.5 of SPSS. The analysis of variance routine deletes cases listwise, while the t-test program deletes cases pairwise. Case inclusion is thus slightly different in the two analyses.

Responses to the organizational clarity and organizational conformity measures indicated that high performing individuals in successful firms felt significantly less stifled by the structure of their organization than did low performers in unsuccessful firms.

The data suggest that the climate conditions in the low performing firm in the non-destructive testing field have resulted in their attracting or maintaining

fewer high performing individuals than their successful competitors. High performers may have been, at one point, members of the low performing firm, then either left the organization (as the turnover figures indicate may well be the case) or released their creative efforts somewhere other than in the work portion of their life sphere. When the organization is seen as inhibiting an individual's work process through rules and procedural requirements which are perceived to be inappropriate or excessive, the firm is inadvertently depriving itself of the abilities which are requisites of survival in dynamic environments. For a firm to make relatively accurate assessments of its relevant environment and adjust its internal operations to meet the new and changing demands, the barriers to change must be kept at a minimum. Firms which choose to establish and enforce procedures are attempting to build stability into an organizational structure which exists in a quickly and unpredictably changing external environment. By building rigidity into its internal structure, the organization is making inappropriate adaptations to the environment within which it exists. Perhaps the level of stability built into the organizational system causes high performing individuals to leave the system or to rechannel their creative efforts into non-work areas, thereby decreasing their relative effectiveness in the

organization and, in turn, reducing the effectiveness of the total organization.

The low performing firm had apparently adapted improperly to the demands of its external environment. The non-destructive testing industry requires participating firms to maintain enough flexibility to incorporate new techniques and technologies as they arise, and to adjust to changing market demands if they are to survive. In this study, the firm reporting the highest level of organizational conformity and the lowest level of organizational clarity was also the firm unanimously classified by a panel of experts in the field as "unsuccessful."

Firms experiencing success in non-destructive testing reported low organizational conformity and high clarity. Members of these firms apparently feel relatively uninhibited by the structure of their organization, and are free to channel their creative and innovative efforts through the organization, which, in turn, contributes to the success and long-run survival of the firm. Figures representing the amount of manpower devoted to research, both pure and applied, in the successful and unsuccessful firms (Table 6) support these projections.

Relationship Between Measures of Role Conflict, Firm and Individual Performance in a Dynamic Environment

Extant theory on the nature of role conflict led to the development of a series of hypotheses in which the construct was used as a dependent variable. It was presumed that the perceived opportunity for incidents of role conflict would be greater among high performing firms because of their theoretically more sensitive interaction with and reaction to the state of their external environments. Theory also supports the notion that, the more interaction an individual has with points external to the formal bounds of the organization, the probability that the individual will experience role conflict is significantly increased. Those whose jobs are designed in such a fashion that their work efforts are directed toward the internal structure and process of the organization would, then, experience less role conflict than would persons for whom functioning across the organizational boundaries was a more relevant, integral portion of their job. Finally, organizational behavior theory leads one to believe that individuals more capable or willing to tolerate incidents of role conflict would perform well in dynamic environments. The rapidity and irregularity of change in dynamic environments provide prime conditions for situations which generate role conflict. Thus, one might expect that

individuals who have learned to succeed in this type of environment are better able to tolerate role conflict than poorer performers in the same environment and individuals working in stable organizations as well.

A one-way analysis of variance testing the impact of role conflict on high and low performing firms in the non-destructive testing industry produced an F-value of .477 at a .491 level of significance. Given the distinct divergence this presented from well-established theories on the construct, a t-test was run on the mean responses of high performing individuals in high performing firms versus the responses of low performing individuals in low performing firms. The test produced an F-value of 3.32 and a corresponding probability of .020. The results of the two tests are inconsistent.

The one-way analysis of variance initially performed compared organizations on the basis of pooled individual responses to role conflict measures, irrespective of their rating on the individual performance scale, as diagrammed in Figure 10. If the values of $\overline{X}_H$ and $\overline{H}_L$ produced a large F-value, the means would be classified as significantly different.

When the individual performance measure is added to the diagram, a two-way analysis results (Figure 11), and four distinct cells of data become identifiable. The t-test looked at the difference between mean responses on

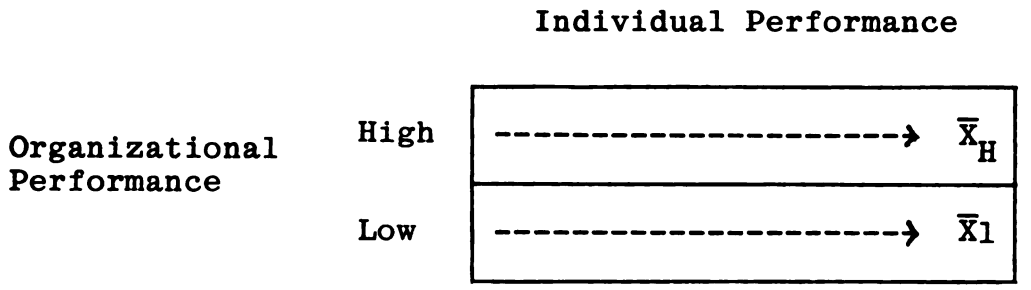

Figure 10.--One-way analysis of variance.

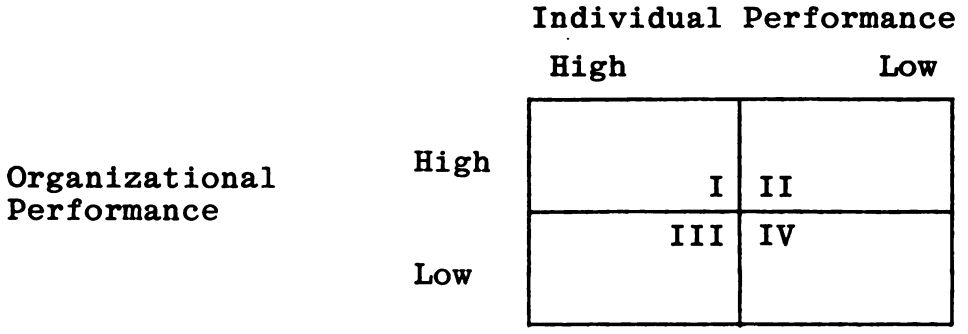

Figure 11.--Two-way analysis of variance: source of data used in t-test.

role conflict items for individuals falling in cell I, versus those in cell IV, that is, high performing individuals in successful firms versus low performing individuals in unsuccessful firms in the same environment.

Noting, now, the differences in subject groups tested in the two analyses, an explanation for the apparent

divergence in results emerges. The mean responses of individuals in cells I and IV were significantly different. When their complements are added, the difference between mean responses on the role conflict scale becomes non-significant. The MANOVA results are solely a statistical artifact. The standard deviation of responses in cells I and III is such that it overrides the impact of the differences between cells I and IV. Individual performance, then, not organizational performance, is a moderator of role conflict. To verify this conclusion, a two-way analysis of variance was performed, from which cell means were drawn and reported in Table 33, and a discriminant analysis of the study's dependent variables' impact on the independent variables, organizational and individual performance (Tables 30 and 31). Both analyses supported the assumption that individual performance is significantly correlated with role conflict. Irrespective of the relative success of a given firm, high performing individuals in the dynamic environment studied feel the opportunities to experience role conflict in the course of their work is very great. Low performing individuals in the same environment do not perceive the opportunities for or existence of role conflict to be as extensive as do high performers (Table 33).

Generalization is difficult, in that the perception of opportunities for conflicting situations tells us little about the individual's level of tolerance for conflict or

Table 33.--Analysis of variance: cell means of role conflict measures among high and low performing firms and individuals in a dynamic environment.

		Individual Performance	
		High	Low
Organizational Performance	High	3.95	3.69
	Low	3.96	3.70

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Sig. of F
Main effects	1.697	2	.849	1.693	.189
Organizational performance	.077	1	.077	.154	.696
Individual performance	1.695	1	1.695	3.381	.069
Two-way interactions					
Organizational x individual performance	1.333	1	1.333	2.659	.106
Explained variance	3.030	3	1.010	2.015	.117
Residual variance	47.110	94	.501		

his ability and/or desire to engage in activities which reduce the level of felt conflict.

The Tolerance for Role Conflict, Firm and Individual Performance Relationship

A measure of tolerance of role conflict was taken during the study, which, when subjected to a t-test comparing the mean responses of high performing individuals in high performing firms and low performing individuals in low performing firms, reported that members of the low-low group were significantly more tolerant of role conflict than the high performers (Table 34). The results of the perceived role conflict measure and the tolerance for role conflict measure, when combined, imply that high performing individuals in high performing firms feel the opportunity for conflict to be very high, and, when it occurs, action is quickly taken to reduce the conflict and the obstructions the conflicting situation provided to the individual's ability to perform is thus removed, or minimized. The low performing individual in the unsuccessful firm, on the other hand, is more likely to let conflicting situations solve themselves. Indeed, their ability to tolerate conflict may contribute to their relative ineffectiveness in their organizations. If conflict provides the barrier to individual performance organizational theory predicts, and an individual is willing to simply react to the conflict rather than proacting to reduce it, it is likely that such

Table 34.--Tolerance of role conflict: a t-test of difference between means.

Variable	$\bar{X}$	α	Standard Error	F-Value	Significance of F
Tolerance of Role Conflict					
High performers in successful firms	3.7961	.664	.152		
				5.22	.002
Low performers in unsuccessful firms	3.9643	1.518	.406		

persons will, in effect, hinder their own ability to complete a task by not clarifying conflicting demand situations.

The Role Conflict, Boundary Relevance Relationship

As Table 22 indicated, the relationship between role conflict and boundary relevance, although non-significant in the sample tested in this study, was clearly ($p = .145$) in the direction expected. Individuals in boundary-spanning positions in the organizations responded at a mean level of 3.94 on items related to role conflict, while individuals whose primary duties were within the confines of the formal boundaries of the organization had a mean response of 3.68 on the same items. These results tend to support the theories which contend that individuals whose work activities frequently take them to people and places external to the organization are more likely to experience role conflict than are their internally oriented co-workers.

Managers in a position to hire or maintain personnel in boundary-spanning positions would thus be well advised to make what contributions they can to keep role conflict for these individuals at a minimum in order to keep barriers to effective performance as low as possible. Given that boundary-spanning positions are predisposed to role conflict (Katz & Kahn, 1966), however, the task of

its minimization will be continuous, and largely beyond the control of the manager within the firm.

The level of significance of the boundary relevance-role conflict relationship may have been moderated somewhat by the size of the firms involved in the study. Although an individual's duties in an organization are defined as predominantly internally directed functions, when firms are small it is quite possible that all employees' activities will, at some point, be directed toward the firm's external environment.

Relationships Between Measures of Role Ambiguity, Firm and Individual Performance in a Dynamic Environment

Role ambiguity is said to occur when an individual is not given sufficient information from members of the role set for the appropriate enactment of a role. In the context of a rapidly changing external environment, the demands made upon the behavior of firms and individuals are in a continuous state of flux, thereby rendering the use of historical data as a guide to present or future activity useless, and creating conditions optimal for incidents of role ambiguity. The environment, not allowing firms the luxury of projecting future events from past, forces them into an active search for the information necessary to task accomplishment.

It follows, then, that organizations which deal more actively with their external environments do so in an attempt to reduce the amount of ambiguity perceived to a workable level. Organizations, dependent upon the members of their external environments for survival, require information from market members about the specific needs the firm and its products can fill, and possibly the methods by which these needs can most effectively be attended. In the instance of highly complex technologies, the specific means of satisfying consumers' needs are likely to be left up to the producing firm as the level of consumer knowledge in fields such as non-destructive testing is frequently quite minimal. The desired ends, however, may be described in detail, and specifications of equipment derived from the performance needs expressed by those using the test instruments. Ambiguity about consumer needs and product performance requirements would, thus, be reduced, allowing a firm to begin directing its efforts toward the accomplishment of the task goal set by the market's needs and the capacity of the technicians and the technologies available.

From this, theory would conclude that organizations dealing successfully with a dynamic environment would experience higher levels of role ambiguity than would less successful firms in the same environment.

Analyses performed on the data from the non-destructive testing industry to examine the relationship between role ambiguity and organizational performance affirmed the validity of the theoretical relationship between the two variables. The means of the subgroups identified in the Scheffé test (Table 35) indicate that the high performing organizations perceived significantly more role ambiguity than did the low performing organizations.

In this sample, organizational performance could be largely determined through knowledge of role ambiguity measure responses. Individual performance did not explain significant amounts of variance in perceived ambiguity levels, while organizational performance emerged as a major contributor in both a one-way analysis of variance (Table 35) and a discriminant analysis (Table 29).

It becomes apparent from these data that feelings of ambiguity regarding appropriate behavior for enactment of a role stem not from within the individual, but from the environment within the organization itself, or, indirectly, from the external environment. The organization may exhibit internally the amount of ambiguity it feels exists in the external environment which it monitors and to which the firm responds. A brief examination of organizations' responses to the Environmental Demands Questionnaire lends substance to this notion, but given the small number of respondents to the instrument, such connections can merely

Table 35.--Analysis of variance: role ambiguity and organizational performance.[a]

Source	Sum of Squares	Mean Squares	F-Ratio	Sig. of F
Between groups	4.3954	4.3954	4.361	.038
Within groups	149.1692	1.0079		
Total	153.5646			

Scheffé test of homogeneity of subsets

Ranges for the .10 level -- 2.34

Subsets of groups, no pair of which has means that differ by more than the shortest significant range for a subset of that size.

Subset 1 -- Mean -- 4.8894, Group--High performing organizations

Subset 2 -- Mean -- 5.2421, Group--Low performing organization

Group	N	$\bar{X}$	α	Std. Error
Successful firms	57	4.8894	1.0540	.1396
Unsuccessful firm	93	5.2421	.9722	.1008

[a]High scores on the role ambiguity measure are indicative of low levels of ambiguity, and vice versa.

suggest affirmation; they cannot lead to any decisive conclusions in the matter.

The Role Ambiguity, Boundary Relevance Relationship

The results of the one-way analysis of variance testing the effects of boundary relevance on perceived role ambiguity appearing in Table 23, although not definitively significant ($p = .110$), are quite clearly in a direction opposite to that which was expected. It was thought that as an individual's contact with the external environment increased, the amount of ambiguity the individual experienced in attempts to enact his roles would increase as well since the variables encountered would include not only those internal to the firm, but those relevant to the firm in the external environment as well. This is not supported by these data.

Initially the findings associated with role ambiguity and boundary relevance appear to be at odds with the results indicating that role ambiguity is significantly higher in successful firms in dynamic environments than in unsuccessful firms. When analyzed from an information-processing point of view, the pieces begin to fit.

An organization operating in an environment which changes unpredictably will be required to learn to deal with the ambiguity inherent in such environmental situations if it is to succeed. Less successful firms may feel

that greater amounts of certainty prevail in the environment, and thereby are less compelled to place emphasis on boundary-spanning and adaptive activities than successful firms. Attempts will be made to routinize the boundary-spanning and adaptive subsystem functions, in accordance with the perceived stability in critical external variables. The individuals in low performing firms operating across organizational boundaries in the execution of purchasing, marketing, and environmental monitoring, then, are somewhat misinformed by their organization. The unsuccessful firm's members in highly boundary relevant positions are sent into the external environment expecting degrees of predictability which are in excess of reality. High levels of ambiguity are found in the environment which were not expected. Information sought is not available, technologies are in a state of flux, sound data appear tenuous. Instead of reducing the ambiguity level of the firm, the boundary spanner is attempting to bring ambiguity in. The amount of conflict the individual experiences, then, would be expected to be high as well (Table 33), since the demands the organization makes on the boundary spanner's performance are inconsistent with what has been found in the external environment. Figure 12 attempts to clarify the relationships among this combination of events.

Boundary spanners in high performing firms face the demands of the external environment with more accurate

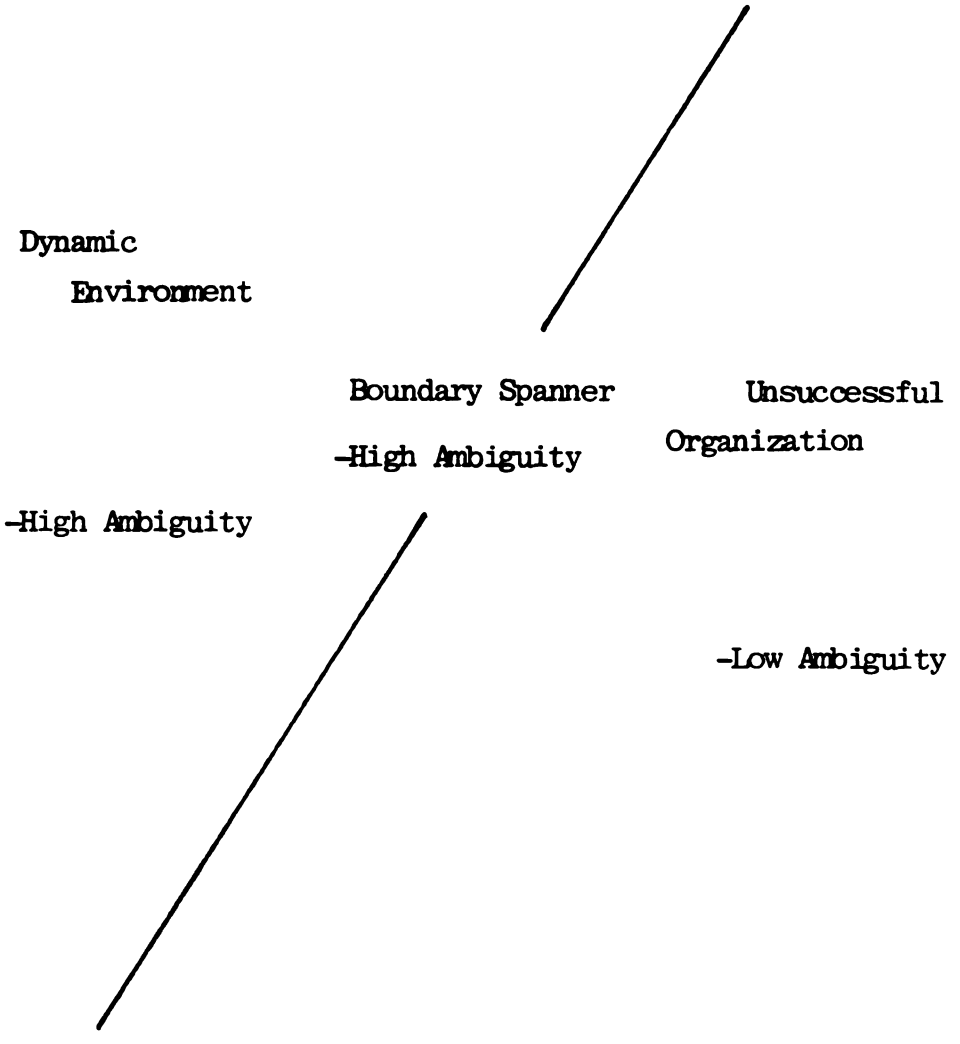

Figure 12.--Ambiguity in the boundary-spanning positions of unsuccessful firms in a dynamic environment.

information about its character. Expecting instability in the market and technological areas, the spanner is better equipped to perform the ambiguity-reduction function for his firm. As the data indicate, high performing firms in dynamic environments perceive high levels of ambiguity in their external environments and internal environments as well. The boundary spanners in successful organizations such as these are met with environments consistent with the atmosphere communicated within their firm, and perform the task of information transfer without absorbing the uncertainty on either end of the transaction. Information is taken, as is, from relevant external sources, and relayed to the internal structure of the firm. Thus, the level of ambiguity perceived by individuals in highly boundary relevant positions in successful firms is low. (See Figure 13.) Ambiguity is conveyed from its source to the firm's information-processing units without the messenger absorbing, altering, or necessarily interpreting the data.

It is also possible that the low level of ambiguity perceived by boundary spanners in high performing firms is a function of the expectations the individuals initially held. If the organization sends accurate assessments of the external environment to those in boundary relevant positions, the spanners approach the environment expecting to experience high levels of ambiguity and would, thereby,

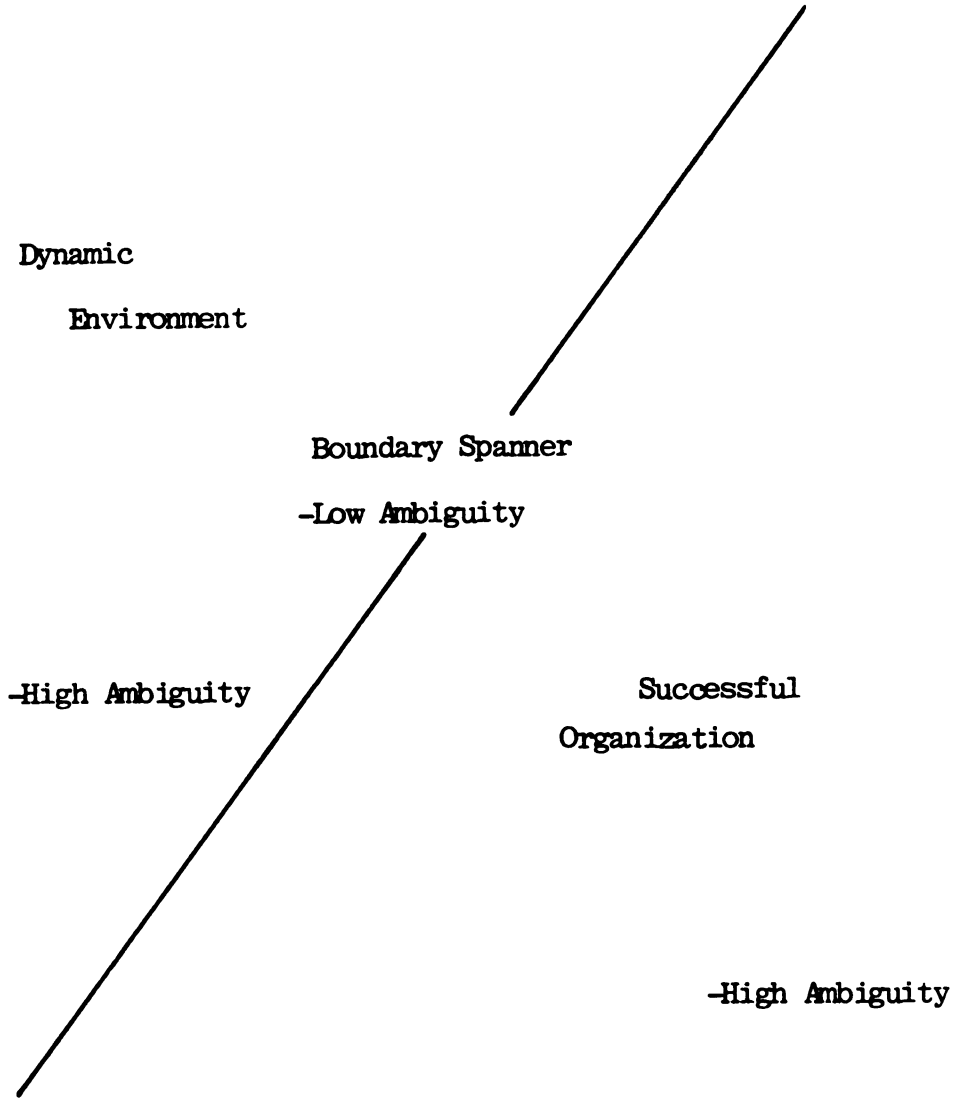

Figure 13.--Ambiguity in the boundary-spanning positions of successful firms in a dynamic environment.

report less ambiguity than those who had been led to believe the environment was stable, when, indeed, it was not. High performing firms could be said, then, to have prepared boundary spanners for the level of ambiguity extant in their external environment, while low performing firms did not adequately prepare their employees in boundary relevant positions.

The Tolerance of Role Ambiguity, Firm and Individual Performance Relationships

The one-way analysis of variance used to test the hypothesized relationship between individual performance and tolerance of role ambiguity produced non-significant results ($p = .649$). The effect of organizational performance on perceived ambiguity reported earlier in this chapter accounted for the majority of variance observed in the construct. Combined, perceived ambiguity and tolerance of role ambiguity accounted for over half (10.864 of 20.060 units measured by Rao's V; see Table 29) of the distance created by the discriminant function between the response centroids of high and low performing firms.

Ambiguity tolerance was considerably less critical in the discriminant function developed on individual performance than in the organizational performance function. Although the construct made a significant contribution ($p = .118$) to the function's ability to discriminate high

from low individual performers, the value of Rao's V which it generated (2.442) was not nearly as valuable in the individual performance function as it was in the organizational performance function, where the change in Rao's V attributed to the ambiguity tolerance measure was 6.503.

From these data, it appears that ambiguity tolerance is more a function of the organization's level of performance than of individual performance levels although when subjected to a two-way analysis of variance, neither the main effect of organization performance nor individual performance is significant.

The Need for Independence, Individual Performance Relationship

On the basis of extant research on the need for independence, and its relationship to theories of work socialization, it was hypothesized that individuals performing well in dynamic environments would report a higher need for independence than would low performers. Unfortunately, the scale used to measure needs for independence produced a reliability coefficient alpha of .393. Data on the variable are, thus, of little empirical value and will be withheld from further discussion.

CHAPTER V

AT LAST!
CONCLUSIONS, SUMMARY, AND SUGGESTIONS FOR FUTURE RESEARCH

Summary

Objectives

The objectives of this research were (1) to explore the relationship between organizational structure and individual behavior and processes and (2) to provide empirical support for the contingency theories of organization structure by testing the validity of organizational attributes generally associated with the dynamic or organic form of organization structure.

The non-destructive testing industry was chosen for study on the basis of the technological and market volatility reported by a series of experts in the field. Two high and one low performing firm in the industry were selected for closer examination. Performance was measured on the basis of product performance in use, quality of workmanship, and personal service by a series of experts who had worked in the non-destructive testing field a minimum of ten years and were not directly involved with the operation of any of the firms chosen for study.

Financial data (e.g., sales, return on investment, cost of sales) were collected in each firm, which verified the accuracy of the experts' opinions.

Questionnaires (see Appendix A) were distributed on site to all employees at the three firms. Interviews were conducted with each firm's president and his critical subordinates, and each was also asked to respond to questions regarding the demands of his organization's external environments. (See Appendix B.) Questionnaires were left on site with self-addressed return envelopes for employees absent from work the day of data collection. All questionnaires were pre-coded with individual performance ratings supplied by firm presidents. Of the 162 distributed, 150 questionnaires were returned and usable. Return rates by firm were 93%, 100%, and 87%.

One- and two-way analyses of variance were used to test for significance in the relationships hypothesized.

Results

The relationship between organizational conformity, organizational clarity, firm and individual performance.--The review of literature in Chapter I discussed the growing body of research supporting the validity of the various contingency approaches to organizational design and administration. While numerous contingency variables have been proposed, most have in common the element of certainty or

predictability of events in the organization's external environments; the certainty of outcomes. Varying degrees of uncertainty call for different organization structures and administrative approaches.

Firms in dynamic environments rely on individual expertise, interpersonal interaction, and informal communication for definition of tasks and processes, while firms in stable environments tend to use position power, formalized communciation structures, procedural rules and regulations for structure.

The firms in the study, being relatively organic, or dynamic in nature, were expected, then, to report lower levels of organizational conformity (the constraining elements of structure) and higher levels of organizational clarity (the obverse of conformity) than firms in stable environments. Extending this notion to test appropriateness in organizational structural adaptation, it was hypothesized that successful firms in the dynamic environment studied would report lower levels of organizational conformity and higher levels of organizational clarity than less successful firms in the same industry.

The relationship anticipated between organizational performance and organizational clarity was supported at a significance level of .077 (Table 27). In addition, high performing individuals in high performing firms perceived significantly less organizational conformity than did low

performing individuals in low performing firms ($p = .092$, Table 28).

Tests performed on the organizational clarity data revealed no significant main effects in a two-way analysis of variance, but when cells I and IV (high performing persons in successful firms vs. low performing persons in unsuccessful firms) were compared, differences in means were found to be significant at the .013 level. High performers in successful firms reported higher levels of organizational clarity than did low performers in the unsuccessful firm.

From these findings it was concluded that firms which had adapted appropriately to the dynamic environment studied produced climates significantly less constraining to individual performance than did competitors who had not structured themselves in a manner consistent with the demands of the external environment.

The relationships between role conflict, role ambiguity, firm and individual performance.--In conjunction with the speculations of Kahn et al. (1964), it was hypothesized that levels of perceived role conflict and ambiguity would be higher in successful than in unsuccessful firms, and higher among individuals operating at the boundaries of the organizations tested than among individuals whose work activities dealt primarily with the

firm's internal structure. Tolerance of role ambiguity and role conflict was expected to be greater among high performing individuals than among low performers.

Results indicated that role conflict and tolerance of role conflict are more highly associated with individual performance than with firm performance (Table 33). When tested across levels of organizational performance, the differences between response groups to measures of conflict and conflict tolerance were consistently non-significant. The boundary relevance issue also brought non-significant results ($p = .145$), although the trend of the means produced was quite clearly in the direction expected. Individuals in highly boundary relevant positions reported higher levels of role conflict than individuals in positions low in boundary relevance.

High performing individuals reported significantly greater levels of perceived role conflict than their low performing co-workers, and significantly greater ability or willingness to tolerate role conflict ($p = .002$; Table 34).

The role ambiguity relationships with firm and individual performance produced unexpected, yet significant results. Levels of perceived role ambiguity were significantly different in one-way analyses of variance with organizational performance ($p = .038$), but not by individual performance. The highly boundary relevant positions

in the firms studied measured low in role ambiguity while the positions located within the structure away from organizational boundaries measured high in role ambiguity ($p = .110$, Table 23). The tolerance of role ambiguity results were non-significant in tests analyzing the variance between high and low performing organizations and high and low performing individuals, although the construct did contribute significantly to discriminant function's ability to differentiate between groups on the organizational performance dimension (Table 29).

The apparent inconsistency in the results on the perceived ambiguity and boundary relevance measures was explained in terms of the boundary spanners' absorption of uncertainty in its transfer from external to internal environments. It was thought that those who expected high levels of uncertainty in the firm's external environment were better able to communicate an assessment of the specific characteristics of the environment to their firm, without feeling frustration or the need to become a buffering unit between the internal and external environments of the firm as the individuals spanning boundaries in the low performing organization did.

The relationship between need for independence and individual performance.--Analysis of the relationship between need for independence and individual performance

was deleted due to an unacceptably low reliability in the measuring instrument (.393).

Conclusions

From the trends found in the data collected in the non-destructive testing industry, it appears that researchers in the field of organizational behavior have rightly been theorizing differences between successful and unsuccessful firms within particular organizational environments. Previous studies have voiced support for contingency theories of organizational structure both on theoretical and empirical grounds; however, measures were taken predominantly from stable organizational structures which, being apparently more numerous in the total population of organizations, and historically more cooperative, is understandable.

This research has attempted to introduce empirical data from dynamic organizations to the research extant on contingency theories of structure. It is also indicative of an attempt to begin establishing the validity of theoretical connections between organizational structure and individual behavior and processes, forming the next logical link in the chain of contingency-based relationships, i.e., from the environment to the organization and from the organization to the individuals who comprise it.

Limitations

As is the case with any empirical research, certain events, resources, or extraneous variables enter in to the formula and dampen the enthusiasm initially felt for the results generated. This study was no exception.

Hazards arise when one attempts to generalize the results of measures taken from three firms in an industry to all other members of the industry or beyond to all industries existing in similarly defined environments. The number of potential confounding variables is great. However, such a limitation by no means warrants totally discounting the results obtained. Like results reported on any empirical research, these findings should be entered into the volumes of extant research and literature, in full awareness of the tenuousness of generalization inherent in any such study of organizations.

The size of the firms observed in this study also presents problems in data interpretation. The successful firms both numbered under fifty employees, while the unsuccessful firm employed somewhat over one hundred people. Attempts were made to balance the sample in terms of the number of respondents, but it was literally impossible to match firms on a size variable.

Additional limitations to be considered are the potential inconsistencies within and across raters on the

individual performance measure. Raters used a continuous scale (one to five), but there was no way to tell whether the criteria used for rating employees were consistently applied, or if the scales used in any single firm in any way approximated the criteria used in the other firms.

Again, the limitations apparent in this study are not peculiar to it, organizational behavior, or any other subgroup of research areas; they belong simply to empirical research in general, although the specific types and degrees of limitation vary. If science discarded all research which could be criticized in some fashion for the potential confounding of extraneous variables, inappropriateness of measures, or non-representativeness of samples investigated, the world's textbooks would, indeed, be thin.

Suggestions for Further Research

The relationship suggested by the results in this study between role conflict and organizational structure bring questions of the relationship between organizational level of the respondent and perceived role conflict to mind. It would also be interesting to see if the role conflict-individual performance relationship was consistent across organization types. The same type of question needs to be asked and empirically answered regarding ambiguity and organizational performance. Is ambiguity, indeed, more highly correlated with organizational performance across

organization types? Does the relationship reverse in stable environments? Does ambiguity correlate highly with individual performance in other environments while it does not in dynamic environments? Also, how do these constructs relate to an individual's satisfaction with various facets of his job in the organization?

The relationships among the variables used in this study need to be verified in other dynamic industries and compared to data collected for firms in stable environments. When such information is available to the field of organizational behavior, maybe then we can begin to make definitive links not only between appropriate organizational structure and organizational environments, but also between individual attributes and organizational characteristics as well.

FLAGS, STARS, GARTERS AND ASSORTED DANCING GIRLS EMERGE IN BRIEF COSTUMES OF SPANGLING GOLD, FORMING KICK LINES NEATLY BEHIND WHITE PICKET FENCES AND CARRYING APPLE PIES AND SMILING PICTURES OF THEIR MOTHERS.

APPENDICES

APPENDIX A

MEASURES OF ENVIRONMENTAL DEMANDS

APPENDIX A

MEASURES OF ENVIRONMENTAL DEMANDS

1. As a place to start, on what basis does a customer evaluate and choose between competing suppliers in this industry? (price, quality, delivery, service, etc.)

2. Would you list for me the major kinds of problems an organization encounters when competing in this industry?

3. Would you rank these problem areas in terms of: a) their criticalness to the success of the organization;

b) and the difficulty of achieving effective resolution?

4. We have talked a little about the basis on which products of different companies in this industry tend to compete. I would like your impression of how important each functional area is in determining the final product characteristics?

5. Have there been any significant changes in the market or technical conditions in your industry in the past 10 years?

6. To what extent have there been major modifications in the following activities in your division over the past 10 years:

a) in your product line?

b) in your marketing techniques?

c) in your manufacturing facilities?

d) in the amount and direction of your research effort?

e) in the background, training, and technical skills of your employees in sales, manufacturing, research, management?

Due to rapid change in an industry, or the state of development in the technology used by the industry, or vast differences in customer requirements, etc., company executives often have varying degrees of certainty concerning what their departmental job requirements are and the kinds of activities their departments must engage in to achieve these requirements. The following series of questions is an effort to obtain data concerning this aspect of your industry. Please answer each question for each functional area.

1. Please circle the point on the scale provided which most nearly describes the degree to which present job requirements in each functional department are clearly stated or known in your company for the:

Research Department

Job requirements are very clear in most instances.	1	2	3	4	5	6	7	Job requirements are not at all clear in most instances.

Manufacturing Department

Job requirements are not at all clear in most instances.	1	2	3	4	5	6	7	Job requirements are very clear in most instances.

Marketing Department

Job requirements are very clear in most instances.	1	2	3	4	5	6	7	Job requirements are not at all clear in most instances.

2. Please circle the point on the scale provided which most nearly describes the degree of difficulty each functional department has in accomplishing its assigned job, given the limitation of the technical and economic resources which are available to it.

Degree of difficulty in:

<u>Developing</u> a product which can be manufactured and sold profitably	1 Little difficulty	2	3	4	5	6	7 Extreme difficulty
<u>Manufacturing</u> economically a product which can be designed and sold	1 Extremely difficult	2	3	4	5	6	7 Little difficulty
<u>Selling</u> a product which can be developed and manufactured economically	1 Little difficulty	2	3	4	5	6	7 Extremely difficult

3. Please check the alternative which most nearly describes the typical length of time involved before feedback is available to each functional are concerning the success of its job performance. For example: the sales department manager may be able to determine at the end of each day how successful the selling effort was by examining the total sales reported by his salesmen for that day. In contrast, the production manager may not know whether production meets required specifications until the results of several performance tests are available, often a period of several days from the time his department completes its processing.

Research Department

_____ one day
_____ one week
_____ one month
_____ six months
_____ one year
_____ three years or more

Manufacturing Department

_____one day
_____one week
_____one month
_____six months
_____one year
_____three years or more

Marketing Department

_____one day
_____one week
_____one month
_____six months
_____one year
_____three years or more

Departmental Structure

1. What is the average span of control for the supervisors in your unit?

2. How much time elapses between reviews of departmental performance?

3. How specific are the departmental performance reviews? (Check one.)

   General oral review _____

   General written review _____

   General statistics _____

   Detailed statistics _____

4. How important are the department's formal rules?

   There are no rules _____

   Rules on minor routine procedures _____

   Comprehensive rules on routine procedures _____

   Comprehensive rules on all routine procedures and operations _____

5. How are performance evaluations conducted?

   No formal evaluation _____

   Formal evaluation-- no fixed criteria _____

   Formal evaluation-- some fixed criteria _____

   Formal evaluation-- detailed criteria _____

6. How many structural levels are there in this organization?

7. How long has this firm been in operation?

8. What would you say was the average pay raise received by professional personnel employed at this firm last year, in dollars?

9. How many employees left the firm last year from:

the managerial staff _____

the scientific staff _____

the engineering staff _____

the technical staff _____

the manufacturing staff _____

the clerical staff _____ ?

10. What are the major responsibilities of this department?

11. What would you say are the dominant competitive issues facing the firm?

12. We need to obtain your subjective assessment of the performance of your entire organization as it relates to competitors in this industry. Equating 100% to ideal performance, we would like you to indicate what percent of this ideal or optimal performance you personally feel your organization is achieving in this industry.

I personally feel that the overall performance of the organization of which I am an active member, should be rated as _____% of ideal.

13. We are also interested in obtaining a few empirical measures of the trend of your organization's performance over the past five years. In the table below, we would like you to indicate the percentage change on a year-to-year basis of three performance indicators: sales, before tax profits, and return on investment before taxes. Considering the base year 1970 as 100, would you please indicate in the spaces provided, the level for each indicator for each year. For example, if sales in 1971 were 5% above 1970, you would put 105 in the 1971 column. If sales were 5% below the 1970 level in 1972, you would put 95 in the 1972 column, and so forth.

Index of:	1970	1971	1972	1973	1974	1975	1976
Sales	100						
Before tax profits	100						
Return on investment before tax	100						

APPENDIX B

RESEARCH INSTRUMENT

APPENDIX B

RESEARCH INSTRUMENT

DISSERTATION RESEARCH QUESTIONNAIRE

: : confidential : :

When completed, this questionnaire becomes the property of L. Delf Dodge of the Department of Management, Michigan State University, East Lansing, Michigan 48824.

Employees and management personnel of participating firms, and any individual other than the researcher and dissertation advisor are expressly prohibited from access to questionnaire data of individual respondents.

Organizations differ in the way they are designed to accomplish their goals. I am interested in learning more about the structure of your organization, and about the individuals which make up the total organizational system.

This questionnaire is divided into seven parts. The directions differ slightly in some of the sections, so please be sure to read them before completing each segment.

Also, in order to use a questionnaire there must be a response for each question. Please be certain to answer every question. Proceed at an even pace, marking the response which first comes to mind, and continuing to the next question.

In advance, may I thank you very much for your invaluable contribution to this doctoral dissertation study.

The following questions ask you to describe the JOB ON WHICH YOU WORK. Please do not try to show how much you like or dislike your job; just try to be as accurate and factually correct as possible.

First, read the descriptions at each end of the scale, under [1] and [7]. Then check one of these boxes - or one in between - that best describes what your job is like.

1. How much variety is there is your job?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Very little; I do pretty much the same things over and over, using the same equipment and procedures almost all the time		Moderate variety			Very much; I do many things, using a variety of equipment and procedures	

2. How much does the work you do on your job make a visible impact on a product or service?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
None at all; it is hard to tell what impact my work makes on the product or service		A moderate amount; the impact of my job is visible along with that of others			A great amount; my work is clearly visible, it makes a noticeable difference in the final product or service	

3. How much freedom do you have on your job? That is, how much do you decide on your own what you do on your job?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Very little; there are few decisions about my job which I can make by myself		A moderate amount; I have responsibility for deciding some of the things I do, but not others				Very much; there are many decisions about my job which I can make by myself

4. How often does your job require that you meet or check with other people in this organization?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Not at all; I never have to meet or check with others		I sometimes need to meet or check with others				Very often; I must constantly meet or check with others

5. How much challenge is there on your job?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
There is very little challenge on my job; I don't get a chance to use any special skills and abilities and I never have jobs which require all my abilities to complete them successfully			Moderate challenge			There is a great deal of challenge on my job; I get a chance to use my special skills and abilities and often have jobs which require all my abilities to complete successfully

6. As you do your job, can you tell how well your're performing?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Not at all; I could work on my job indefinitely without ever finding out how well I am doing unless somebody tells me			Moderately; sometimes by just doing the job I can find out how well I'm performing, sometimes I can't			A great deal; I can almost always tell how well I'm performing just by doing my job

7. How much uncertainty is there in your job?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Very little; I almost always know what to expect and am never surprised by something happening unexpectedly on my job			Moderate uncertainty			A great deal; I almost never am sure what is going to happen, and unexpected things frequently happen

8. How much control do you have in setting the pace of your work?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Very little; pace is predetermined and I must work at a strict pace set by someone or something else			Moderate control of work pace			A great deal; I determine my own work pace

9. How much do you have to cooperate directly with other people in this organization in order to do your job?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Very little; I can do almost all my work by myself			A moderate amount; some of my work requires cooperating with others			Very much; all my work requires co-operating with others

10. How much does your job involve your producing an entire product or an entire service?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
My job involves doing only a small part of the entire product or service; it is also worked on by others or by automatic equipment and I may not see or be aware of much of the work which is done on the product or service			My job involves doing a moderate sized 'chunk' of work; while others are involved as well, my own contribution is significant			My job involves producing the entire product or service from start to finish, the final outcome of the work is clearly the results of my work

11. How much say do you have over the things you do on your job? That is, to what degree can you influence decisions about what you do on your job?

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Very little; I have almost no influence in deciding what I do			Moderate influence; I have influence in some decisions but not in others			A great deal; I have a lot of influence in most of the decisions about what I do

Here are some statements regarding how you might feel about yourself or your work. There are no "right" or "wrong" answers; each person will feel somewhat differently. Please indicate how much you agree or disagree with the following statements.

		Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
12.	Changes here always seem to create more problems than they solve.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13.	In general, my life is pretty satisfying.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14.	People in this organization will do things behind your back.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15.	When changes are made in this organization, the employees usually lose out in the end.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
16.	All in all, I am pretty happy these days.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17.	It's really not possible to change things around here.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
18.	People here feel you can't trust this organization.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
19.	If we made a few changes here, this could be a much better place to work.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20.	I feel I can trust the people in this company.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
21.	I think that changes in this organization tend to work well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

TASK CHARACTERISTICS

Following are statements which describe specific aspects of jobs. You are asked (a) to indicate the degree to which this statement describes your job by placing an "X" in the appropriate space on the scale ranging from "Very False" to "Very True."

In addition, please (b) indicate how you feel about this characteristic of your job (if it is present now) or how you would feel about it if it were present, by placing an "X" in the appropriate space on the scale ranging from "Dislike Very Much" to "Like Very Much."

1. I have to do things that should be done differently.

   a. How true is this of your job? Very False:__:__:__:__:__:__:__:Very True (1 2 3 4 5 6 7)

   b. How do/would you feel about this characteristic in your job? Dislike Very Much :__:__:__:__:__:__:__:Like Very Much

2. I feel certain about how much authority I have.

   a. How true is this of your job? Very False:__:__:__:__:__:__:__:Very True (1 2 3 4 5 6 7)

   b. How do/would you feel about this characteristic in your job? Dislike Very Much :__:__:__:__:__:__:__:Like Very Much

3. I receive an assignment without the manpower to complete it.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True (1 2 3 4 5 6 7)

   b. How do/would you feel about this characteristic in your job? Dislike Very Much :__:__:__:__:__:__:__:Like Very Much

4. Goals and objectives for my job are clear and planned.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True (1 2 3 4 5 6 7)

   b. How do/would you feel about this characteristic in your job? Dislike Very Much :__:__:__:__:__:__:__:Like Very Much

5. I have to buck a rule or policy in order to carry out an assignment.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True (1 2 3 4 5 6 7)

   b. How do/would you feel about this characteristic in your job? Dislike Very Much :__:__:__:__:__:__:__:Like Very Much

6. I know that I have divided my time properly.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True (1 2 3 4 5 6 7)

   b. How do/would you feel about this characteristic in your job? Dislike Very Much :__:__:__:__:__:__:__:Like Very Much

7. I work with two or more goups which operate quite differently.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

8. I know what my responsibilies are.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

9. I receive incompatible requests from two or more people.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

10. I know exactly what is expected of me.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

11. I do things that are apt to be accepted by one person and not accepted by others.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

12. Explanation is clear of what has to be done.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

13. I receive an assignment without adequate resources and materials to execute it.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

14. I work on unnecessary things.

   a. How true is this in your job? Very False:__:__:__:__:__:__:__:Very True
   1 2 3 4 5 6 7

   b. How do/would you feel about this characteristic in your job? Dislike :__:__:__:__:__:__:__:Like Very Much Very Much

JOB FACETS: IMPORTANCE AND CONTINGENCIES

On this and the following page are listed several characterisitics or qualities connected with your own position in your firm. For each such characteristic, you are asked to give three ratings:

a. How much of the characteristic is there now connected with your position:
b. How much of the characteristic do you feel should be connected with your position?
c. How important is this characteristic to you?

Each rating will be made on a seven-point scale, which will look like this:

(minimum) :_____1_____:_____2_____:_____3_____:_____4_____:_____5_____:_____6_____:_____7_____: (maximum)

Please put an "X" above the number on the scale that represents the amount of the characteristic being rated. Low numbers represent minimum amounts, and high numbers represent high or maximum amounts. For each scale, place an "X" above only one number. PLEASE DO NOT OMIT ANY SCALES.

1. The feeling of self-esteem a person gets from being in my management position:
   a. How much is there now? (min) :___:___:___:___:___:___:___: (max) (1 2 3 4 5 6 7)
   b. How much should there be? :___:___:___:___:___:___:___:
   c. How important is this to me? :___:___:___:___:___:___:___:
2. The authority connected with my management position:
   a. How much is there now? (min) :___:___:___:___:___:___:___: (max) (1 2 3 4 5 6 7)
   b. How much should there be? :___:___:___:___:___:___:___:
   c. How important is this to me? :___:___:___:___:___:___:___:
3. The opportunity for personal growth and development in my management position:
   a. How much is there now? (min) :___:___:___:___:___:___:___: (max) (1 2 3 4 5 6 7)
   b. How much should there be? :___:___:___:___:___:___:___:
   c. How important is this to me? :___:___:___:___:___:___:___:
4. The prestige of my management position inside the company (that is, the regard received from others in the company):
   a. How much is there now? (min) :___:___:___:___:___:___:___: (max) (1 2 3 4 5 6 7)
   b. How much should there be? :___:___:___:___:___:___:___:
   c. How important is this to me? :___:___:___:___:___:___:___:
5. The opportunity for independent thought and action in my management position:
   a. How much is there now? (min) :___:___:___:___:___:___:___: (max) (1 2 3 4 5 6 7)
   b. How much should there be? :___:___:___:___:___:___:___:
   c. How important is this to me? :___:___:___:___:___:___:___:

6. The <u>feeling of security</u> in my management position:

   a. How much is there now? (min) :___:___:___:___:___:___:___: (max)
   1 2 3 4 5 6 7

   b. How much should there be? :___:___:___:___:___:___:___:

   c. How important is this to me? :___:___:___:___:___:___:___:

7. The <u>feeling of self-fulfillment</u> a person gets from being in my management position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities):

   a. How much is there now? (min) :___:___:___:___:___:___:___: (max)
   1 2 3 4 5 6 7

   b. How much should there be? :___:___:___:___:___:___:___:

   c. How important is this to me? :___:___:___:___:___:___:___:

8. The <u>prestige</u> of my management position <u>outside</u> the company (that is the regard received from others not in the company).

   a. How much is there now? (min) :___:___:___:___:___:___:___: (max)
   1 2 3 4 5 6 7

   b. How much should there be? :___:___:___:___:___:___:___:

   c. How important is this to me? :___:___:___:___:___:___:___:

9. The <u>feeling of worthwhile accomplishment</u> in my management position:

   a. How much is there now? (min) :___:___:___:___:___:___:___: (max)
   1 2 3 4 5 6 7

   b. How much should there be? :___:___:___:___:___:___:___:

   c. How important is this to me? :___:___:___:___:___:___:___:

10. The <u>opportunity</u>, in my management position, <u>to give help to other people</u>:

   a. How much is there now? (min) :___:___:___:___:___:___:___: (max)
   1 2 3 4 5 6 7

   b. How much should there be? :___:___:___:___:___:___:___:

   c. How important is this to me? :___:___:___:___:___:___:___:

11. The <u>opportunity to develop close friendships</u> in my management position:

   a. How much is there now? (min) :___:___:___:___:___:___:___: (max)
   1 2 3 4 5 6 7

   b. How much should there be? :___:___:___:___:___:___:___:

   c. How important is this to me? :___:___:___:___:___:___:___:

INFLUENCE STRUCTURE

This section asks about how decisions are made in this organization. It is also concerned with how much influence you have over decisions that are made here.

As in other parts, read the directions and answer the questions by checking the numbers which best represent your opinions.

HERE IS A LIST OF DECISIONS WHICH GET MADE AT WORK. FOR EACH OF THE FOLLOWING DECISION, PLEASE INDICATE:

a. How much say you actually have in making these decisions.

b. How much say you feel you should have in making these decisions.

	No say at all		Some say		A good deal of say		A very great deal of say
1. Decisions about HOW YOU DO YOUR OWN WORK.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. Decisions about SCHEDULING YOUR WORK ACTIVITIES.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Decisions about HIRING PEOPLE.							
a. How much say you actually have in making these decisions.							
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

	No say at all		Some say		A good deal of say		A very great deal of say
4. Decisions about PAY RAISES.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. Decisions about CHANGING HOW YOU DO YOUR WORK.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. Decisions about WHAT YOU SHOULD DO WHEN SOMETHING UNEXPECTED HAPPENS.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
7. Decisions about HOW TO SETTLE DISAGREEMENTS.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. Decisions about FIRING PEOPLE.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. Decisions about WHEN PEOPLE TAKE TIME OFF.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

	No say at all		Some say		A good deal of say		A very great deal of say
10. Decisions about WHAT TO DO IF SOMEONE YOU DEPEND ON DOESN'T DO THEIR JOB.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. Decisions about PROMOTING PEOPLE.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. Decisions about HOW TO HANDLE PROBLEMS YOU FACE IN YOUR WORK.							
a. How much say you actually have in in making these decisions. ...	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. Decisions about HOW WORK WILL BE DIVIDED AMONG PEOPLE.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. Decisions about WHAT TO DO IF YOU DON'T GET WHAT YOU NEED TO DO YOUR WORK.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15. Decisions about WHAT YOU DO DAY TO DAY.							
a. How much say you actually have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. How much say you feel you should have in making these decisions.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Sometimes the location of formal authority for certain decisions is not at all clear. For example, one person may be responsible at one time, while another person may have this authority at another time. The following questions deal with this problem.

16. Do you have a clear idea of who makes the following decisions?

	Very unclear; I have no idea who makes this decision			Moderately clear			Very clear; I know exactly who makes this decision
a. Deciding how you coordinate your activities with others.....	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. Deciding whether you are promoted.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
c. Deciding to spend anything more than small amounts of money.....	[1]	[2]	[3]	[4]	[5]	[6]	[7]

17. How much do you <u>agree</u> or <u>disagree</u> with the following statements?

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
a. I have a lot of say over how decisions are made.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
b. I seldom have decisions forced on me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
c. I can modify decisions made by other people.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

BELOW ARE SEVERAL PAIRS OF STATEMENTS RELATING TO EVENTS IN EVERY DAY LIFE. PLEASE MARK THE SPACE CORRESPONDING TO THE STATEMENT FROM EACH PAIR WITH WHICH YOU MORE STRONGLY AGREE. BE SURE TO CHOOSE ONE STATEMENT FROM EACH PAIR.

18._____In the long run people get the respect they deserve in this world.
_____Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

19._____Without the right breaks one cannot be an effective leader.
_____Capable people who fail to become leaders have not taken advantage of their opportunities.

20._____Becoming a success is a matter of hard work; luck has little to do with it.
_____Getting a good job depends mainly on being in the right place at the right time.

21._____In my case, getting what I want has little or nothing to do with luck.
_____Many times we might just as well decide what to do by flipping a coin.

22._____Who gets to be the boss often depends on who was lucky enough to be in the right place first.
_____Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

23._____As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
_____By taking an active part in political and social affairs the people can control world events.

24._____Most people don't realize the extent to which their lives are controlled by accidental happening.
_____There really is no such thing as "luck."

25._____Many times I feel that I have little influence over the things that happen to me.
_____It is impossible for me to believe that chance or luck plays an important role in my life.

Listed below are a number of statements representing commonly held opinions. Indicate the extent to which you agree or disagree by marking the appropriate space on the scale which follows each statement.

It is important that you give your opinion on every statement.

26. An expert who doesn't come up with a definite answer probably doesn't know too much.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

27. There is really no such thing as a problem that can't be solved.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

28. A good job is one where what is to be done and how it is to be done are always clear.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

29. In the long run it is possible to get more done by tackling small problems rather than large and complicated ones.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

30. What we are used to is always preferable to what is unfamiliar.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

31. A person who leads an even regular life in which few surprises or unexpected happenings arise, really has a lot to be grateful for.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

32. I like parties where I know most of the people more than ones where all or most of the people are complete strangers.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

33. The sooner we all acquire similar values and ideals the better.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

34. I would like to live in a foreign country for a while.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

35. People who fit their lives to a schedule probably miss most of the joy of living.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

36. It is more fun to tackle a complicated problem than to solve a simple one.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

37. Often the most interesting and stimulating people are those who don't mind being different and original.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

38. People who insist upon a yes or no answer just don't know how complicated things really are.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

39. Many of our most important decisions are based upon insufficient information.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

40. Supervisors who hand out vague assignments give a chance for one to show initiative and originality.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

41. A good supervisor is one who makes you wonder about your way of looking at things.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

42. How often do you find that you can carry out subordinates' suggestions without changing them any?

never [1] [2] [3] [4] [5] [6] [7] always

43. How much do you usually want the person who is in charge of a group you are in to tell you what to do?

never [1] [2] [3] [4] [5] [6] [7] always

44. To what extent do you feel you ought to clear things with your superior before deciding on a course of action?

never [1] [2] [3] [4] [5] [6] [7] always

INDIVIDUAL DIFFERENCES AND OUTCOMES

In this section of the questionnaire, we ask about the way you feel about yourself, and your feelings about life in general.

Research has shown that the way people feel about such matters is related to their work experiences and how they respond to different characteristics of organizations.

People differ in the way they feel about things so, of course, there are no "best" or "right" answers. What we want is a true reflection of the way you feel, so please respond to each statement as accurately as possible.

1. BELOW ARE LISTED SOME WORDS AND PHRASES WHICH ASK YOU HOW YOU FEEL ABOUT YOUR PRESENT LIFE IN GENERAL. FOR EXAMPLE, IF YOU THINK THAT YOUR LIFE IS VERY INTERESTING, PUT A MARK IN THE BOX RIGHT NEXT TO THE WORD "INTERESTING". IF YOU FEEL THAT YOUR LIFE IS VERY BORING, PUT A MARK IN THE BOX RIGHT NEXT TO THE WORD "BORING". IF YOU FEEL SOMEWHERE IN BETWEEN, PUT A MARK WHERE YOU THINK IT BELONGS. PLEASE PUT A MARK IN ONE BOX ON EVERY LINE.

HOW DO YOU FEEL ABOUT YOUR PRESENT LIFE IN GENERAL?

BORING	[1]	[2]	[3]	[4]	[5]	[6]	[7]	INTERESTING
ENJOYABLE	[1]	[2]	[3]	[4]	[5]	[6]	[7]	MISERABLE
EASY	[1]	[2]	[3]	[4]	[5]	[6]	[7]	HARD
USELESS	[1]	[2]	[3]	[4]	[5]	[6]	[7]	WORTHWHILE
FRIENDLY	[1]	[2]	[3]	[4]	[5]	[6]	[7]	LONELY
FULL	[1]	[2]	[3]	[4]	[5]	[6]	[7]	EMPTY
DISCOURAGING	[1]	[2]	[3]	[4]	[5]	[6]	[7]	HOPEFUL
TIED DOWN	[1]	[2]	[3]	[4]	[5]	[6]	[7]	FREE
DISAPPOINTING	[1]	[2]	[3]	[4]	[5]	[6]	[7]	REWARDING
BRINGS OUT THE BEST IN ME	[1]	[2]	[3]	[4]	[5]	[6]	[7]	DOESN'T GIVE ME MUCH OF A CHANCE

2. THIS SET OF QUESTIONS ASKS YOU HOW FEEL ABOUT YOURSELF. FOR EACH PAIR OF WORDS, CHECK THE NUMBER WHICH BEST DESCRIBES HOW YOU SEE YOURSELF AT WORK.

HOW DO YOU SEE YOURSELF AT WORK?

SUCCESSFUL	[1]	[2]	[3]	[4]	[5]	[6]	[7]	NOT SUCCESSFUL
CONSERVATIVE	[1]	[2]	[3]	[4]	[5]	[6]	[7]	LIBERAL
IMPORTANT	[1]	[2]	[3]	[4]	[5]	[6]	[7]	NOT IMPORTANT
OPEN	[1]	[2]	[3]	[4]	[5]	[6]	[7]	CLOSED

SAD	[1]	[2]	[3]	[4]	[5]	[6]	[7]	HAPPY
WORKING MY HARDEST	[1]	[2]	[3]	[4]	[5]	[6]	[7]	NOT WORKING HARD
RISKY	[1]	[2]	[3]	[4]	[5]	[6]	[7]	CAUTIOUS
DOING MY BEST	[1]	[2]	[3]	[4]	[5]	[6]	[7]	NOT DOING MY BEST
FLEXIBLE	[1]	[2]	[3]	[4]	[5]	[6]	[7]	RIGID
DO NOT KNOW MY JOB WELL	[1]	[2]	[3]	[4]	[5]	[6]	[7]	KNOW MY JOB WELL

JOB DESCRIPTION INDEX

Below are five scales, each regarding a different aspect of your job. Put a "Y" beside an item if the item describes that segment of your job. Put an "N" beside an item if the item does not describe your job, or, put a "?" if you are undecided.

1. Work

___Fascinating
___Routine
___Satisfying
___Boring
___Good
___Creative
___Respected
___Hot
___Pleasant
___Useful
___Tiresome
___Healthful
___Challenging
___On your feet
___Frustrating
___Simple
___Endless
___Gives sense of accomplishment

2. Supervision

___Asks my advice
___Hard to please
___Impolite
___Praises good work
___Tactful
___Influential
___Up-to-date
___Doesn't supervise enough
___Quick-tempered
___Tells me where I stand
___Annoying
___Stubborn
___Knows job well
___Bad
___Intelligent
___Leaves me on my own
___Around when needed
___Lazy

3. People

___Stimultaing
___Boring
___Slow
___Ambitious
___Stupid
___Responsible
___Fast
___Intelligent
___Easy to make enemies
___Talk too much
___Smart
___Lazy
___Unpleasant
___No privacy
___Active
___Narrow interests
___Loyal
___Hard to meet

4. Pay

___Income adequate for normal expenses
___Satisfactory profit sharing
___Barely live on income
___Bad
___Income provides luxuries
___Insecure
___Less than I deserve
___Highly paid
___Underpaid

5. Promotions

___Good opportunity for advancement
___Opportunity somewhat limited
___Promotion on ability
___Dead-end job
___Good chance for promotion
___Unfair promotion policy
___Infrequent promotions
___Regular promotions
___Fairly good chance for promotion

SUPERVISORY BEHAVIOR

For each of the statements below, indicate the extent to which you agree or disagree by marking the appropriate space on the scale which follows each statement.

1. The assignments in the section are clearly defined.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

2. Our management isn't so concerned about formal organization and authority, but concentrates instead on getting the right people together to do the job.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

3. My immediate superior does not place a high value on maintaining good relations and does not feel that the attitudes and feelings of people are important in their own right.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

4. My immediate superior places a high value on making decisions that stick, and stands up for his decisions and ideas, even if it means stepping on someone else's toes.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

5. The policies and organizational structure of this unit have been clearly explained.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

6. Ordinarily we don't deviate from standard policies and procedures in this unit.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

7. My immediate superior tries to avoid disagreements, rejections, and conflict; whatever conflict does arise he tries to smooth over.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

8. Things seem to be pretty disorganized around here.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

9. My immediate superior tries to suppress or cut off conflict when it arises; when he cannot do that he tries to force his own solution to settle the issue.

   strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

10. New and original ideas are not prevented from receiving consideration by excessive rules, administrative details and red tape.

    strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

11. My immediate superior treats his people in a brotherly way, and his motto appears to be "nice guys don't fight."

    strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

12. Our productivity sometimes suffers from lack of organization and structure.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

13. If you don't conform to standard practices around here, you will be looked upon critically by your superior.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

14. My immediate superior treats his people like a stern father, and his motto appears to be "nice guys finish last."

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

15. Unnecessary procedures are kept to a minimum in this unit.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

16. My immediate superior does not use his hierarchical power in the authoritarian-obedience sense to maintain his control.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

17. My immediate superior strives to keep his emotions low-key, and his humor aims at maintaining good interpersonal relations.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

18. There are a lot of rules, policies, procedures, and standard practices one has to know to get along in this unit.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

19. I feel I am a member of a clearly and precisely structured team.

strongly disagree [1] [2] [3] [4] [5] [6] [7] strongly agree

PERSONAL DATA

1. Age _____
2. Sex: Male ____ Female ____
3. Number of years with the company _____
4. Number of years in present field _____
5. Number of years in present position _____
6. Present salary level:

   ____under $10,000 ____ $10,000 - 19,999 ____ $20,000 - 29,999

   ____$30,000 - 39,999 ____ $40,000 - 49,999 ____ over $50,000

7. What do you estimate your average annual salary increase to have been over the last five years?

   ____0 - 10% ____11 - 15% ____16 - 20% ____21 - 30%

   ____31 - 40% ____41 - 50% ____ over 50%

8. How many times each year do you attend professional development activities (seminars, training programs, etc.)?

   ____0 ____1 - 3 ____4 - 6 ____7 - 9 ____10 - 12

   ____13 - 15 ____more than 15

9. What level of education have you completed?

   ____less than high school ____ high school ____ some college

   ____bachelor's degree ____some graduate school

   ____master's degree ____doctorate

10. The majority of my duties in the firm are in the field of:

    ____purchasing

    ____marketing

    ____applied research

    ____exploratory research

    ____manufacturing

    ____clerical

    ____administrative

11a. How many of these hierarchical levels exist in your firm? (Place an "X" by those which appear in your organization.)

top (vice-presidential and above)_____
. . . _____
. . . _____
middle _____
. . . _____
. . . _____
first line management _____

11b. On the above scale, please indicate with an "0", the level at which your position is located.

company code number _____

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