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“Overall Organization Context and Structure ”

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Abstract:

A discussion or analysis of an organization invariably begins with a description of its general context and an illustration of its organization chart. This common practice is not just a formality or habit. It is necessary to provide the uninitiated with an over view of the social and economic domain in which the organization operates and a simple “picture” of the structural configuration of the organization as a whole. The organization chart provides useful background information for in-depth assessment of an organization, and comparative studies across organizations have shown that much of the variation in overall organization structure is explained by organizational context or domain.

Keywords: Context, structure, organization, procedure, domain consensus

1. Context and Structure

This chapter examines the selected dimensions of organization context and structure listed and briefly defined in Figure 1 At the macro organizational level, we define structure in terms of the skeletal macro organizational level, we define structure in terms of the skeletal division of labor and authority in an organization illustrated by the organization chart. Its underlying dimensions are the degree of vertical, horizontal, and special differentiation; the forms of departmentation; and the allocation of administrative over- head. The organization chart, when supplemented with the perceptions of informants on the question which Rossi (1957) asks, “Who makes what decisions where”? also provides an overall understanding of the structure of authority in an organization. The reason why we focus on these structural dimensions is because they are basic to solving the organization design problem at the overall organizational level of analysis. As we discuss more fully in this chapter, the organization design problem is principally concerned with (1) the division of labor in terms of degrees of differentiation and forms of departmentation, (2) the interdependence and suboptimization among organizational components that division of labor creates, and (3) the structure of authority and reporting relationships established to manage interdependence and conflict. Once an analyst understands this skeletal resolution to the organization design problem at the macro level, then he or she can begin to systematically examine the designs of organizational components as well as their relationships with their respective environments, as is discussed in subsequent chapters.

Conventionally, organization context refers to all the conditions and factors external to the organization or unit under consideration (Blau and Sconheerr, 1971:206). In this sense, context is closely related to earlier definitions of the environment as the set of constraining phenomena that exist external to the organization but within which the organization must function (Van de Ven *et al.*, 1974). These definitions imply, however,

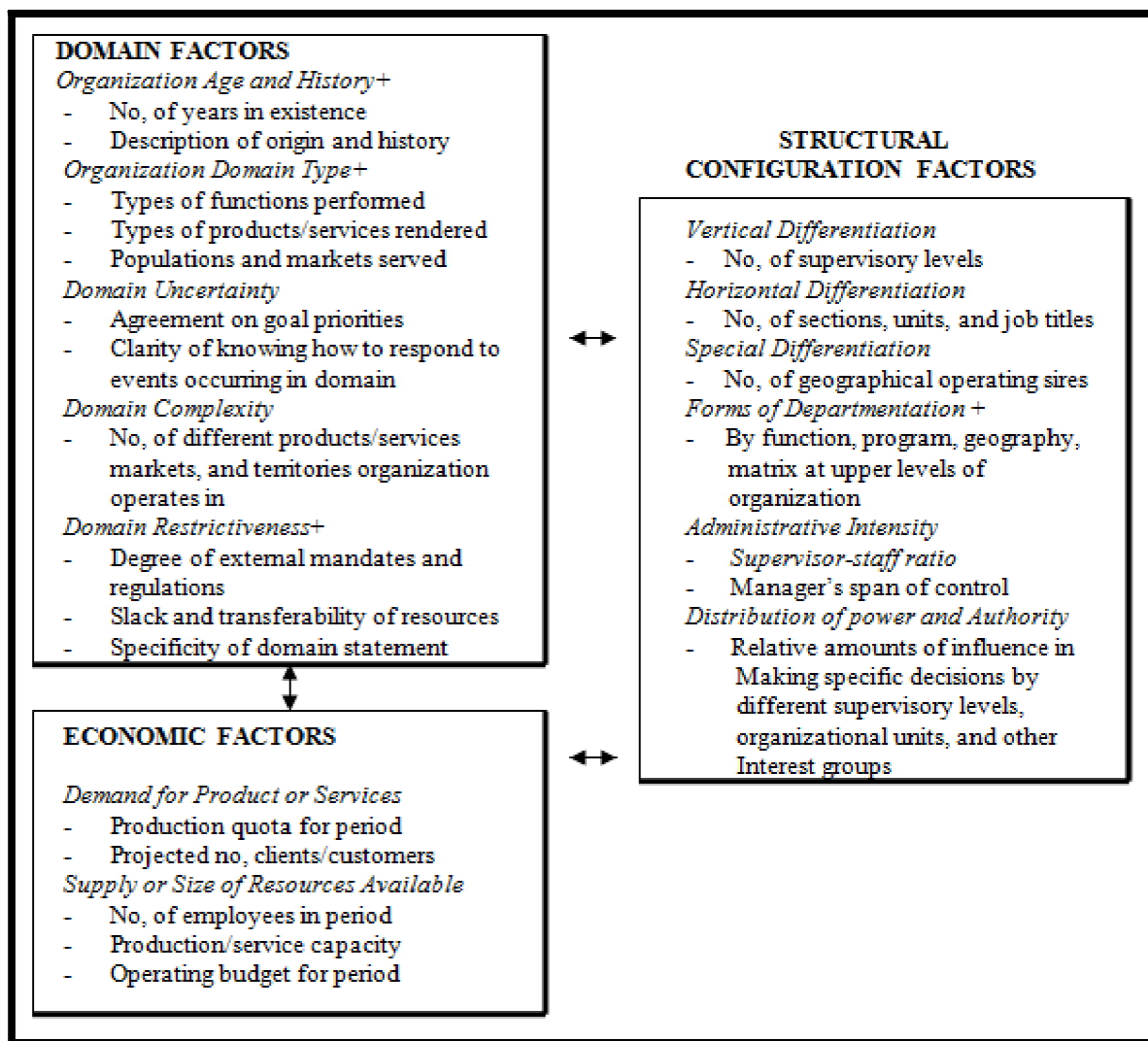


Figure 1: Conceptual Scheme for Examining Overall Organization Context and Structural Configuration
Dimensions Marked with an Asterisk (+) Are New Additions to the Organization Assessment Fr-Ame
Work and Were Not Included in the 1975 OAI, Hence, Their Measurement Properties Cannot Be Evaluated Here

Those organizations have no choice or control over their environments or context. Expanding upon the definition provided by Paugh et al., (1969), we define organization context as the social and economic setting in which an organization chooses to operate. In other words, context is defined as those dimensions within the control of an organization that create the setting for the development of organizational structure. The contextual factors examined in the OAI (Organization Assessment Instruments) focus on two clusters of dimensions: (1) the nature of the domain chosen by organizational decision makers and (2) economic factors of demand and supply that designate the resources available (the budget) and the production goals of products or services. After a discussion of the conceptual bases for these macro organizational context and structure dimensions, operational definitions and measures developed to date in the OAI are presented and evaluated.

2. Conceptual Perspective on Organization

2.1. Context and Structure

The design of an organization is neither a naturally nor deterministically occurring condition for given states of nature. Rather the structure and functioning of organizations are the result of strategic choices made either implicitly or explicitly by coalitions of people both within and outside the organization (Child, 1972; Galbraith, 1977; Pfeffer, 1978). In practice, management is usually considered the dominant coalition, although organizational employees, board members, funders, suppliers, and customer groups should also be considered as important coalitions who have a stake in the way an organization is structured.

However, to argue that organizations are designed by strategic choice does not suggest what kinds of decisions are made and what criteria are used as the bases for making strategic decisions. The basic premise underlying the macro

organizational context must make at least three key sets of inter-relate decisions for an organization to operate on an ongoing basis.

- Choose the domains in which the organization will operate.
- Solve the economic production function problem to determine the budget and the level of production or services for an operating period.
- Solve the organization design problems.

Although these three sets of decisions are highly interdependent and are made iteratively, it is instructive to examine each separately first and then look at how they are related.

2.2. Choice of Organizational Domain

The prevailing thought today is that organizations act to create their own environments by choosing the domains in which they operate (Weick, 1969; Child, 1972; Pfeffer, 1978; Miles and Snow, 1978). *Domain* refers to the specific goals of an organization in terms of the functions it performs, the products or services it renders, and the target populations and markets it serves. In this sense, domain is similar to what Chandler (1962:13) defines as *strategy*, or “the determination of the basic long-term goals and objectives of the enterprise and the adoption of courses of action in the allocation of resources as more a part of the economic production function problem than of domain choice, as described below.

Past choices and behavior constrain future choices and behavior. Therefore, the choice of organizational domain tends to be more visible in younger organizations because they can be more flexible in exploring various opportunities and in experimenting with new management philosophies, goals, and alternative organizational techniques (Miles and Snow, 1978). In contrast, older organizations have learned from and made significant commitments to past decisions or sunk cost on the domain, scale of capital and financial operations, and organization structure. Unless confronted with major financial or external crises, practice has shown that the dominant coalitions within organizations tend to rationalize their past decisions and resist changes in organizational structures because structure largely reflects the outcomes of past power struggles among coalitions within organizations (Pfeffer, 1978). Therefore, with increasing organizational age, we should expect increasingly marginal adjustments to be made in domain choices and an increasing tendency for goals and the meaning of organizational action to be inferred retrospectively, or after the action has occurred.

Weick (1969), Pfeffer (1978), and others have come to the conclusion that goals and other “purposive” statements for an organization are really attempts to make sense out of actions that have already occurred, rather than plans for the future. The implication is that the concept of goals or purposive organizations is of little use in understanding organization behavior. Without historical understanding of the evolution of domain choice, such a conclusion is seductively appealing. We counter this conclusion by simply asking: What produced the actions that have occurred in the first place? Although one can quickly become embroiled in a chicken-or-the-egg controversy, we submit that if this question is traced over time, much of the subsequent action in a given organization is based on the implicit or explicit statements of purpose, mission, or domain for the organization by a succession of founders, entrepreneurs, and dominant coalitions.

The choice of a domain (in line of business or services for a target population and set of markets) powerfully influences other choices that organizations make. For example, a firm’s decision to retail hardware, market drugs, or publish a newspaper for a local, state, or international market implies great differences in the financing and capitalization needed (the economic production function problem) and the kinds of structures and processes it will employ (the organization design problem). Indeed, without a domain choice there is little point in making these other choices.

To systematically assess these implications, we examine three dimensions underlying the type of domain chosen by an organization: uncertainty, complexity, and restrictiveness (see Figure 1.). Although these dimensions have been used extensively by other researches to characterize organization environments, we apply them to the domain of an organization to emphasize the point that in varying degrees organizations create their own environments by their choice of domain.

- **Domain Uncertainty.** Implied in the type of domain chosen by an organization is the level of uncertainty with which it chooses to live. At the idealized pole of domain uncertainty, decision makers can easily understand and analyze the mission and goals of the organization and means for achieving them. Operationally, this means that they agree on operating goals and priorities and that they can predict and respond consistently to events and issues.

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Defined in this way, domain uncertainty is the basic dimension underlying most conceptions of organizational rationality. March and Simon (1958) and Thompson (1967) point out that rational action is rooted on the one hand in knowing or agreed upon outcomes or ends, and on the other hand in certainty about cause-effect relationships. To the extent that people agree on the outcomes desired of an organization and the activities performed are believed or judged to produce the desired outcomes, one can speak of rational behavior. Thus, rational decision-making about an organization's domain, resource allocation, and structural design is based on: (1) defining and agreeing upon the organization's domain and (2) determining cause-effect relationships among means and outcomes.

More correctly, when these dimensions of uncertainty are dichotomized according to Thompson and Tuden's (1959) well-known typology of decision strategies (see Figure 2.), it becomes apparent that rational behavior assumes known and agreed-upon goals or ends, and rationality varies directly with the extent to which means to given ends are known or understood (i.e. the left column of Figure 2.). Where the means to achieve given ends are readily known, decisions can be programmed using a computational strategy that Thompson and Tuden (1959) indicate is most efficiently performed in a bureaucracy by specialists, with one specialist for each computational problem. When the means to a desired end are unclear or unknown, however, non-programmed decisions are required and can be dealt with in a rational way by reducing them to series of programmed decisions (Simon 1977:40).

		Agreement on Ends or Goals	
		High Agreement.....	Low Agreement
Uncertainty of Means to Achieve Ends	Low Uncertainty	Computational or Programmed Decision Making	Bargaining Negotiated Decision Making
	High Uncertainty	Judgmental or Nonprogrammed Decision Making	Heuristic or Inspirational Decision Making

Figure 2: Thompson and Tuden (1959) Typology of Decision-Making Strategies under Varying Conditions of Agreement on Ends and Uncertainty of Means

Alternatively, Thompson and Tuden (1959) and Shull, Delbecq, and Cummings (1970) have proposed an organizational structure and strategy for judgmental or collegial decision making among experts or professionals. These variations in rational decision-making strategies are quite well known because most theories of organization and management assume organizational decision makers and participants agree on the desired outcomes or ends.

However, when there is little or no agreement on the domain or goals of an organization, the rational model is replaced with organizational structure and strategies for bargaining and inspiration (Thompson and Tuden, 1959). Central to non-rational theories of choice are the concepts of power, social influence, and conflict among coalitions within the organization - each attempting to achieve its own ends. Pfeffer (1978) goes into greater detail, indicating that when there are substantial disagreements on the domain or ends of an organization, coalitions within the organization are in a continual contest for power and a continual process of conflict and negotiation.

Individuals enter and leave the contests as their strengths and interests dictate, but some level of change and negotiation does continue as a process in the organization. Conflict is uncomfortable to most organizational participants, and moreover, to undertake long struggles over each decision would be too time consuming. Consequently, precedent becomes very important in organizational decision-making. Once an acceptable basis for resources allocation is adopted or once a set of policies (or a structure for the organization) is adopted, precedent becomes the guide to future organizational decisions. This avoids reopening negotiations, which might reactivate the conflict and involve a lot of time and effort.....and precedent will operate as long as the existing balance of influence remains relatively stable. When, however, the distribution of influence within the organization shifts dramatically from what it had been when the initial set of bargains was reached, it is likely that those who have gained influence will attempt to re-open the negotiation, seeking to throw away precedent and establish a new basis for future organizational action (Pfeffer, 1978:14).

- Domain Complexity is the diversity and range of products, markets, and geographical territories that decision makers choose for the organization. Domain complexity is the dimension that underlies much of the theory and research on how diversification strategies affect organization structure. For example, based on the historical work of Chandler (1962), Wrigley (1970) and Rumelt (1974) examined how the following four different types

of diversification strategies were related to departmentation: single product, dominant, related, and unrelated businesses. Underlying this typology are increasing degrees of domain complexity.

Managing a complex domain requires more information processing and mutual adjustments among interdependent functions and activities than does dealing with a simple domain (Dill, 1958; March and Simon, 1958; Child, 1972; Duncan, 1972; Osborn and Hunt, 1974; Galbraith, 1977). Since the human brain has a limited capacity for retaining conscious information, as domains become more complex, organizations will increasingly segment their domains into homogenous functions, products, markets, or territories, and adopt unique strategies and structures for coping with each (Thompson, 1967; Jurkovich, 1974). By developing separate structural divisions within the organization to manage each major distinctive component of the domain, each organizational division in effect manages a simple domain.

Differentiation creates problems of coordination and control among organizational components because complex domains can seldom be divided into a set of independent simple domains. In addition, personnel within organizational divisions managing different domain components are likely to develop different norms about interpersonal behavior, organizational goals, structuring of activities, and time span of attention (Lawrence and Lorach, 1967). Thus, with increasingly complex domains, there is likely to be decreasing interdivisional agreement on organizational goals, but increasing agreement on subgoals (March and Simon, 1958). In response, the top management of the organization will seek integration by (1) using a sophisticated management information system to keep track of the operations and performance of each division, (2) implementing throughout the organization those standard operating procedures and rules that seem to work well in a variety of situations (Khandwalla, 1977:338), and (3) relying upon hierarchy, boundary spanners, and group meetings to deal with exceptions and mutual adjustments. To secure cooperation of the various divisions, the decision-making process among central administration and top levels of each division will be characterized by a participative style of bargaining and negotiation to resolve disagreements on ends. Computational and judgmental decision styles will tend to be used more within divisions where greater agreement on ends is likely exist.

- Domain restrictiveness. This far we have argued that organizations are free to choose their domains. However, as Child (1972), Khandwalla (1977), and Miles and Cameron (1978) point out, some organizations are more restricted or constrained than others to choose and alter their functions, the products and services they render, and the populations and markets that they serve. Miles and Cameron (1978) state that the major sources of restriction on domain choices arise from external mandates and regulation, the generalizability and amount of slack in the organization's internal resources, and the specificity of the formally stated domain of an organization.

The basic dimension that distinguishes public from private sector organizations in that the former are issued or mandated with a specified domain by federal state, or municipal laws, whereas the latter can select and alter their own domains (e.g., product line, target market, capital investment decisions). But even in the private sector, organizations choose domains whose markets or industries vary in degrees of governmental regulation, economic competition (e.g., competitive, oligopolistic, monopolistic), barriers to entry, and unionization of the labor force. Domain restrictiveness also increases with the absence of internal organizational slack, in terms of low cash reserves and many distinctive specialized personnel skills and core technologies that are difficult to generalize or use elsewhere. Miles and Cameron (1978:87) state that a final factor that influences domain restrictiveness is the manner in which organizations define and redefine their domains. The degree to which formally stated organizational domains are narrowly or broadly defined becomes particularly salient during the birth of an organization. When the founders are choosing and negotiating an initial domain and when organizations have accomplished the mission for which they were created, they must decide whether to discontinue operations or move into a new domain.

For example, when William Ruckelshaus took over the newly formed Environmental Protection Agency (EPA), he defined the initial goal of the organization with great care. He observed that founders of two agencies similar in nature to the EPA had defined their statutory goals too narrowly or too amorphously, thereby threatening the life of both agencies. The National Aeronautics and Space Administration (NASA) goal had been framed very narrowly as "let's get to the moon in ten years". When they did they almost put themselves out of business. In contrast the Office of Economic Opportunity (OEO) defined its goals very amorphously as "let's do something about poverty", and consequently had difficulty demonstrating to its constituencies that it was making progress toward this objective. (Miles and Cameron, 1978:88)

Although domain restrictiveness has received very little attention in previous organizational research and theory, Miles and Cameron conclude that this dimension emerged as the domain force behind the behaviors of the Big Six tobacco companies in coping with the antismoking campaign over the past quarter century.

In the final analysis, then, it may come down to the degree of domain choice flexibility offered the organization that ultimately determines its fate and constrains the strategic choices it can make.....The Big Six exploited domain choice flexibility in a variety of ways.....First they attempted to squeeze out the existing demand for cigarette products from the existing domestic market by partitioning that market into segments based on different consumer tastes and tailoring cigarette brands and brand promotions to particular segments. *Next*, they responded to the smoking – and – health threat with two distinctive waves of product innovations, each producing a mix of cigarette brands which was much lower, because of advanced filtration systems and reduced tobacco content, in tar and nicotine content than the preceding generation. *Third*, the Big Six, in varying degrees, expanded into foreign markets in order to exploit markets not so sensitive as the domestic one to

the smoking-and-health controversy. *Finally*, member firms diversified their domestic domains, moving into new markets for which their traditional expertise in consumer goods marketing could be used to its full potential or “young industries” which showed great promise but required capital plentiful in the cash rich tobacco industry. (Miles and Cameron, 1978:84-85)

In this study of 103 Canadian firms, Khandwalla (1977) examined how restrictiveness of organizational domain is related to the planning and decision-making styles of top management. He found that the degree of domain restrictiveness was significantly correlated with more planning and controlling of operations and an optimization-oriented style (or a fact-and-research-based scientific approach) to decision making. This was particularly true for the firm where restrictions on domain were largely legal in nature or imposed on the organization because of its monopoly nature or because it served vital public interests. Khandwalla also found that as the domain of organizations become more restrictive, at first there is an increase and then a decrease in the coercive orientation of top management. He provides the following explanation for these findings.

Apparently, when there are few constraints, there may be little need for management to be coercive. As constraints increase, the traditional patterns of decision-making may need to be changed drastically by top management fiat in order to take into account the new constraints. However, the organization is simultaneously getting technically trained staff and installing a sound control system to deal more effectively with the constraints. If constraints should continue to increase, decision-making then relies increasingly on technocratic advice rather than on power plays by managers. In other words, organizations in highly constraining environments must rely on systems rather than on personal power to ensure that constraints are not violated and operations are efficient. (Khandwalla, 1977:340)

2.3. The Production Function Problem

The process of choosing and redefining an organization's domain is seldom, if ever, completed. However, temporary “working solutions” are necessary for an organization to operate in a given period. They are generally reached when commitments of resources are made and an organizational structure is set in place or rearranged to achieve specific objectives relative to the overall domain. This section presents a conceptual perspective of how the domain choice of an organization is operationalized with the commitment of resources and development of the organization's budget, whereas the next section discusses the choice of organization structure.

Under idealized conditions of low domain uncertainty and restrictiveness, the commitment of resources to selected products and markets is primarily based on economic considerations of demand and supply. Demand refers to the projected amounts of each line of products or services that an organization can sell or will provide during a specified services operating period. Supply is the amount of resources an organization needs to produce the output with its existing technology during the operating period.

Customer (or product market) demand for an organization's outputs and the factor market's cost of inputs for supplying them are the classic elements of macroeconomic theory of the firm (Samuelson, 1948). The determination of the best level and combination of input resources for the provision of a particular level of outputs is the economic production function problem (Henderson and Quandt, 1958:44). Under conditions of perfect certainty and competition (i.e., low domain restrictiveness), it is solved by equating marginal costs with marginal revenues. An economist's production function assumes total rationality (i.e., consensus on organizational goals and perfect knowledge of means to achieve ends) and efficiency in the design of an organization. In other words, classical microeconomic theory assumes an optimal solution to the organization design problem, defined as the most appropriate use and transformation of a particular combination of inputs to achieve the projected levels of output. Although these assumptions are unrealistic, they permit a starting point for integrating and understanding where microeconomic theory of the firm leaves off and where organization theory begins. Specifically, a strategic economic decision by management to solve the production function problem for a given period is prerequisite to an analysis of the structure and functioning of an organization. Without a determination of the production quota or of the land, labor, and capital available to a firm to achieve its output quota, there is no organization design problem because there is no *raison d'être* for organizing. Thus, although the production function problem is trivial in the case of perfect certainty and competition, this case underscores that its solution is a parameter for solving the organization design problem.

2.3.1. Effects of Domain Uncertainty and Complexity

We now relax the assumption of perfect certainty of means to achieve organizational ends but maintain the assumption of agreement on ends and low domain restrictiveness (specifically a firm operating in a perfectly competitive market). Under conditions of increasing uncertainty of means to ends of events in an organization's domain, bounded rationality is introduced, and the classical economic argument shifts from maximizing to satisfying the production function problem.

Bounded rationality refers to human behavior that is “intendedly rational, but only limitedly so” (Simon, 1961: xxiv). Bounded rationality involves neurophysiologic and language limits. The physical limits refer to the limited powers of individuals to receive, store, retrieve, and process information without error. Simon observes that “it is only because individual human beings are limited in knowledge foresight, skills, and time that organizations are useful instruments for the achievement of human purpose” (1957:199). Language limits refer to the inability of individuals to articulate their knowledge or ideas through words, numbers, or graphics in ways that permit them to be understood by others. March and Simon

(1958:164) indicate that language is generally well developed for describing concrete objects and things that can be classified, but poorly developed to communicate objects that are non-standardized and not well understood.

Bounds on rationality apply, of course, only to the extent that the preceding limitations are reached, that is, under conditions of uncertainty and complexity. Moreover, domain complexity refers to the number of different actors and issues in the product and factor markets that decision makers must take into account in solving the production function problem. In the absence of either domain uncertainty or complexity, the set of contingent actions by decisions makers can be fully specified at the outset. Thus, as Williamson (1975:22) points out, it is the joint conditions of uncertainty and complexity that occasion the economic problem. Given a highly complex but certain domain, decision makers “engineer” a solution to the production function problem through whatever degree of complexity needs to be dealt with. Similarly, given a simple but moderately uncertain domain, bounded rationality constraints are seldom reached and the production function problem can be optimized. However, under joint conditions of uncertainty and complexity it is very costly, perhaps impossible, to achieve an optimal solution because (1) the complete decision tree can-not be specified, (2) neither the alternative paths to a solution nor the rules for generating them are available, and (3) the consequences of alternatives are difficult, if not impossible, to estimate (Feldman and Kanter, 1965:615). As a result, approximation must replace exactness in reaching a decision.

Where bounded rationality but low restrictiveness prevails, the projected demand for an organization’s products or services (e.g., the number of clients to be served, the quantity, quality, and mix of products to be produced) represents the opportunities open to the organization. This product market potential is generally determined by forecasting methods or consumer surveys to estimate the quantity and kind of services demanded of the firm in the next year or some other period in the future. On the basis of such projections, management determines the quantity and cost of input resources (e.g., money, raw materials, and plant or equipment) necessary for producing at projected output levels (Baumol, 1965). Under norms of rationality, firms simultaneously establish output and variable inputs roughly approximates the marginal revenue or value of outputs.

Where there is little or no consensus among decision makers on the domain or goal for an organization, (1) norms of economic rationality are replaced with norms of social power, influence, and bargaining among conflicting coalitions (in the same way as discussed previously in selecting an organizational domain under conditions of uncertainty), and (2) the power of decision makers as reflected in the existing structure of the organization becomes the parameter to solving the production function problem. The *first issue* implies that the production function problem is no longer based on economic considerations of demand and supply but on social consideration of power and influence. The *second issue* implies that a solution to the production function problem is no longer a prerequisite or parameter to solving the organization design problem, but that the former is a consequence of the latter.

There is some empirical support for this alternative “nonrational” and non-economic basis to solving the production function problem. Based on their study of budget allocations to departments in a university, Salancik and Pfeffer (1974) noted that goal statements and objective economic criteria were selectively chosen and outwardly expressed by department heads to achieve their personal or departmental self-interests. They found statistically that even after controlling for objective factors, social influence accounted for a significant amount of the variation in resource allocation (Pfeffer and Salancik, 1974). In a survey of business executives, Stagner (1968) reported that the executives said that strong subunits within the organization were frequently able to get their way without regard for the goals of the total organization. However, Pfeffer (1978:12) states that social power and influence are more likely to affect resource allocation decisions when the resources are scarce (i.e., under conditions of increasingly restrictive organizational domains).

There is no point contending when the decision is not critical. And there is not a decision problem or a problem of allocation unless there is some element of scarcity. If every person can get all he wants, or what he wants, then there is no need to use social power and influence, because everyone can be satisfied simultaneously. (Pfeffer, 1978:12)

We maintain that the production function problem as developed here is general for public, private, profit, or nonprofit organizations – whether it is solved rationally or no rationally, on economic or social grounds. Normally, management makes the production function problem decision on a yearly basis: optimal – or even satisfactory – solutions are rarely, if ever, obtained. In the employment security agency, for example, the production function problem decision is made yearly through a management – by – objectives system. Local office managers negotiate with headquarters to jointly establish output quotas and resource input levels (primarily personnel positions). A satisfactory solution is reached when the budget level is believed sufficient to attain the plans of service, assuming the agency is efficiently organized and managed.

Once this strategic decision is made, then the input and output quotas become thought of by managers and employees as the short-run goals for an organization in a given period. The output quota becomes the operational measure of instrumental goals, or the intended production output and impact of the organization upon society. The input resource quota (or the budget) becomes the operational indicator of internally oriented maintenance goals, which are defined as the intended impact of what the organization does to maintain itself. Because both input and output quotas must be attained jointly to solve the production function problem, the instrumental and maintenance goals of an organization are equally important. “Each may be viewed both as a limitation upon and a subgoal of the attainment of the other” (Mohr, 1973:476).

2.3.2. Effects of Domain Restrictiveness

Now we relax the assumption of an unrestricted organizational domain and admit to conditions of increasing economic, governmental, and social constraints, as well as scarce internal organizational resources. Under these conditions, organizational decision makers have less freedom in solving the production function problem. We infer from Thompson (1967) that organizations with increasingly restrictive domains have three available strategies for solving the production function problem.

One strategy for obtaining closure on the production function problem is to decrease a firm's dependence on the factor markets. This reactive set of strategies largely limits an organization's production quotas to the quantity of resources it controls during an operating period. We would expect these reactive strategies when an organization faces a highly restrictive environment and when decision makers are willing to sacrifice personal motivations for uncertainty reduction.

A second basic strategy is for organizations to decrease their dependence on any single source (while maintaining or even increasing their total dependence on the environment) by seeking additional alternative sources of supply and customer markets. In effect, this second strategy suggests that a firm can decrease its domain restrictiveness by increasing its domain complexity and diversifying its dependence, thereby reducing its uncertainty or risk. We would expect this strategy to be employed with firms operating in relatively competitive markets; if the environment contains not only many alternative sources of supply but also many product markets with the requisite demand, then we are at or near the point that economists describe as perfect competition (Thompson, 1967:32).

A third basic set of strategies for an organization to obtain the resources needed to solve its production function problem is to expand control over its domain (i.e., decrease domain restrictiveness) by seeking prestige, contracting, co-opting, and coalescing or merging with other organizations that represent critical contingencies for the organization. Thompson indicates that these proactive methods, in order, increasingly expose an organization to its environment (thereby increasing domain uncertainty), and tend to be employed with increasingly restrictive domains.

The second and third strategies are analogous to the markets and hierarchies framework proposed by William (1975). He argues that the decision over whether resource transactions are executed across markets (strategy 2) or within the hierarchy of a firm (strategy 3) depends on the degree of opportunism of the decision makers involved and the perceived uncertainty and restrictiveness of an organization's domain. Given a constant level of opportunism or self-interest motives by decision makers, the greater the domain uncertainty and restrictiveness the more strategy 3 is preferred over strategy 2.

Of course, combination of the three strategies discussed previously may be employed simultaneously by organizations. This is especially true of large organizations with complex domains. Under norms of rationality, organizations facing heterogeneous environments will segment their markets and adopt unique strategies for coping with each (Thompson, 1967).

In summary, the production function problem is concerned on the one hand with making decisions on the projected quantity and mix of products or services that an organization will produce and deliver to selected markets and territories during an operating period. On the other hand, it is concerned with securing the necessary resources (land, labor, and capital) and allocation them among various divisions and components within the organization. We discussed how variations in domain uncertainty, complexity, and restrictiveness significantly affect the ways this problem is solved. Under conditions of low domain uncertainty and restrictiveness it can be solved rationally, according to microeconomic principles of supply and demand. Bounded rationality and satisficing behavior are introduced when there are joint increases in domain uncertainty (particularly disagreement on goals) and restrictiveness. The bounded rationality model based on economic criteria is increasingly replaced with a bargaining model of decision making based on social power and influence among conflicting coalitions and individuals. With increasingly complex domains, organizational decision makers are likely to be involved in all these processes simultaneously by attempting to optimize in those areas that are not well understood but generally agreed upon and be involved in power struggles and bargaining over those components of an organization's domain where there is little agreement.

Whatever the processes used, it is clear that solutions to the production function problem are periodically and regularly necessary for an organization to continue to function. Witness, for example, how Pennsylvania state government agencies in 1977 came to a near standstill and were forced to temporarily lay off thousands of civil servants because the state legislature was in a deadlock over passing the state's budget (or solving its production function problem). A solution to the production function problem will designate the organization's production quota, which becomes the operational indicator of the organization's instrumental goals for the period. In addition, the budget which defines the land, labor, and capital size of the organization, becomes the operational indicator of the firm's maintenance goals for the period. Given these parameters or solutions to the production function problem, one can then begin to address the organization design problem.

2.4. The Organization Design Problem

At the macro level, the organization design problem tends to be operationalized in terms of making decisions on making decisions on how to divide the labor (vertical and horizontal differentiation), what forms of departmental structures to adopt (functional, program, geographical, and matrix arrangements), what span of control is appropriate for managers at each level (administrative intensity), and how power and authority are to be distributed among organizational units.

As organizations increase in size, they divide the labor (tasks and functions to be performed) and available resources (personnel, money, and technologies) and allocate them to different organizational units and positions. The division of labor makes specialization possible and enables an organization to overcome the limited information-processing capabilities and the limited set of skills of any one individual (March and Simon, 1958). Specialization has the dual benefits of (1) promoting efficiency and economy of scale by reducing a complex task into simple tasks, standardizing them, and using machines and low-cost unskilled personnel to perform them, and (2) attaining quality and successful performance of highly difficult tasks by assigning them to professional experts, who by definition and necessity tend to be trained in depth in narrow areas of inquiry (Blau, 1974). Either form of specialization permits each organizational unit to focus its effort on attaining its assigned subgoal and to filter out or ignore other problems, information and tasks related to other organizational goals. March and Simon (1958:152-153) review the research that shows that this focus of attention by each unit is reinforced by the selective frames of reference and time spans of attention within individuals, the filtering of reference and time spans of attention within individuals, the filtering of information that occurs with in-group communications among members in a common profession, and the selective environmental information to which a unit is exposed in carrying out its assignments.

However, the benefits obtained from specialization that comes with the division of labor are limited, particularly for labor-intensive organizations. *First*, increasingly sub-dividing tasks among units implies that interdependence among units increases because each unit performs a smaller fraction of the total task.

Second, these unit becomes more homogeneous internally and more different from other units in the organizations. The latter reinforces in-group solidarity and sub optimization (the persistence of a unit to optimize its subgoals at the expense of or in conflict with goals of the larger organization) and also increases the differentiation of values, orientations, and subgoals between units when they are becoming more interdependent. These factors explain why the incremental benefits of specialization become quickly outweighed by the costs of coordination.

Thompson (1967) offered a series of propositions for explaining how organizations will cope with these offsetting benefits and cost produced by the division of labor, under norm of rationality organizations will minimize coordination costs by grouping together the most highly (reciprocal) interdependent units first under a common supervisor, and next, by linking the serially dependent units into adjacent sections. Thereafter, coordination cost is minimized by grouping the least interdependent units into separate divisions and allocating from a common pool the resources necessary for each division to operate in a quasi-autonomous fashion. The logical conclusion drawn from Thompson's coordination is that one can largely predict the levels of interdependence between units from an organizational chart; this is illustrated in Figure 3. As one moves down the vertical levels in an organization chart, there tends to be an increase in the amount of interdependence between the horizontally adjacent units (Van de Ven,1976a).

Thus, the rational response to managing interdependence between segmented organizational units is to structure additional levels of supervision and to increase administrative overhead. With increases in horizontal and special differentiation come increases in vertical division of labor and administrative overhead to coordinate and control interdependence. However, as Pfaffer (1978) points out this solution to the macro organization design problem does not take into consideration how power and influence within the organization affect, and are affected by, the division of labor, interdependence, and integration.

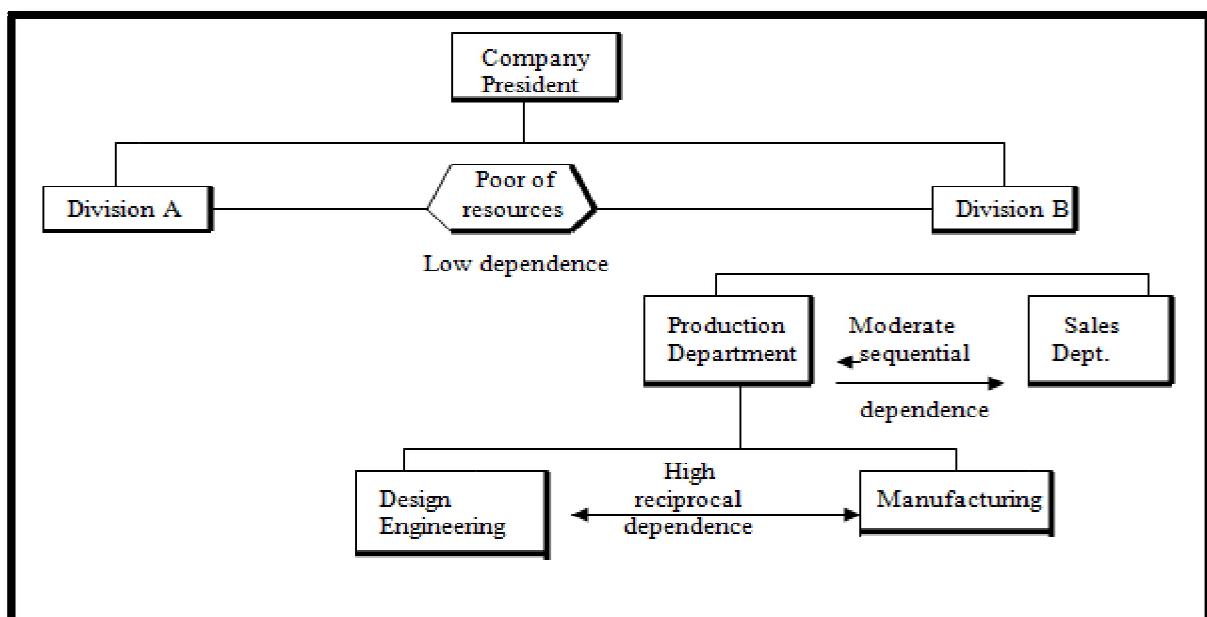


Figure 3: Dependencies in a Divisional Zed Organization, the Arrows Point to the Dependencies

Vertical differentiation may provide increased orderliness and review of organizational processes, but by providing more levels between the top and bottom of the organization, it may cause so much distortion of information that control may be lost rather than enhanced, and horizontal differentiation, obtained through having a large number of departments, may also lead to different outcomes. On the one hand, greater integration and control efforts may be required as subunits develop subgoals and separate identities. On the other hand, creation of parallel units may lead to decreased reliance on any single one, thereby lessening its influence within the organization.

It is clear, then, that a solution to the organization design problem involves not only division of labor, interdependence, and integration, but also the distribution of power and authority within the organization. Pfeffer points out that virtually no studies have systematically examined what most practitioners clearly recognize: Organization design choices are undertaken with a consideration of the power and control of various units and positions within the organization. Although we do not propose to suggest such a systematic framework, we clearly concur with Pfeffer (1978) and Child (1972) that is a need to begin organization design choices.

2.5. Domain Uncertainty

As discussed above, domain uncertainty refers to the extent to which office managers indicate they are able to deal strategically with (1) the labor markets, (2) other organizations, (3) ES headquarters, and (4) internal office affairs.

The external and internal domain uncertainty items differ systematically in their relationships with the other dimensions of organization context, structural configuration and performance. The external domain uncertainty items are consistently correlated with increases in office service demand, office size, and structural differentiation (number of supervisory levels, job titles, section, and sites), and with decreases in administrative intensity (supervisor-staff ratio and percentage of supervisors above bottom level). The opposite correlations are found for the internal domain uncertainty items. These results lend themselves to two alternative explanations that are well ingrained in the organizational literature. (1) Organizations cope with external domain uncertainty by adopting more complex structures, which decreases internal domain uncertainty, (2) Managers seek certainty in the internal operations of their organization by creating clearly differentiated structures, which increases external domain uncertainty. The evidence for these two prevailing explanations (which differ in the way one views the causation among external domain uncertainty structural configuration, and internal domain uncertainty) will now be discussed. As it turns out, both explanations are suspect because their solutions are negatively related to organization performance.

Based upon the theorizing of Thompson (1967), Lawrence and Lorach (1967), and Dill (1958), the prevailing explanation for the different correlations of internal and external domain uncertainty items with structure is that organizations cope with increasing external environmental uncertainty by adopting more complex structures, and the major benefit gained from the greater structural complexity is less uncertainty of coordinating and controlling internal operations. Specifically, Thompson (1967:20) proposed that "under norms of rationality, organizations seek to buffer environmental influence by surrounding their technical cores with input and output components". In operational items, this implies that as the external domain is increasingly differentiated horizontally by adding positions, sections, and operating sites to meet the uncertain environmental functions and convert them into steady operations for the core production or service units. To handle the greater information processing and decision requirements that an uncertain external environment generates, organizations will also become more decentralized by decreasing administrative intensity at middle and upper hierarchical levels and placing greater managerial decision-making responsibility in lower-level unit supervisors who have direct contact with external environmental segments. The correlations provide good support for this explanation and for Thompson's proposition on the direct effects of external environmental uncertainty on organization structure and internal domain uncertainty.

An alternative explanation exists for the relationships. It may be that it is the structural configuration of ES offices that influences perceptions of an increasingly uncertain external domain but an increasingly certain internal domain. More specifically, although size and structural differentiation increase certainty of internal organizational operations (by way of clear divisions of responsibilities, predictable reporting relations, and addition of slack positions and unit to buffer core operations), they also have a tendency to insulate a greater proportion of organizational units and positions from the external environment (which necessitates reliance upon the perceptions of a smaller proportion of personnel who span the external boundaries of organization). As March and Simon (1958:165) stated, by virtue of structural differentiation most information about the external environment enters an organization at highly specific points. Direct perceptions by ES office managers of issues and events in the labor market and in other community organizations are largely limited to the personnel who are in direct contact with these external domain segments by virtue of their specialized positions. Of course, these boundary spanners do not pass on direct observation or evidence to other organization personnel. Rather, they transmit their own inferences and value judgments, so that others have limited access to the original information and must rely on the credibility of the transmitter in order to form opinions. Therefore, with increasing organization size and structural differentiation, a greater percentage of organizational personnel are buffered from the external environment and become increasingly unclear of external domain issues and events.

Thus, two interesting and plausible explanations for the data are: (1) external domain uncertainty predicts structure and perceptions of internal domain uncertainty, or (2) that structure predicts perceptions of internal and external domain

uncertainty. However, the validity of bought explanations is called into question as one observes the positive correlations of office performance efficiency, effectiveness, and personnel job satisfaction with uncertainties of the labor market, other organizations in the community, and internal office affairs. Central to both explanations is that a reduction in domain uncertainty should increase organization performance either because a decrease in external domain uncertainty permits an organization to be structured more rationally, or a rationally structured organization will decrease internal domain uncertainty by having key boundary spanning units absorb external uncertainties. An increase in the uncertainty of issues and events as the headquarters level of the ES state agency is the only domain uncertainty dimension negatively correlated with the tree office performance criteria. These data question the basic assumption underlying both explanations as well as the appropriateness of the prevailing statement that "uncertainty reduction is the *raison d'être* for designing organizations." Unfortunately, with cross-sectional data on the small sample of ES offices here, we cannot investigate these interesting and important to be investigated more directly and over time in future organization assessments.

2.6. Domain Consensus

It was argued previously that the degree of consensus among decision makers will largely influence the direction of causation among the other organization context and authority (examined in following text). This hypothesis cannot be evaluated on cross-sectional data. However, even if the data were longitudinal, it is doubtful that a valid test of the hypothesis would be possible, because the average domain consensus, as indicated by Kendall's Coefficient of Concordance among unit supervisors within each office on the rank-order of importance of eight service goals is quite high (.67) and has a relatively small standard deviation (.14). Within this range the relationships of the degree of consensus among supervisors within each office with the other context and structural configuration dimensions are in the predicted direction, although they are not generally significant.

However, it is somewhat surprising to observe that increases in consensus among supervisors within offices are strongly associated with decreases in overall office efficiency and effectiveness. Conventionally, it is believed that domain consensus should be positively related with performance because agreement among supervisors on the operating goals of an organization provides unity of direction and purpose and decreases the likelihood of competition and sub optimization (i.e., when the efforts and performance of one unit are at the expense of or conflict with those of other units or of the total organization). It is important to remember that these negative correlations with office performance exist only at the relatively high and narrow range of domain consensus just discussed and are most likely to change in sign at lower of domain consensus.

Consistent with Ashby's law of "requisite variety", one should expect a concave relationship between domain consensus and organization performance. If there is little or no agreement among supervisors on the operating goals of an agency, there is anomie which results in disorganization and very low performance effectiveness and efficiency. At the other extreme, when there is complete agreement among decision makers on the operating goals of an organization, it is unlikely that the appropriateness of fallible service goals and operating procedures will be questioned or that sufficient tension exists to search for more efficient and effective modes of operating (Lewin, 1947). However, the middle ranges of domain consensus are likely to be the more durable and interesting conditions for high-performing organizations, because in this range operating goals and procedures are likely to be questioned, evaluated, and improved; the moderate amount of competition among supervisors can be constructively managed to motivate greater effort among various organizational units.

3. Summary

This section has presented a conceptual framework for assessing macro-organization context and structure by pulling together and making operational a number of ideas that have recently emerged but remained scattered in the literature. From a theory-building perspective, we believe that the framework makes the following contributions to the literature.

The framework expands the currently held view that organizations are designed by choices and not simply by natural or deterministic conditions occurring outside the organization (e.g., Child, 1972; Galbraith, 1977; Pfeffer, 1978). Our basic premise is that decision makers make choices regarding the organization's domain, the production function, and the organization design problems, and over time simultaneously live with the consequences of these choices and make adjustments in these choices for the future.

- The choice of a domain refers to the specific goals an organization chooses to pursue in terms of the functions it performs, the products or services it delivers, and the target populations and markets it serves. Past choices and behavior constrain future choices and behavior. Therefore, an historical assessment of the evolution of domain choices is necessary to avoid drawing the incorrect conclusion that organizations are not purposive, or goal directed, simply because goals and the meaning of actions are increasingly inferred retrospectively by organizational participants as organizations grow older.
- The production function problem is concerned on the one hand with making decisions on production quotas that an organization will deliver to selected markets during an operating period, and on the other hand in securing and allocating the necessary resources (i.e., money, personnel, and technologies). In an extensive review of the literature on organization size, Kimberly (1977) concluded that there is strikingly little theoretical understanding of the definition and origin of the concept of organization size. The reason, we believe, is because organization theorists have generally ignored the contributions of microeconomic theory of the firm. Specially, it is in the solution to the

economic production function problem that organization size, as a concept, originates. The number of employee positions (along with other specific line items in the organization's budget for an operating period) is one of the vital input resources that is determined or chosen by a solution to the production function problem.

- Central to most formulations of the organization design problem are (1) the division of labor (the degree of horizontal and special differentiation and the forms of departmentation), and (2) structure of authority and vertical reporting relationships that are established to manage the interdependence and sub optimization among organizational units. The solution to the problem is one of choosing a structure that balances the benefits of specialization against the cost of coordination and control. However, as Pfaffer (1978) points out, this is only a partial solution because it does not take the power structure of an organization into account. Thus, at the present stage of conceptualization, our framework for solving the macro organization design problem remains incomplete.

We underscored the importance of three dimensions of the types of domains chosen by organizations: domain uncertainty, complexity, and restrictiveness. Our contribution here is not to suggest three new dimensions (they have existed in the literature for quite some time), but rather to synthesize and explore how they individually and jointly affect the processes and outcomes of choosing the production function and organization design problems.

- Domain uncertainty is the basic dimension underlying most conceptions of organizational rationality and explains the degrees to which choices regarding organizational domain, the production function, and structure are made on the bases of rationality and efficiency versus social power, influence, and bargaining.
- Domain complexity is the dimensions that underlines most typologies of diversification strategies in the strategy-structure literature, and largely explain the degree to which organizations carve up and differentiate their production function and design problems into quasi-independent, simple problems.
- Domain restrictiveness distinguishes public from private sector organizations and varies according to governmental regulation, economic competition, barriers to entry, and unionization of the labor force. Domain restrictiveness explains the extent to which organizations are free to choose their domain and to flexibly react and proact to changing social and economic conditions.

In addition to these main effects of domain uncertainty, complexity, and restrictiveness, we suggested a few possible interaction effects of these dimensions on the decision-making processes used by organizations to solve the production function and organization design problems.

- Under idealized conditions of low domain uncertainty, complexity, and restrictiveness, the production function problem can be solved according to classical microeconomic principles of equating marginal costs with marginal revenues. With moderate increases in domain complexity, restrictiveness, and uncertainty of means to ends, bounded rationality is introduced, and the classical economic shifts from maximizing to satisficing the production function problem. In both perfect and bounded rationality cases, a solution to the production function problem is prerequisite to solving the organization design problem, and the application of organization thereby begins where microeconomic theory of the firm leaves off.
- However, with further increases in domain uncertainty (particularly on goals) and restrictiveness: (1) the bounded rationality model based on economic criteria is increasingly replaced with a bargaining model of decision making based on social power and influence among conflicting coalitions and individuals, and (2) a solution to the production function problem becomes decreasingly a prerequisite to, but increasingly a consequence of, the way the organization design problem (in particular, its structure of authority) is solved.
- In addition, by examining joint variations in domain uncertainty, complexity, and restrictiveness, we were able to derive some of the basic strategies proposed by Thomson (1967) and Williamson (1975) which organizations employ to both isolate themselves from their environment and to gain control over their environments.
- Although our theory-building efforts are far from complete we believe that the preceding insights are sufficiently increasing to suggest that domain uncertainty, complexity, and restrictiveness provide a rich point of departure for developing a systematic framework for assessing macro organization context and structure.

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