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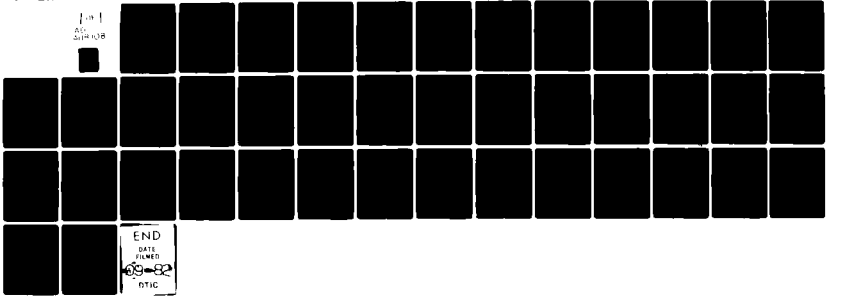

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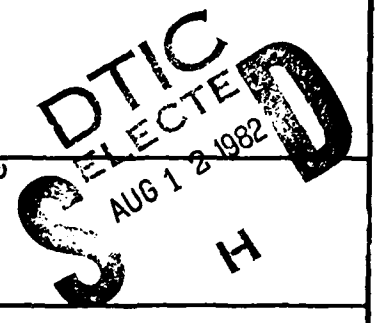

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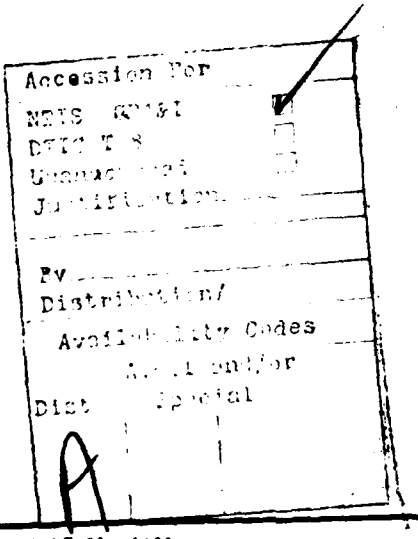
developed. An efficient matching of transaction characteristics and governance mechanisms is then proposed. This matching is intended as a theoretical guide to empirical work.



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EFFICIENT BOUNDARIES*

by

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Abstract

The problem of organizational boundaries is recast as prescriptive, rather then purely descriptive, in nature. Building on a transaction costs framework, the ability of various types of transaction governance mechanisms to equitably and efficiently mediate economic exchanges is investigated. By integrating previous work, a set of transaction characteristics related to governance mechanism efficiency is developed. Next, a taxonomy of governance mechanisms, both internal and external to an organization's boundary, is developed. An efficient matching of transaction characteristics and governance mechanisms is then proposed. This matching is intended as a theoretical guide to empirical work.

Perhaps organizational boundaries can more fruitfully be considered from a prescriptive rather than purely descriptive point of view. Within a prescriptive context, the problem of organizational boundaries can be stated in a clearer manner, one which is amenable to a variety of research approaches. A prescriptive approach is also important because organization boundaries are being set and re-set every day with very great practical implications. Those who set the strategic direction of firms engage in buying and selling businesses, taking some businesses within the organizational boundary and casting others out. When a corporate strategist asks the questions, "What businesses should we be in?" and "How should we manage our current businesses," he is aksing questions that can be fruitfully addressed via an efficient boundaries approach. When a federal court decides on an anti-trust case, it is, in effect, re-setting the boundaries of an organization. Again, the implications of these decisions, for the firms involved, their employees, and the public at large are approachable through an efficient boundaries formulation.

THE MEANING OF AN EFFICIENT BOUNDARY

What is an efficient boundary? Can we describe this concept without attempting to define an organizational boundary and thereby sinking into the same definitional problem which has plagued others? What we hope to show is that an efficiency approach to the boundary problem will provide us with a criterion by which the governance of economic transactions can be judged in a systematic manner. Moreover, because the criterion is efficiency, we can in each case determine whether the moving of an organizational boundary will yield efficiency benefits or not, and it will in the future be possible to show to whom these benefits principally accrue, to the owners, the employees,

or to the public-at-large. The question of definition will remain to some extent arbitrary. Some will choose to define an organization's boundary in a manner which excludes transactions which others would put within the boundary. However, because the efficiency results can be assessed in each case, the researcher who wishes to define a boundary may do so in more than one way and be able to specify the efficiency implications of each boundary definition.

Defining an efficient boundary is similar to defining an efficient form of organization. Let us begin by defining some terms, and then we will proceed with the implications of this efficiency point of view.

The criterion is the efficiency with which a set of economic transactions is governed. The objective is to define that boundary which (1) allows parties to an exchange to obtain sufficient information to judge the fairness with which they are being dealt in the relationship and (2) to accomplish this task at minimum cost. Such a boundary is efficient because it allows parties in an exchange to judge the equity of their relationships at minimum costs.[1] A transaction is an economic exchange between two or more parties.[2] It may be an exchange of labor for pay between employer and employee, it may be an

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[1] Though efficiency is emphasized, there are also effectiveness aspects of the criterion as defined. If simple cost minimization was the criterion in deciding among various transaction goverance mechanisms, market mechanisms would always be chosen. As we argue below, however, market mechanisms often do not generate sufficient information to allow parties to an exchange to judge the equity of their relationship. In such cases, markets will be replaced by more costly, but effective governance mechanisms. Thus, a governance mechanism must first effectively allow the relevant information to be gathered. Once a class of effective governance mechanisms is isolated the efficiency criterion is used to discover that mechanism, or those mechanisms, which is least costly. See Simon (1976: 179-180) for a related discussion.

[2] One defect of the approach is that "economic" exchanges are sometimes difficult to discriminate from "non-economic" exchanges, and "transactions costs" are sometimes difficult to distinguish from "production costs." In the context of inter-divisional or inter-firm transactions, which is the focus of this paper, such ambiguities are minimal. In more micro-analytic cases, however, they can pose more serious problems of definition.

exchange of a good between two departments of a company, or it may be an exchange of a good or service between two companies. The governance of transactions is accomplished through one or another social mechanism (to be specified below) which has the principal feature of maintaining the perception of equity in the distribution of rewards among the parties to the exchange. Under some conditions, (to be specified below) the nature of the transaction is such that a perception of equity is maintained without managerial action, and the appropriate governance mechanism will be a market. In other cases, the establishment of the equity characteristics for a transaction will be subject to many hazards, and the appropriate governance mechanism will be that of internal organization.

The boundary of an organization is that locus within which all transactions are governed through internal means and beyond which all transactions with the organization are governed through external means. The importance of a boundary lies in the difference in governance mechanisms which it implies. To expand a boundary is equivalent to moving some transactions from external to internal modes of governance; while to contract a boundary is to move some transactions from internal to external modes of governance. The objective of an efficient boundaries analysis is to discover the division between internal and external governance mechanisms that will yield the lowest cost of governance.

The principal function of goverance mechanisms is to achieve a perception of equity among the parties to a transaction with respect to the division of rewards or gains which result from the transaction. We take it as axiomatic that no pattern of transactions will persist unless the parties to the transaction regard the division of rewards as being equitable, that is, in accord with their expectations. The development of governance mechanisms to create

this perception of equity is achieved only at some cost. Internal and external modes of governance can be compared with respect to the managerial and administrative costs incurred in maintaining descriptions of equity. Internal and external modes of governance differ in the mechanisms which they employ; each form of governance achieves the lowest cost of establishing equity under a narrow range of conditions. It is therefore possible to typify forms of transactions and to match these with forms of governance in an isomorphic manner, thus specifying efficient forms of goverance. This is equivalent to setting the efficient boundaries of internal versus external organization. Any set of transactions can thus be analyzed with the objective of determining which subsets of transactions should be internally organized, and therefore which transactions should be externally organized.[3]

The prescriptive nature of our discussion is highlighted by our emphasis on efficient boundary definition. If managers wish to act in an efficient manner with respect to establishing their organization's boundaries -- that is, if they wish to govern their firm's economic transactions so a perception of equity is maintained by all involved parties at minimum cost -- then much of the discussion below is prescriptively relevant. The application of the framework may typically be as follows: The owner of a manufacturing business may have within his corporation (internally organized) engineering development, manufacturing, and a wholesale field staff. His network of transactions may also include external transactions with suppliers from whom he purchases research ideas, subassemblies, and maintenance services, and may include customers to whom he sells completed products for retail sale. He could expand the boundary of his internal organization by developing or buying a company which manufactures the subassemblies, by employing researchers, and by

[3] One can equally effectively begin the other way, by first determing which transactions should be externally organized.

employing maintenance workers. He could expand his boundary in another direction by opening his own retail outlets. Alternatively, he could shrink his boundary by letting go his development engineers and his wholesale salespersons, retaining only his manufacturing business and perhaps expanding it. An efficient boundaries analysis can help him know how he should decide.[4]

Our discussion is not exclusively prescriptive in nature. Under certain conditions, it may also be predictive. It is clear that managers may not have efficiency interests in mind when developing organizational boundaries. Managers may be more concerned with maximizing their individual power (Pfeffer and Salancik, 1978), their likelihood of personal survival within the organization, or even organizational inefficiency, to name just a few interests, when establishing organizational boundaries.[5] However, under conditions of environmental scarcity, and associated competitive forces, we would generally expect firms where boundaries were organized in an inefficient manner to not survive overtime (Barney and Ulrich, 1981; Hannan and Freeman, 1977, Aldrich, 1979). Under conditions of environmental scarcity, surviving and thriving firms should generally behave in ways approximating our discussion below.[6]

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[4] Our emphasis on efficient boundaries indicates that the model presented below is not a general theory of business integration. Rather it is a model of efficient integration, where efficiency is defined as above.

[5] An interesting discussion of the motives of firm managers within an economic context can be found in Winter (1964).

[6] The development of efficient boundaries is one of several organizational attributes that may have an impact on organizational survival. A list of other "selection mechanisms" is presented in Barney and Ulrich (1981). More attention needs to be addressed to the relative weighting of these different selection mechanisms under different competitive environmental conditions. Also, this analysis suggests that the theory of organizational behavior in non-competitive environments remains underdeveloped. See Barney and Ulrich (1981) for a more complete discussion of this point.

Of course, both the prescriptive and predictive aspects of an efficient boundaries approach must be subject to empirical validation. Within such a context, the following discussion can be thought of as defining parts of an efficient boundaries research agenda.

TYPES OF TRANSACTIONS

The first step in an efficient boundaries analysis is to specify in more detail dimensions along which transactions vary. More specifically, we identify three underlying dimensions which fruitfully characterize transactions. These are later matched with governance mechanisms. The three dimensions used to characterize transactions are: (1) the degree of ambiguity or uncertainty concerning the attribution of performance among the separate parties to a transaction, (2) the degree of goal congruence among the parties, and (3) the frequency with which a given transaction is executed. We consider these in order.

Performance Accounting Ambiguity

The degree of ambiguity or uncertainty concerning the equitable attribution of performance among the parties to an exchange varies considerably and can be traced to two basic sources: an inability to measure the performance of parties in an exchange and an inability, even if performance can be measured, to be able to accurately value it in the exchange. If either of these difficulties arise in an exchange, performance accounting ambiguity is likely to be high. In practice, the inability to measure and value performance in an exchange often occur together.

Numerous transaction characteristics can lead to performance accounting ambiguity by making measurement and/or valuation of performance within an exchange problematic. Four particularly important transaction characteristics associated with performance accounting ambiguity are: investment specificity, transaction uniqueness, complexity, and uncertainty.[7] Perhaps the most common operational representation of high performance accounting ambiguity is a transaction specific investment (Williamson, 1979). Transaction specific investments are investments of the human or capital type that have value in a narrowly limited range of economic transactions. For example, when a university acquires a new computer system, it often must also acquire a physical computing environment required by the new computer. This environment may include special air conditioners, lights, etc., as well as computer peripherals (e.g., printers, tape drives, disk packs) that are appropriate for only this particular type of machine. Only a limited number of these capital assets are transferable to alternative uses, say if the University changed computers. Perhaps even more important than these capital transaction specific investments are those of the human capital type. A University researcher who makes the personal investment to learn the operations of a particular computer operating system will find a large percentage of that information irrelevant if a new machine is installed. Such human asset investment is specific to this particular situation and not transferable to a different context.

The more transaction-specific a human or capital asset, the less its value in alternative uses. The greater this discrepancy in value, the more difficult it is to assess its value in the present use and the more difficult

[7] Each of these manifestations of performance accounting ambiguity acts as a limit to the equitable attribution of performance among parties to an exchange because of these actor's limited information acquisition and processing abilities, i.e. bounded rationality (Williamson, 1975).

it will be to compensate the investor in a manner deemed by all parties to an exchange as equitable. Because transaction specific investments are unique, in that they cannot be readily transfered to other exchanges, comparisons of alternative uses cannot help in establishing value, and the equitable distribution of the costs and rewards of an exchange becomes problematic.

Consider a transaction in which one party supplies tin cans to another. The manufacture of tin cans is a highly standardized process; the supplier requires no modifications in his physical plant to be able to supply tin cans to one beverage firm as opposed to another, and the transaction is low in performance accounting ambiguity. Consider on the other hand, a transaction in which one party supplies automobile fenders to another. Fenders are pressed out in stamping plants, and each stamping machine must undergo a costly modification in order to produce stampings which will fit the design of Buicks rather than Plymouths. In addition, the stamper must set up a delivery system which is intimately matched to the production system of the customer, so that neither supplier nor customer is burdened with a large inventory of fenders, while assuring that the customer is never out of fenders when he needs them. The uniqueness of investment on the part of the supplier and to some extent, the customer, precludes ready comparison with other transactions and thus obscures the proper distribution of rewards between the parties. The exact same form of analysis applies to the supplier of a specialized form of labor who can best perform his duties by acquiring skills which are of maximum utility only to one purchaser. In some degree, these problems of performance accounting ambiguity due to investment specificity characterize most transactions and most investments.

A second, and related, transaction characteristic associated with high levels of performance accounting ambiguity is the uniqueness of the goods or services being exchanged. If, for example, the product or service being

exchanged is new or different from others in some fundamental ways, equitable valuation may be difficult. Without at least partially comparable transactions, the value of unique goods or services cannot easily be established and equitable assessment of performance in an exchange among parties may be difficult to develop.

The complexity of the good or service being exchanged, or the complexity of relations among parties in a transaction, may also make the equitable attribution of performance difficult. In complex, highly interdependent human or technological systems, the causes of success and failure are often difficult to assign. If the operation of each part of a system depends critically on the successful operation of numerous other subsystems, each of which is in turn highly interdependent, the establishment of cause and effect relations can be very difficult, and the concominant assessment of performance may be highly ambiguous. The complexity of such exchanges often yield high levels of performance accounting ambiguity.

High performance accounting ambiguity due to exchange complexity is often manifested in large legal actions. In one particularly famous case in the construction industry, seven separate parties filed twelve different suits and counter suits against one another when a project was not completed according to the schedule specified in the original contracts.[8] In their suits, each party indicated how failures of the other parties had led them to be unable to complete the project as scheduled. Responsibility in this transaction was difficult to assign. The failure of one party to meet contractual obligations rarely happened in isolation, and responsibility was often ambiguously distributed across several individuals and firms. Faced with such high levels of performance accounting ambiguity due to the complexity of exchanges, such as

[8] Lasa Per L'Indust Del Marmo Societa Per Azioni V. Southern Builders, Inc., 45 F.R.D. 435 (W.D. Tenn. 1967), reversed, 414 F. 2d 143 (6th Cir. 1969).

this, liability and damages are usually difficult to assign and are generally settled on a case by case basis, with reference to few underlying legal principles as guides. Often juries in such cases are assigned the very difficult task of dividing damages among parties to a suit according to "the proportion of fault" in a particular exchange.

Finally, a high level of uncertainty associated with some transactions makes an equitable accounting of performance among parties in the exchange difficult to obtain. This may particularly be an issue when the value of certain investments in the transaction can only be assessed in the long run. Because the future is essentially uncertain, calculating the present value of future performance may be very difficult, and thus an equitable assessment of present contributions in an exchange may be difficult to obtain. An example of a high level of uncertianty associated with a transaction can be found in the concept of opportunity costs. Making investments in the development and maintainance of a particular transaction often means that other transaction opportunities, some known to the parties of an exchange, some perhaps unknown, may not be entered into. The future value of these alternatives is generally not knowable in the present, and thus the value of the investment in the transaction actually going forward is uncertain.

In general, the greater the performance accounting ambiguity, the greater the difficutly of establishing exchange equity, and the more elaborate the requisite governance mechanism. Usually, transactions of low performance accounting ambiguity can efficiently be governed through external mechanisms, while transactions of high performance accounting ambiguity are efficiently governed through internal mechanisms.

Goal Congruence

Goal congruence has figured importantly in the work of Barnard (1938), Mayo (1945), Simon (1964), and others. Even parties with apparently conflicting goals may share some level of goal congruence. Simon (1964) introduces the example of the goals of a feed manufacturer and a hog farmer. The feed manufacturer's major objective is to produce feed as cheaply as possible, subject to the nutritional requirements of hogs. The hog farmer, on the other hand, searches for the most nutritional feed available, subject to cost constraints. At one level, there exists a clear conflict between the feed manufacturer and hog farmer. According to Simon (1964:8), "the farmer wishes to buy cheap, the manufacturer to sell dear." Despite this goal conflict, the parties to this exchange do share some common interests. It is, for example, in the interests of both parties for an exchange to take place; the feed manufacturer needs to sell feed and the hog farmer needs to buy it. Also, these two parties may have an incentive to work together in establishing the nutritional requirements of hogs, for they share a common interest in maintaining the animal's health.[9] If the hogs were to die prematurely, the feed manufacturer could not sell feed and the farmer could not sell animals for slaughter.

[9] If these individuals could not negotiate such standards, they might turn to a third party to establish them. This is the case when the government sets nutritional standards for animal feed, e.g. see the Food and Drug Administration standards for animal feed in 21 C.F.R. 564.6 (1980). In such a case, the government adopts a quasi - hierarchical relationship with respect to the two parties.

Goal congruence is at a minimum, and goal conflict is at a maximum, under the conditions defined by a zero sum same. Using Simon's (1964) linear programming analogy, no feasible set of consistent goals, objectives, and constraints which would allow for a mutually beneficial exchange exists, and thus goal congruence is minimal.

Williamson (1975), in developing Simon's earlier work, refers to opportunism as a property of some individuals.[10] Here, we prefer to decompose opportunism into two separate components; self-interest and goal congruence. Self-interest is a universal property of individuals. By this we intend nothing more than the idea of hedonism; the principle that individuals will tend to repeat behavior that is rewarded and to extinguish behavior that is not. Goal congruence refers not to a characteristic of individuals, but rather to the state of a relationship between two or more parties. To the extent that one party can achieve his/her self-interest only at the expense of the other, we say that goal incongruence or conflict obtains. When self-interest exists simultaneously with goal conflict, then the condition of opportunism obtains. It is in this case that individuals will tend to lie, cheat, steal, and to knowingly misrepresent facts and intentions in order to advance their self-interest. If self-interest is low or if goal congruence is high, then individuals acting rationally will not engage in opportunistic behavior. Under those conditions, there is no incentive to misrepresent, cheat, lie, or to steal. Although all combinations of self-interest and goal congruence are conceivable, we hold that self-interest may be treated as a universal and thus as a constant and not of interest to our formulation. Goal

[10] However, even if only a few individuals may act opportunistically in an exchange, Williamson (1975) argues that all transaction goverance mechanisms must guard against it. This is because, a priori, one can never tell who will or will not act opportunistically.

congruence, however, may vary. When goal congruence is high, then rational actors will engage in joint profit maximizing behavior elaborate modes of governance will be unnecessary.[11] When goal congruence is low, then elaborate organizational forms are necessary to maintain norms of equity, and alternative assurances of equity, such as those obtained through clarity of performance assessment, are necessary.

Frequency

The final dimension by which we characterize transactions is the frequency with which a transaction is executed (Williamson, 1979). This dimension in fact refers to the feasibility of maintaining governance mechanisms rather than strictly to the nature of transactions. If a transaction of some ambiguity is contemplated, then it may be the case that the transaction requires an elaborate internal governance mechanism. If the transaction occurs infrequently, say once a year, then it may be prohibitively costly to erect and maintain such a governance mechanism for so infrequent a use. Thus it will sometimes be the case that, while the form of transaction suggests an internal mode of governance, an external mode will be employed instead despite its disadvantages, due purely to the scale diseconomies attached to the infrequent use to which the internal mechanism would be put.

One implication of this typology of transactions is that there may be some potential transactions which will not occur at all, for the reason that

[11] Professor Williamson points out that goal congruence is not always an abstract condition which produces joint profit maximizing behavior. Indeed, it is often the case that contractual incentives are set in a manner which will produce goal congruence among the parties. It is often not clear which is cause and which is effect.

no appropriate and feasible governance mechanism exists. The empirical problems attendent upon an attempt to study something that does not occur are great indeed, but they may not be intractable. It may, for instance, be possible to locate some cases in which a transaction which did not exist suddenly occurs with regularity.[12] Such cases may be explained by a change in the feasibility of governance mechanisms.

Any transaction may be classified according to these three dimensions: performance accounting ambiguity, goal congruence, and frequency. The framework owes much to Williamson (1979), but the constructs in this case are represented in terms which are amenable to organizational rather than to legal or economic analysis. As we shall see, this conversion to organizational language gives rise to some research implications that are unique. Let us next define the major alternative governance mechanisms.

TYPES OF GOVERNANCE MECHANISMS

Governance mechanisms are social processes which serve the function of maintaining the perception of equity among the participants to a transaction. A typology of transaction governance mechanisms is presented in Table One. The initial distinction is between internal and external modes of governance. External modes of governance achieve the perception of equity through a normative acceptance of competition in open markets as a legitimate form of social control. Internal modes of governance achieve this end through the normative acceptance of a legitimate hierarchy as the substitute for a competitive

[12] For example, Chandler (1977) notes that chain stores such as Sears Roebuck & Co., appeared only after low-cost telecommunications made it possible for a central warehouse to monitor and supply distant locations with high reliability and at low cost. The nature of the transaction between supplier and retail outlet had been transformed.

Table 1

Informational Basis of Governance Mechanisms

	Prices	Rules	Values and Norms
Internal: hierarchy	Quasi-Markets	Bureaucracy	Clan
External: competition	Market	Bureaucratically Assisted Market	Clan Assisted Market

market.[13] Thus, when participants percieve a transaction as occurring under competitive market conditions, they are likely to be satisfied that the resulting distribution of rewards among them is equitable. Alternatively, if the participants willingly attribute legitimacy to a hierarchy which monitors the performance of all participants and then distributes rewards among them, they are also likely to be satisfied that the distribution has been equitable. Internal modes of governance can be applied under conditions more suitable to market governance and market modes can be applied under conditions more suitable to internal form, but such mismatches will be inefficient.[14] It is therefore reasonable to attempt to specify the conditions under which efficiency will obtain.

[13] The underlying idea here is that an internal governance mechanism, being bounded by a single legitimate hierarchy, yields a sense of community, of trust, of intimacy that is qualitatively different from the social conditions which characterize relationships that are external. The purpose of this paper is to become more precise about the nature of this qualitative difference.

[14] Of course, such mismatches cannot persist under competitive conditions, but may continue in non-competitive conditions as in some governmental organizations and may exist for a while even in competitive circumstances.

Quasi-Markets, Bureaucracies, and Clans

In addition to the initial distinction between internal and external governance, which derives from Williamson (1975), Ouchi (1980) has specified the informational prerequisites of three major forms of internal governance. Within the boundary of a single hierarchy, prices may be used to govern transactions in a quasi-market form, rules may be used to govern transactions in a bureaucratic form, and common norms, values and traditions can be used to govern transactions in a clan form. These three governance mechanisms are described in detail elsewhere (Ouchi, 1979, 1980). Briefly, these can be summarized: internal quasi-markets rely upon nearly-complete separability and non-uniqueness of organizational units or individual tasks in the establishment of quasi-prices to be used in governing a transaction. When these conditions are satisfied, then the multi-divisional or semiautonomous unit organizational-structure (Galbraith, 1973) may be employed. In this case, each unit is treated as an investment or profit center, and the task of managerial governance through the hierarchy is limited to monitoring of a single outcome measure which is subject to interpretation in a nearly unambiguous fashion. If the internal quasi-price were subject to completely unambiguous interpretation, then the unit in question need not fall under the hierarchy at all, and the application of hierarchy to it would constitute a redundant and inefficient use of organizational resources. More often, however, the evaluation of performance of the unit in question is partially ambiguous, such that some subjective judgement is necessary in addition to the quasi-price.[15] This

[15] Anticipating the discussion below, the inability to unambiguously interpret quasi-prices in such a situation, and the need of a legitimate hierarchy to facilitate necessary subjective judgements are both manifestations of some type of performance accounting ambiguity existing.

condition describes most multi-divisional organizations, in which each division is treated as a profit center, but top management also believes that each division benefits from some corporate assets (such as a brand-name or central staff service) and yields some corporate benefits (such as training potential managers for other divisions) which cannot be captured in financial measures and thus must be reflected in subjective performance evaluations.

The bureaucratic form relies on explicit rules and procedures and is typical of functionally organized enterprises.[16] There is no simple criterion such as profit maximization or cost minimization that is appropriate, and so quasi-price mechanisms are replaced with rules that can be stated only approximately, and which require subjective interpretation. If for example, an auditing department were given the simple goal of cost minimization, it could best satisfy that criterion by failing to carry out any audits, thus incurring zero costs. A sales department could maximize sales by offering prices at which the firm would show a loss, and so forth. In such cases, no simple criterion can be pre-specified, and instead the governance mechanism consists of a set of rules which provide general guidance by a legitimate hierarchy which can apply judgement to regulate performance. The governance mechanism succeeds only under the condition that employees in a bureaucracy regard the hierarchy as likely to generate a fair and legitimate judgement of performance in the long run. If the legitimacy of the hierarchy is lost, then employees will demand complete contractual protections of the sort commonly found in external market transactions. If such a contract could be written, the hierarchy would then be a redundant and inefficient government mechanism. A

[16] Within the multidivisional firm, each division is often organized in a functional manner.

common example is the joint application of labor union contracts with hierarchical supervision.[17]

The clan form of internal governance is based on a common set of values, beliefs, and norms. In certain transaction environments, no explicit, prespecifiable performance measure is perceived as equitable. If the only governance mechanisms available in this case were bureaucratic or quasi-market, then we would predict that the potential transaction would not take place, because there would be no means through which the potential traders could establish a perception of equity. In the semiconductor industry, for example, it is common that one firm will develop a unique product that has superior characteristics for use in high-speed computers. The firms that build computers and who therefore are potential trading partners will commonly refuse to buy that new invention and will build their computers instead with older, less effective components that are commonly available. The computer firm does not trust the single-source semiconductor seller to fairly price his product and to honor promised delivery schedules. If the computer manufacturer re-designs his computer to accommodate this new device, he has made an investment that is specific to this one transaction: that design cannot accommodate substitute devices available from other semiconductor sellers. This ambiguous transaction might be governed through external means if the sales contract were specified in great detail, if a mechanism for settling disputes were erected, and if each party were willing to incur the risk of litigation to settle contract disputes. Such a governance mechanism, however, would likely be prohibitively costly, i.e. the forseeable benefits of the transaction would probably not offset the potential governance costs associated with it. The

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[17] In practice, such complete contracts cannot be written, and various hierarchical governance mechanisms must be kept in place to augment contracts. These hierarchical mechanisms could include a managerial system, as well as arbitration panels, etc.

computer manufacturer might thus prefer to purchase the semiconductor firm as a whole, thus bringing it under internal modes of governance. Were it to do so, however, it would be faced with similar problems associated with the creation of an internal quasi-market governance mechanism, and might find the performance accounting ambiguity so great so as to defeat bureaucratic mechanisms of control as well. For example, the bureaucratic mechanism of specifying a production standard with an acceptable variance would probably be infeasible, because a new semiconductor device may within one year show production increases of anything from 10% to 1,000% as a consequence of design improvements which cannot be foreseen. In this case, the governance mechanism must be based on a common belief that equitable relations will be maintained in the long run. In the short term, the development of this common belief necessarily involves some degree of trust among transacting parties between the semiconductor division and the computer manufacturer.[18] If a high level of trust can be achieved and can be signalled in a believable way, then each party can be confident that, although inequities will certainly occur in the short-run, each party will be willing to make appropriate adjustments over the long-run, so that an equitable balance will be restored. This willingness to undertake short-term inequities with the expectation of long-run equity is an important feature of clan forms, one which gives them the capacity to govern transactions under a norm of equity in conditions which are clearly beyond the reach of other governance mechanisms.

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[18] A mutual belief that equitable relations will be maintainned in the long run can be achieved through a hierarchy of means-ends relationships discussed by Simon (1964). However, when performance accounting ambiguity is great, these common beliefs must be based on values or abstract ends, because short-run operational goals and objectives cannot (by definition) be defined under conditons of ambiguity. The recognition that, in the long-run, equity will exist will give the parties an incentive to make sacrificial adjustments in the terms of trade in order to maintain the relations necessary for the continuation of the transaction.

Intermediate External Governance Forms

The matching of informational prerequisites (prices, rules, and norms) with external governance mechanisms implies two intermediate external transaction governance mechanisms. Such governance mechanisms retain many of the characteristics of markets, but the development of perceptions of equity in a transaction are aided by additional non-competitive relations among parties to an exchange. Consider the case in which we have the semiconductor firm and the computer firm as before, but in which the computer firm is unable, for one reason or another, to buy the semiconductor firm and thus employ internal governance modes. Apparently we have specified a condition under which no transaction will occur. There are at least two distinct types of responses to this situation, of which one interests us as an intermediate governance form. The response which is not of major interest here is for the semiconductor firm to willingly create a competitor or "second source" for its unique product. In fact, this unique adaptation has become commonplace in the semiconductor industry.[19] In exchange for a promise from the computer firm that it will buy the great majority of devices from the inventor and a small fraction from a second source, the inventor will voluntarily sell licensing rights to its invention to a competitor. A somewhat competitive condition is thereby created out of a bilateral monopoly, and the transaction proceeds in a reasonably efficient manner.

The second kind of solution to the problem is one that involves the creation of intermediate governance mechanisms, as specified by Williamson (1979). These intermediate mechanisms are efficient under the condition that a transaction is characterized by a moderate degree of ambiguity such that

[19] "Semiconductor rivals turn into R+D allies," Business Week, October 19, 1981, p. 47.

pure market transactions will be defeated, but which do not imply internal modes of governance as an efficient form. As we shall see, these intermediate forms may be interpreted as external forms of bureaucratic and of clan governance, which we have treated until now purely as internal modes. As a reference point, recall that the simplest form of external governance is the market form, in which "faceless buyers and sellers ... meet ... for an instant to exchange standardized goods at equilibrium prices," (Ben-Porath, 1978). This is the primary form of external governance, the simple market form.

Now consider a transaction in which there are significant sources of performance accounting ambiguity, perhaps due to unique investments such as those incurred by the computer manufacturer, or for other reasons. Consider specifically the problem of the individual who wishes to build a home.[20] The individual must enter a market relation with a contractor who will provide the home construction, yet most individuals are incapable of accurately assessing the performance of the contractor according to the contract terms, in large part because such a home is unique and thus defies ready comparison with other homes. It is rarely feasible for an individual to become a contractor in order to employ internal modes of governance, in part because the frequency of the transaction is low, perhaps once-in-a-lifetime. On the other hand, the contractor has no means to protect himself against the whimsical and perhaps expensive design changes that a customer might ask for at the last moment, and he is unwilling to undertake a contract that has a high likelihood of leading to an expensive litigation. It is therefore common for both parties to accede to the legitimate domination of a third-party, the architect.[21] The architect

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[20] This example is taken from Williamson, (1979). We have elaborated on it in some ways for which he should not be held responsible.

[21] This role of overseeing construction is distinct from (and often paid for in addition to) the architect's task as a designer.

depends for his livelihood on his ability to attract customers on the one hand and to strike low-cost agreements with builders on the other. He thus has incentives which are likely to provide him with an impartial or at least balanced view of any disputes between homebuyer and homebuilder. Thus both parties grant legitimate authority to the architect to subjectively arbitrate disputes between them, expecting that although any single dispute may result in a short-term inequity, the long-run outcome will be equitable. In this manner, the transaction remains essentially an external market relationship, but it is assisted with bureaucratic features. We call this type of intermediate governance mechanism a bureaucratically assisted market.

Consider next the more complex problem facing the U.S. Air Force in its purchase of fighter aircraft, such as the F-16.[22] The USAF is, at least at the outset, the only buyer of this unique product, and it has the problem of determining what is a fair price to pay and how to govern its relationship with the supplier of the F-16. In order to make use of this new aircraft, the USAF must create maintenance, strategic, manpower training, and many other systems that constitute investments specific to this one transaction. Once these investments have been made, the USAF is effectively at the mercy of a sole supplier who may choose to unfairly cut quality or slow delivery times or, in any of a hundred other ways effectively raise the price. A potential supplier faces the hazard of having a single customer who may, once he has tooled for building this one specific product, demand design changes, claim poor quality, or in many other ways effectively reduce the price per aircraft below that agreed upon. The problem is similar to that in the homebuilding example, but it is not identical. In this case, the nature of the transaction is far more complex and ambiguous than in the previous case. Here, the F-16

[22] This example was related by the manufacturing manager in charge of the F-16.

is specified through a total of 3,000 separate blueprints. Although one prime contractor will conduct much of the manufacture of the airframe and will assemble the completed aircraft, that prime contractor will also oversee the performance of many subcontractors who will supply one or another part for the F-16. Many of these subassemblies will be technologically unique, as will the assembly of the completed aircraft. If, for example, the cost per aircraft of the F-16 had been estimated from projections taken from other recent fighter aircraft, they would have been off (too high) by approximately 50%. Under conditions of such great performance accounting ambiguity, how is the USAF to govern the relationship? Internal organization is clearly an alternative, but in this case the U.S. Government is unlikely to benefit by directly entering the aircraft business.

In such cases, it is common for the parties to achieve an external clan relationship. That is, each party must agree to an appropriate level of profitability to be achieved by the supplier, a common belief that both parties to the exchange will act in a manner so as not to take advantage of the other must be achieved in operational ways, and this common belief must be signalled in a believeable manner. Thus, the supplier may employ retired USAF officials, who can effectively and believeably communicate the subtleties of the suppliers intent and purpose to individuals who know them well on both sides of the transaction; the USAF may take in a temporary liaison staff from the supplier whom they will come to know intimately, and may send a liaison staff to work with the supplier for a period of years. In addition, as is common in such cases, the supplier and the USAF jointly agreed that, since performance was so highly resistant to clear measurement, the contract would call for an annual performance bonus of one million dollars, to be awarded or not purely at the discretion of the USAF, based upon their subjective judgement of how well the supplier had performed. The willingness to accept such a

non-binding agreement may be interpreted as a clear signal of the existence of a common commitment to maintaining exchange equity and trust on all sides. Moreover, such an agreement inevitably carries also the implication that a gross inequity by the USAF in awarding or not awarding the bonus would be met with strong future retribution.

That such a relation is difficult to govern is clear. In this case, the supplier employed 4,000 individuals in the manufacture and assembly of the F-16, and another 11,000 individuals in the process of governing the relationship between the supplier and the sub-contractors on the one hand, and between the supplier and the USAF on the other hand. Had the parties adopted a mutual attitude of mistrust or even of anonymity (such as that between homebuyer and homebuilder), it is clear that even this number of coordinators would have been insufficient to achieve effective governance. Had there been demands on both sides for an equitable balancing of interests upon the delivery of each aircraft or at the end of each month, the transactions costs would have risen drastically. We call this type of intermediate governance mechanism a clan assisted market.

Intermediate external governance forms such as clan and bureaucratically assisted markets arise when simple market prices fail. The key difference between these two governance mechanisms lies in the extent to which market prices are augmented by subtle, informal relations based on mutual trust and closeness, on the one hand, and rules, arbitration, and third party authorities on the other. The isolation of these intermediate external forms of governance helps to resolve one of the most ambiguous boundary definitional problems in organizational theory, that of defining boundaries between cooperative organizations. The classic example of such interorganizational cooperation is Selznick's (1949) description of the Tennessee Valley Authority. The

present conceptualization recognizes such cooperation as a form of intermediate external governance. Moreover, rather than suggesting that such forms are inefficient or anomalous, the conception presented here argues that under some circumstances, they may be efficient. At the same time, it is clear that any attempt to clearly delineate the boundaries of each organization in such situations will do violence to the reality of what is an ambiguous boundary.

MATCHING GOVERNANCE TO TRANSACTION MODES

We have distinguished six modes of governance, three which operate within a hierarchy and three which operate across hierarchies. The three external modes are markets, bureaucratically assisted markets, and clan assisted markets. This typology represents an attempt to deal in one theoretical scheme with both internal and external modes of organization, to form a bridge between micro-economics and organization theory.

The six governing mechansims isolated are social processes that can be used to establish a perception of equity among the participants to a transaction under a variety of conditions. These six are quite broad classes of equity establishing processes. Each may be manifested in a wide variety of particular structural forms. Some of the structural manifestations of equity establishing processes have already been indicated, e.g., the use of third party mediation (the architect) in bureaucratically assisted markets, the multi-divisional or semiautonomous unit formal organizational structure as a manifestation of quasi-market governance processes, and second sourcing (in the semi-conductor industry) as a structural manifestation of market forms of governance. Each of the transaction mediating processes isolated in Table One has associated with it one or more structural forms. Moreover, particular

governance structures may be manifestations of more than a single governance process, e.g., multidivisional organizations may combine quasi-market inter-divisional competition with intra-divisional clan relations. The classification of particular transaction governance structures into the typology of processes listed in Table One should continue. Some particular structures that may function as governance processes could include overlapping directorates (as an intermediate form), mergers (as an internal form of governance), and joint ventures (as an intermediate form), just to name a few. It may be the case that industries vary both in terms of which governance mechanisms come to dominate, as well as which specific structural forms these processes take.

The underlying principle which relates transaction types to governance processes has to do with the problem of creating a perception of equity. External modes rely upon normative acceptance and legitimation of a competitive process to yield explicit price information which is relied upon to provide an objective standard by which an equitable distribution can be achieved. Internal modes rely upon the normative legitimation of a hierarchy of authority to provide subjective assessments which will yield an equitable distribution. In addition to this device, both internal and external modes can rely to a greater or lesser extent upon the development of goal congruence which is often signalled through elaborate social processes, to provide for equitable adjustments in a relationship over the long-run. Table 2 presents the hypothetical matching of governance modes to transaction types which will yield efficient boundaries for any set of transactions.

Table 2*

Performance Accounting Ambiguity*

	High	Medium	Low
Low	No Transaction 1	Bureaucratically Assisted Market 6	Market 7
Medium	Bureaucracy 2	Clan Assisted Market 5	Market 8
High	Clan 3	Quasi-Market 4	Market 9

* Shaded = Internal Governance
Unshaded = External Governance

In Table 2, we discriminate three states of performance accounting ambiguity and of goal congruence, although each may be thought of as being continuous rather than discrete. The shaded areas represent internal modes of governance; the unshaded areas represent external modes of governance.

Implicit in the asymmetry of Table Two is a hierarchy in the three transaction characteristics isolated - performance accounting ambiguity, goal congruence, and frequency - as they are related to efficient governance mechanisms. The initial consideration is performance accounting ambiguity, whether it is a result of investment specificity, uniqueness, complexity, uncertainty, or other transaction characteristics. The degree of performance accounting ambiguity in an exchange determines whether internal or external governance processes will be efficient. Only when goal congruence is high can a moderately ambiguous exchange be efficiently mediated by internal mechanisms,

e.g., the quasi-market form indicated in cell four. The degree of goal congruence, on the other hand, is an important determinant of the specific internal or external governance processes that will be efficient, e.g., clans, bureaucracies, quasi-markets, and intermediate forms.[23]

The three external modes of governance are the market, the clan assisted market, and the bureaucratically assisted market. The simple market form is indicated when performance accounting ambiguity of each unit is low, regardless of the state of goal congruence. Thus cells 7, 8, and 9 indicate a market form of governance. In this case, the boundary is drawn as tightly as possible: each unit is separated from each other unit by a boundary, so that all transactions between units are market mediated. As performance accounting ambiguity increases, the capacity of markets to govern equitably is strained, and intermediate forms are indicated. If goal congruence between units is low or medium, then it will be efficient to rely mainly on that performance information that is present and to erect only partially assisted governance mechanism. To attempt a replacement of external with internal mechanisms under this condition is possible but will be very inefficient, because the relatively low levels of goals congruence indicated in cells 5 and 6 imply difficulty in maintaining the normative agreement necessary to sustain a legitimate hierarchy. Of course, it is possible that, in a dynamic conception of this model, we can contemplate the future development of higher goal congruence as a

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[23] A symmetric hypothesis, where performance accounting ambiguity and goal congruence are given equal weights, could also be developed. Using a symetric hypothesis, the following table would be developed: cell one, clan assisted market; cell two, clan assisted bureaucracy; cell three, clan; cell four, clan assisted bureaucracy; cell five, bureaucracy; cell six, bureaucratically assisted market; cell seven, market; cell eight, bureaucratically assisted market; and cell nine, clan assisted market. Both the symetric and asymetric hypotheses are, of course, subject to empirical verification.

consequence of internal organization, but for the moment the simpler static model suggests a different strategy. If goal congruence is low and performance accounting ambiguity moderate, then the bureaucratically assisted market (cell 6) is indicated. The parties, while unwilling to subject themselves completely to a single hierarchy, are willing to subject their agreements to a combination of market contracting and of subjective judgement by a third party with whom each shares medium or high goal congruence, since the third party shares at least some incentives in common with each of them. If, on the other hand, the parties to the transaction share a moderate level of goal congruence then a clan assisted market form (cell 5) will out perform the bureaucratically assisted market. In this case, the clan assisted market form permits a flexibility in dealings which is not feasible under the bureaucratically assisted case and, as demonstrated in the example of the F-16 aircraft, permits the parties to engage in transactions which lie in a higher range of the performance accounting ambiguity column. In these two assisted market cases, the boundary is still fundamentally drawn tightly around each unit, but these boundaries are partially obscured. To a limited extent, each unit has surrendered some of its full autonomy to a more collective governance mechanism.

If performance accounting ambiguity is high, then all market forms of governance will fail (cells 1, 2, 3). However, there is the one remaining case of medium performance ambiguity combined with high goal congruence in which internal rather than external organization is indicated. If performance accounting ambiguity is medium, but goal congruence among the parties is high, then they can profitably draw a single hierarchical boundary which includes both (or all if more than two) of them. In this case, the high goal congruence among the parties permits a major application of subjective performance assessment, but the internal form will be a quasi-market or profit center,

which makes maximum use of the performance information available to assess separately each unit within the hierarchy (cell 4). In this case, it may be said that the boundary is fundamentally drawn around all units to form a single hierarchy, but separate internal boundaries are recognized, and separate units are both permitted and encouraged to take action in a relatively autonomous fashion, subject to the quasi-market mechanism.

If performance accounting ambiguity is high and if boundaries were drawn around each unit, the resulting market mechanism would require so many audits, contracting costs, and costs of litigation that extreme inefficiency of governance would ensue. In this case, the efficient mode is one which requires each unit to surrender its autonomy to a single hierarchy which is capable of forming subtle and complex assessments of the performance of interdependent and novel units. If, under this condition, goal congruence is high (cell 3), then the clan form obtains. The acceptance of common goals lessens the need for contractual specification and protection, and the perception of equity will be achieved over the long-run. In this case, boundaries between units are most completely dissolved. Instead of separate units within a single boundary, a more adequate conception is of undifferentiated elements which together comprise a single unit, although it may be one which executes a variety of differentiated tasks.

When performance accounting ambiguity is high but goal congruence medium, then long-run equity adjustments cannot be taken for granted and external auditing or monitoring of performance is necessary to the perception of equity. In this case, the bureaucratic form (cell 2) provides an explicit mechanism for the creation of subjective performance assessments. This bureaucratic mechanism succeeds only if all parties are subject to a single hierarchy and fall within a single common boundary. Again, a dynamic formulation of

the model might suggest that, over time, certain bureaucratic forms may lead to a development of high goal congruence so that the governance mechanism would be transformed from bureaucratic to clan.[24] On the other hand, changes in technology might yield new separabilities, thus decreasing the performance accounting ambiguity associated with some parts of the bureaucracy and suggesting that they be separated more completely and treated as internal quasi-markets. In an extreme circumstance, it is possible that an ambiguous new activity might become so routine and standard over time that it could more efficiently be excluded entirely from the boundary and dealt with purely through a market or assisted market relation. This is what happens when a corporation divests itself of a division from which it continues to buy some product or service after the divesture. Although the transaction between division and company is not disrupted, the boundary has been redefined, presumably in a manner which yields greater efficiency in the governance of that transaction.

The final cell is anomalous. If performance accounting ambiguity is high and goal congruence is low, then the potential traders have no basis on which to rely for an equitable distribution of rewards. In this case, no governance mechanism can efficienctly mediate transactions. The case of the semiconductor firm and the computer manufacturer is illustrative. Such a situation may be transformed either by decreasing the performance accounting ambiguity (for example, by introducing a competitive market through a device such as "second sourcing") so that some form of external market governance can occur, or else by increasing goal congruence between the parties through the acquisition of

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[24] This dynamic model also implies a third intermediate governance mechanism, a clan assisted bureaucracy, to enable transactions to move from bureaucratic to clan mechanisms of governance. The clan assisted bureaucracy also emerges in the symmetric hypothesis. See note 21, supra.

one unit by a process of socialization, developing a minimally necessary level of goal congruence . If neither of these strategies can be employed, the governance mechanisms employed will be inefficient and unstable. An example of such a transaction is the relationship between some Federal regulatory agencies (e.g., EPA, OSHA) and some firms. Under ongoing conditions of complexity and uncertainty, together with low levels at perceived and signalled goal congruence, such transactions cannot in general be governed efficiently.

Uses of the Framework

The framework is intended for use as a stimulus to empirical research. If the dimensions characterizing transactions and governance modes can be operationalized, then the relationships set out in Table 2 can be regarded as testable hypotheses. The general form of the hypotheses is that relationships which conform to those in Table 2 will be more efficient than those which do not. It will often not be possible to estimate the precise efficiency costs associated with adopting inappropriate governance mechansims for any particular transaction.[25] Such measurements would have to be based on a detailed assessment of the relative costs and rewards accepted by parties to an exchange. However, under conditions of high performance accounting ambiguity, it is just these costs and rewards that are assumed to be beyond precise characterization. Instead of such calculations of the "transaction costs"

[25] This stands in marked contrast to work by some economists (e.g., Baligh and Richartz, 1967) who incorporate, by assumption, precise costs of information exchange and other transaction characteristics into calculations estimating optimal mediating structures in different types of exchanges. Such costs could never actually be measured precisely for they would always tend to minimize the importance of performance accounting ambiguity in their development.

associated with each exchange studied, a more macro analytic characterization of efficiency will often have to be employed. Cross industry and cross national comparisons will be particularly important in capturing these efficiency differences.

The framework should be helpful in making limited comparisons between two or three alternative governance modes. For instance, it will be helpful in determining whether a shift in technology will bring about a change from pure market to assisted-market relationships in one particular industry. It will shed light on the question whether the industry as a whole will be more efficient with internal or external governance of a specific transaction that is common to most firms in the industry. It will be helpful to a specific firm in comparing the efficiency of making its own parts versus buying them in external markets.

At present, the framework does not provide a general solution to the problem of organization. It cannot be used to determine the optimal organization of all transactions, internal and external, in an industry. To do so would require a theory of technology which specifies the dimensions along which technology can vary and which yields a finite set of technical possibilities which can then be compared with respect to their transaction characteristics and matched to governance modes. Until such a theory appears, this framework can be used only to compare one or two alternative sets of possible transactions or to evaluate the efficiency of various alternative governance modes for one set of transactions.

Conclusions

The approach presented here is similar in spirit to the analysis presented by Lawrence and Lorsch (1967), but it departs sharply from the more current "resource dependence" and other power-based approaches. Rather than

attempting to sharply define organizational versus environmental boundaries and objectives, then to describe the social mechanisms used to influence co-opt, or fend off the environment, we suggest a view that concentrates on the efficiency of exchange systems. What is of interest here is the pattern of transactions that obtains among a set of units, the social mechanisms which govern those transactions, and the conditions under which each form of governance will be most efficient. The image here is not of an organization that seeks to protect itself through power from an uncertain and threatening world, but rather of an economic and social system that permits exchange and that can be maintained only at some cost. Ultimately, power and efficiency approaches may be compatible in the sense that power will accrue in a hierarchy to those units which must have discretion for efficiency to be maximized. However, it is efficiency rather than power which is determinative of the organizational form.

The approach suggested here has clear normative implications. Arguments of this form will help to realize the potential contribution of organization theory to the related study of strategy, of antitrust, and of industrial organization in microeconomics. That organization theory has much to contribute to those fields seems clear. To date, few of those potential contributions have been realized. If organization theorists can more effectively place their analytical frameworks into an efficiency framework, then commerce with these allied fields will be greatly enhanced.

REFERENCES

Aldrich, H., Organizations and Environments, Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Baligh, H. and Richartz, L., Vertical Market Structures, Boston: Allyn and Bacon, 1967.

Barney, Jay B. and Ulrich, Dave, "Models in Organization Theory: Resource Dependence, Efficiency, and Ecology," Unpublished, Graduate School of Management, UCLA, 1981.

Barnard, Chester I., The Functions of the Executive, Cambridge, Mass: Harvard University Press, 1938.

Ben, Porath, 1978

Evan, William M., "The Organization-Set," in James D. Thompson (ed.), Approaches to Organizational Design, Pittsburgh: University of Pittsburgh Press, 1966.

Galbraith, Jay, Designing Complex Organizations, Reading, Mass: Addison-Wesley, Organizational Development Series, 1973.

Hall, Richard H., Organizations: Sturcture and Process, Englewood Cliffs, N.J., Prentice-Hall, 1972.

Hannan, M. T. and Freeman, J.H., "The Population Ecology of Organizations," American Journal of Sociology, 82, 1977, 929-964.

Lawrence, Paul R. and Jay W. Lorsch, Organization and Environment: Managing Differentiation and Integration, Boston: Harvard University, Graduate School of Business Administration, 1967.

Mayo, Elton, The Social Problems of an Industrial Civilization. Boston, Mass: Division of Research, Graduate School of Business Administration, Harvard University, 1945.

Ouchi, William G., "A Conceptual Framework for the Design of Organizational Control Mechanisms," Management Science, August 1979.

_____, "Markets, Bureaucracies, and Clans," Administrative Science Quarterly, March, 1980.

Pfeffer, J. and Salancik, G., The External Control of Organizations, New York: Harper and Rowe, 1978.

Selznick, Philip, TVA and the Grass Roots, Berkeley and Los Angeles: University of California Press, 1949.

Simon, Herbert A., "On the Concept of Organizational Goal," Administrative Science Quarterly, Vol. 9, No. 1, June 1964: 1-22.

Simon, Herbert A., Administrative Behavior, Third Edition, New York: The Free Press, 1976.

Weick, Karl E., The Social Psychology of Organizing. Reading, Mass: Addison-Wesley, 1969.

Williamson, Oliver E., Markets and Hierarchies: Analysis and Antitrust Implications. New York: Free Press, 1975.

_____, "Transaction-Cost Economics: The Governance of Contractual Relations," The Journal of Law and Economics. XXII, October, 1979: 233-261.

Winter, Sidney, "Economic 'Natural Selection' and the Theory of the Firm," Yale Economic Essays, 4, 1964, 225-272.