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CONTRACTOR MOTIVATION
THEORY AND APPLICATIONS

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FOR THE COMMANDANT:

1 Incl
as

Paul F. Arvis
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Director, US Army
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CONTRACTOR MOTIVATION
THEORY AND APPLICATIONS

Mar 11

by

Robert F. Williams

Daniel M. Carr

The pronouns "he," "his," and "him," when used in this publication represent both the masculine and feminine genders unless otherwise specifically stated.

Information and data contained in this document are based on input available at time of preparation. Because the results may be subject to change, this document should not be construed to represent the official position of the US Army Materiel Development and Readiness Command (DARCOM).

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EXECUTIVE SUMMARY

A. BACKGROUND. Contractor motivation is extremely important to the Department of Defense (DOD) because its contracts are critical, there is no alternative to produce in-house, and it is extremely difficult to switch to an alternative source. In spite of this importance, there is little guidance on contractor motivation in DOD acquisition policy and procedure, except for coverage on profit and incentive-fee contracts. There is a need to examine the broader issues of motivation and see if improvements can be made.

B. STUDY OBJECTIVES.

1. Find relative importance of contractor motivation.
2. Model the contractor motivation process.
3. Identify practices to improve contractor performance.
4. Identify constraints on effective practices.

C. STUDY APPROACH. The research team read appropriate literature on individual and organizational motivation and all DOD doctrine relevant to the subject. Then interviews were held with Government and industry personnel and contract files were examined. Modeling was done on the motivation process and hypotheses were made. Finally, questionnaires based on all this input were sent to Government and industry, and inferences about contractor motivation were made from the total findings assembled.

D. SUMMARY AND CONCLUSIONS. Contractor motivation is complex and is a function of many contract and noncontract factors beyond profit. The Government should consider motivation as well as capability potential in preaward planning. Government contracting personnel should consider both Government and industry objectives and environments in selecting incentives for a given contract. The contractor motivation process can be modeled in terms of its leading characteristics for use by the Government in contract planning. Unfortunately, contracting personnel do not currently have the resources and flexibility to fully motivate contractors along the lines suggested in the study.

E. ACTIONS RECOMMENDED FOR CONSIDERATION.

1. The development of acquisition policy which calls for:
 - a. Preaward planning of motivation as well as capability potential.

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- b. Incentive strategies as part of acquisition strategies.
 - c. More flexibility in the use of incentives (based on this report).
 - d. Guidance for disincentive behavior to avoid.
2. The development of an improved Government-contractor relationship program based on findings of report.
3. The promotion of:
- a. Development of instruction on Government-industry relations.
 - b. "One face to industry" concept.
 - c. Use of expanded list of incentives.
 - d. More research on high payoff incentives.
 - e. A reevaluation of the emphasis on money obligation rather than contractor motivation.

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CHAPTER I

INTRODUCTION

A. BACKGROUND.

It is established policy that the Department of Defense (DOD) must acquire almost all of its goods and services from the private sector. Once a contract is awarded to a firm for goods or services, DOD often has difficulty in getting what was contracted for because of the inability of the contractor to perform. During the progress of a contract, a firm can have difficulty meeting the specifications, delivering on time, or keeping costs within limits. This poor contractor performance has a greater impact on DOD than it would on the typical private enterprise organization because of the critical mission and associated critical deadlines of DOD. DOD, in most cases, does not have the option or the ability to produce the goods or services in-house and the nature of the Government acquisition process and the often limited number of sources makes timely acquisition of the goods and services from another source difficult or impossible. It is clear contractual nonperformance on DOD contracts is a critical area and requires more emphasis than it has received in the past.

On a typical contract, there are many potential explanations for these difficulties in performance. First, in spite of a firm's insistence and the Government's inability to prove otherwise, a firm simply may not have the technical ability to produce the required materiel. Similarly, the firm may not have the management ability; for example, the firm may not plan well enough to get subcontractors

established or get critical materiel delivered. A last ability a firm must have in order to perform is financial; a firm must be able to pay for people and materiel it will use. Beyond the firm's abilities, Government involvement can threaten or stop contract performance. DOD can, for example, specify work beyond the state of the art (e.g., impossible to make) or simply "interfere" with progress by continuous changes and dialog. Of course, factors beyond both the firm and DOD's control, such as acts of God and strikes, will impede contract work.

In many cases the examples above reflect situations which are not correctable by the contractor; i.e., he cannot perform. But what about those situations where the contractor will not perform or will not act to correct deficiencies in the technical, management, or financial areas? In these cases, the problem is one of contractor motivation. DOD buys relatively complex items, in relatively small lot sizes, with stringent quality requirements. These factors make performance under DOD contracts more difficult than performance of non-Government work. This difficulty in performance, the critical nature of DOD requirements, and the limited sources of supply for required items necessitate contracting with firms which are highly motivated to perform. How DOD and, particularly, how the U.S. Army Materiel Development and Readiness Command (DARCOM), presently motivate their contractors and how they might better motivate them in the future is the primary concern of this study.

Historically, DOD has primarily used the profit motive to motivate the thousands of firms it has under contract. In the fixed-price environment, profit-based motivation can be effective; however, it can also lead to contractor cost-cutting which, if excessive, may impact

performance. In the cost-reimbursement environment, the contractor is paid his incurred cost and, while technical performance may be achieved because it is rewarded with money incentives, cost and other nonincentivized areas of performance may not be successful. Exhortation, "jawboning," appeals to patriotism and the like have only infrequently turned around a poor performer. Termination for default is always available in the case of nonperforming firms; however, because of limited sources of supply and delays in reprourement, this option is used only as a last resort, and historically only for small firms.¹

There are a number of other motivational strategies which have not been fully investigated. Studies have shown firms have a number of objectives other than short-term profit; they differ in their priority of objectives; and their priority changes.² In fact, the Logistics Management Institute³ has pointed out a contractor rarely maximizes profit on one contract but pursues other objectives.

It is recognized US firms are a varied lot with a wide range of individual characteristics. This study will not attempt to aggregate these characteristics in order to generalize on the nature of industry, although the experience of a number of firms will be summarized to infer relative effectiveness of practices and general performance. This study indeed speculates that firms differ in the way they react to various

¹D. D. Knittle and D. M. Carr, "Detection and Avoidance of Contractor Default," Army Procurement Research Office, Ft. Lee, VA, 1980, p. 83.

²W. J. Bilkey, "Empirical Evidence Regarding Business Goals," in J. L. Cochrane and M. Zilney (Eds) Multiple Criteria Decision Making, University of South Carolina Press, Columbia, SC, pp. 613-634, 1973.

³"An Examination of the Foundations of Incentive Contracting," Logistics Management Institute Task 66-7, Washington, DC, 1968.

incentives, monetary and nonmonetary, and that the Government should attempt to vary its incentives to optimize the performance of its individual contractors.

B. OBJECTIVES OF THE STUDY.

The first objective of the study was to identify poor contractor performance and gauge the magnitude of motivational difficulties. The second objective was to identify motivational factors of contractor performance and develop a model of contractor motivation. The model was to show all the Government and contractor variables in the process and their relationships. The ultimate study objectives were to use the model to identify: (1) motivational practices which would potentially improve individual contractor performance; (2) statutory, regulatory, policy, and organizational constraints on the use of these practices; and (3) recommendations on the proper use of these practices and the handling of the various constraints.

C. SCOPE.

This study primarily deals with the larger contractors involved in complex contracts, normally cost-reimbursement and often sole source, with emphasis on research and development (R&D). The study does not directly address the motivations and incentivization of small business due to the nature of the data base used in the study. The authors do feel, however, the principles identified in this study can be applied to improving the performance of small business firms.

D. DEFINITIONS.

Some terms are worthy of special mention and definition because of their extensive use in the report.

1. Objective--A desired end, implicit or explicit, which is the manifestation of an actual or a perceived need.

2. Motivation--The propensity of an organization to be induced to act to satisfy its needs.

3. Motivator or Motive--An objective likely to bring on motivation.

4. Incentive--An action taken by the Government to bring about a desired contractor behavior i.e., toward a Government objective.

5. Disincentive--An action which brings about undesirable contractor behavior, i.e., away from a Government objective.

6. Poor Performance--Performance by the contractor which does not satisfy the procurement objectives.

7. External Environment--Those market, technological, economic, scientific, political, and other such factors which are relevant to an organization's (Government or contractor) success but beyond the organization's control.

8. Internal Environment--Those organizational factors which dictate how individuals will react to the external environment. Typically, these are the organization structure, policy and procedure, and makeup and expectations of individuals.

E. APPROACH TO THE STUDY.

The research team initiated the study by reviewing individual and organizational motivation literature in order to establish the first hypotheses for testing. These hypotheses were then refined by interviews with Government and industry personnel. Specifically, the questioning centered on problems with contract performance, possible incentives toward desirable contractor performance, and constraints on motivation

techniques use. The Army Research Institute for Behavioral and Social Sciences (ARI) was then consulted for further refinement of the hypotheses and suggestions toward testing the hypotheses.

The first draft of the model was accomplished around this time. It was, in effect, a grouping of the various hypotheses and served as the basic test bed.

In addition to the interviews and the literature, questionnaires were a primary source of data. The questionnaires were, of course, drawn from the hypotheses. Since the main concern of the study was DARCOM procurement, DARCOM procurement personnel were the population of interest for the Government questionnaires. Ten questionnaires were sent to key persons in the procurement directorates of the 11 materiel readiness and development commands and DARCOM Headquarters. The key persons were to distribute the questionnaires to personnel at varying management levels and to return them completed to the researchers. Anonymity to the researchers was thereby retained. The National Security Industrial Association (NSIA), an association of leading defense contractors, volunteered to distribute the industrial questionnaires to its 280 members. Although the sample was somewhat biased toward large industry and R&D work, the research team felt this bias was more than offset by the value of the input from this prestigious assembled group. Ultimately, all the data were assembled to see if the hypotheses were supported and what inferences were to be drawn.

The analysis was done in this fashion. The rankings on the various elements of the model (e.g., incentives) were made for each sample (i.e., Government and industry). The relative perceived priorities of Government

objectives, the relative effectiveness of Government incentives and so on were ranked by both Government and industry. Rankings were then made for the various groupings in each sample (e.g., by type organization or size of organization). Other analyses such as the correlation between contractor objectives and effective incentives were made. Judgments were made on the relative strength and weaknesses of the element responses (e.g., award fee vis-a-vis incentive fee) for the two samples, on significant differences in responses between the two samples (t-tests and ANOVA tests) and within the various groupings. Findings from the literature, interviews and open-ended portions of the questionnaire were introduced for the model elements. Based on a synthesis of all the findings, inferences toward the hypotheses were made.

One weakness which should be admitted is that in grouping the many responses together for scoring, some considerations were not given the attention deserved. For example, the effects of life cycle and time in general were, for the sake of economy, not built into the incentive or objective response lists. It is believed some of these effects were recovered in the sample categories (e.g., R&D vs. production).

Following the data analysis phase, the report was prepared. The first chapter is intended to introduce the study rationale and design to the reader. The second chapter will develop the framework for analyzing contractor motivation. Chapter III will use the framework to analyze the data and make findings. The last chapter will report the conclusions of the study and make recommendations toward contractor motivation in DARCOM.

CHAPTER II

MODELING THE CONTRACTOR MOTIVATION PROCESS

A. CHAPTER COVERAGE.

This section of the report describes the development of a model of the contractor motivation process. Modeling the process is difficult due to the numerous people involved and the large numbers of complex issues involved in the relationship between Government and its suppliers. The study does not develop a completely new model, but builds on the work of others on similar and analogous processes. That is, alternative views to best capture the reality of the process are examined. Then, based on these alternative views, a model of the contractor motivation process is developed and explained for use in the report.

B. ALTERNATIVE CONTRACTOR MOTIVATION MODELS.

One view of the Government-contractor relationship is best described in terms of game theory. This view describes the relationship as consisting of interdependent but arms-length adversaries involved in a game of high uncertainty, where what one loses the other gains (i.e., a zero sum game). One adversary, say the Government, knows what alternative strategies it has, what alternatives the contractor has, and what the outcomes are for the execution of the various strategies. For a simple example, if the Government uses the "strategy" of incentivizing delivery on a contract, it will have a different payoff depending on what "strategy" the contractor chooses to make (e.g., emphasizing delivery or cost or performance). If this were the true contractual relationship, the Government would not motivate the contractor as much

as it would develop decision rules for choosing the best strategy(ies) to maximize payoff. This representation of reality is at the same time, however, both too simplistic and too complex. It is too simplistic in it is relatively static and leaves out factors of communication and interaction. It is too complex because of the imponderable calculation of the projected payoffs.

Another way the relationship can be viewed is as one of stimulus (Government)-response (industry). Here the acknowledgment would be made that the underlying conditions and processes could not practically be known and that the Government is the active motivator and the firm, a passive responder. The analysis of performance in this relationship can be done in terms of reward and penalty. The Government spells out the performance desired (stimulus). The firm performs (response). If the performance is as desired, the performance is rewarded (e.g., award fee, consideration for future work, etc.); that is, the behavior is reinforced. In cases of undesired performance, there is a penalty (e.g., liquidated damages, termination for default, poor rating for future work, etc.) or lack of reward, and hopefully future performance will be improved. This "black box" approach⁴ also has difficulty meeting tests of usefulness because of the many problems in generalizing cause and effect in the complex environment of Government contracts. This model is, however, a very common perception of the Government-contractor relationship.

⁴This is operant conditioning, as described by B. F. Skinner, in Beyond Freedom and Dignity, New York: Knopf, 1974.

There are many other ways to represent the contractual relationship. Common intuitive models involve satisfaction of needs, utility, or expectations toward certain incentives and need for equity with some reference group. None of these models fully satisfy all aspects of the phenomena observed in the preliminary research. Instead, this paper will use yet another "reality" in its work. The paper starts with the basic model of the contract itself and develops it into a relationship characterized by interdependent parties exchanging behaviors in a dynamic environment.

C. THE CONTRACTUAL RELATIONSHIP AS AN EXCHANGE MODEL.

One obvious basis for defining the relationship between the Government and the firm is the bilateral contract. The bilateral contract is a relationship based on promises which the law will enforce. Each party to the contract must furnish consideration. In the case of a Government contract, the Government's promise to pay is its consideration and the contractor's promise to deliver or perform is its consideration. The consideration furnished by one party to the contract is the satisfaction of the objectives of the other party. Figure 1 is a graphic illustration of this model.

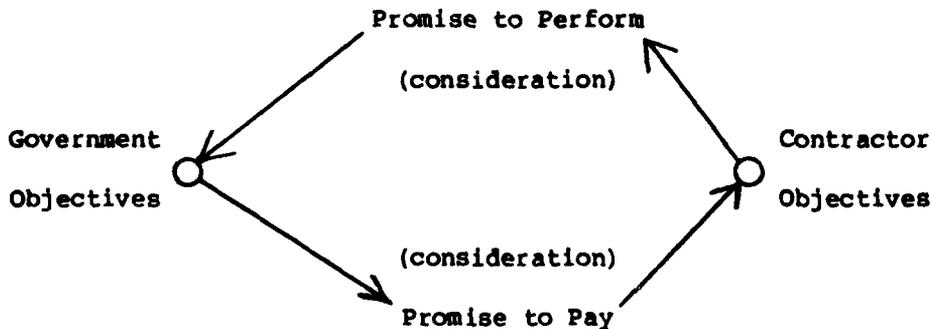


Figure 1. Basic contractual relationship.

Figure 1 is a model of the legal relationship between the parties and depicts a static exchange. It does not show the many types of exchanges over the life of the contract and the behavior each party will exhibit over the life of the contract to maximize benefits and reduce costs. Promises lead to performance and this model does not reflect the realities of performance. Figure 2 below introduces the concept of performance into the model.

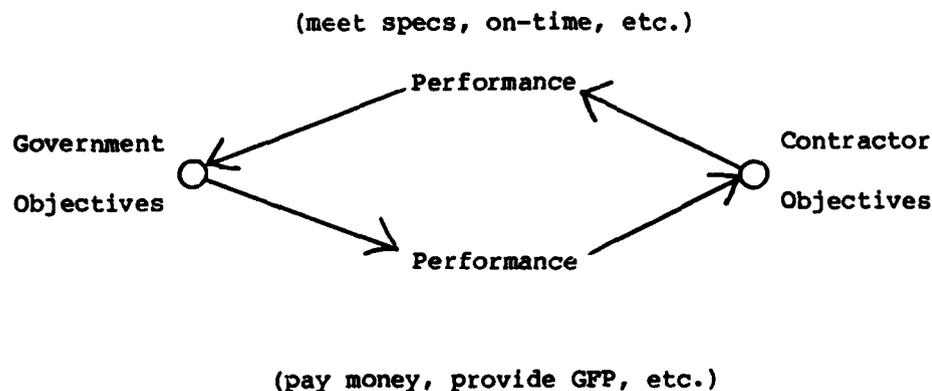


Figure 2. Contractual performance relationship.

Figure 2 shows an exchange of performance to satisfy one's objective, but it does not explain the mechanisms of the exchange. Why some behaviors rather than others? Exchange theory and interorganizational conflict theory⁵ suggests an exchange between organizations will have the following characteristics:

⁵Much of the following discussion is from T. O. Jacobs, Leadership and Exchange in Formal Organizations, HUMMRO, Alexandria, VA, 1970; L. W. Stern and Adel El-Ansary, Marketing Channels, Prentice-Hall, New York, 1977; and R. L. Warren, "The Concerting of Decisions as a Variable in Organizational Interaction," in Tuite et. al. (Eds), Interorganizational Decision Making, Aldine: Chicago, 1972, pp. 20-32.

1. Both parties will attempt to maximize their individual benefit-cost ratio. This is, of course, rational behavior and, unfortunately, not always in the best interest of the optimal accomplishment of the given Government contract. For example, the Government for some reason may need to incorporate a change and jeopardize the original contract objective; a contractor may choose to work on something more profitable with potential bad effects on the instant contract. Such behavior is completely rational organizational behavior.

2. Both parties will have expectations that benefits will be reciprocated and that the level of benefit received is worth the effort.

3. Parties have varying utility for different benefits.

4. Both will attempt to get power or "leverage" over the other by commanding uniquely desirable resources to insure maximization of that ratio. That is, the contractor will have power if: the Government must have the item; there is no effective alternative source; the Government cannot normally force the contractor to perform and the Government does not have a benefit uniquely desirable to the contractor. The Government will tend to have power when the converse of the above is true.

Each party generally has expectations the other will look after his own interests and should take the consequences if he does not. It must be stressed this behavior is not benign or malevolent, but is the rational response of an organization which does not have the time nor feel it appropriate to look after the interests of others.

5. Each party can also get power over the other in less direct ways. One gets expert power by being able to provide unique services in a professional manner. One party can receive identification power from the other by having the latter take pride in association with it.

6. If one party has power over the other, such power will remain stable only if it is beneficial for both to continue the relationship and gain the benefits. This stable relationship can continue only so long as the parties, particularly the less powerful party, has no better alternative. It is primarily the Government's responsibility to maintain a stable relationship, perhaps because it has a critical mission to accomplish and because it also has a responsibility to maintain the economy.

7. The relationship will work best with agreed upon and congruent objectives to allow each to contribute to the benefit of most utility to the other.

8. Each relationship will vary in intensity, i.e., number of interactions and amount of resources involved.

9. Each party will look to a reference party to ascertain whether or not his interests are being adequately served. For example, a firm might compare his benefit-cost ratio on his Government work to his commercial work, or he might compare his benefit-cost ratio to other firms similarly situated. The Government typically will compare what one firm does relative to the performance of others on similar work.

Recall also the contractual parties do not operate in a closed system and, therefore, cannot freely exchange behaviors which benefit their respective role in the relationship. Both Government and industry are also subject to internal and external environments which constrain behavior.

Figure 3 is an expansion of figure 2 with the above concepts incorporated.

The relationship depicts works in this way. Each party has its own prioritized objectives. The Government will primarily want to get an item which meets the specifications at a given price, and in a given time. It should be stressed these are contracting objectives rather than general Government objectives (e.g., serve needs of citizens). The firm will, for a given contract, typically have objectives to achieve a certain profit, attain certain skills, employ certain skills, and so on. Each will exhibit behaviors to accomplish its objectives, mindful of the other's. The Government will employ certain contract types, provisions, and extra contractual behavior. The firm will take efforts to produce the item in a certain way.

However, the objectives and behavior of both the contractor and the Government are influenced by both the internal environment and the external environment. The external environment consists of information about market, technological, economic, political, and scientific factors relevant to the organization's purpose of profitable operation.⁶ Government, for example, is different from industry in that it is more

⁶T. W. Lorsch, and J. J. Morse, Organizations and Their Members, Harper and Row, New York, 1974, p. 5.

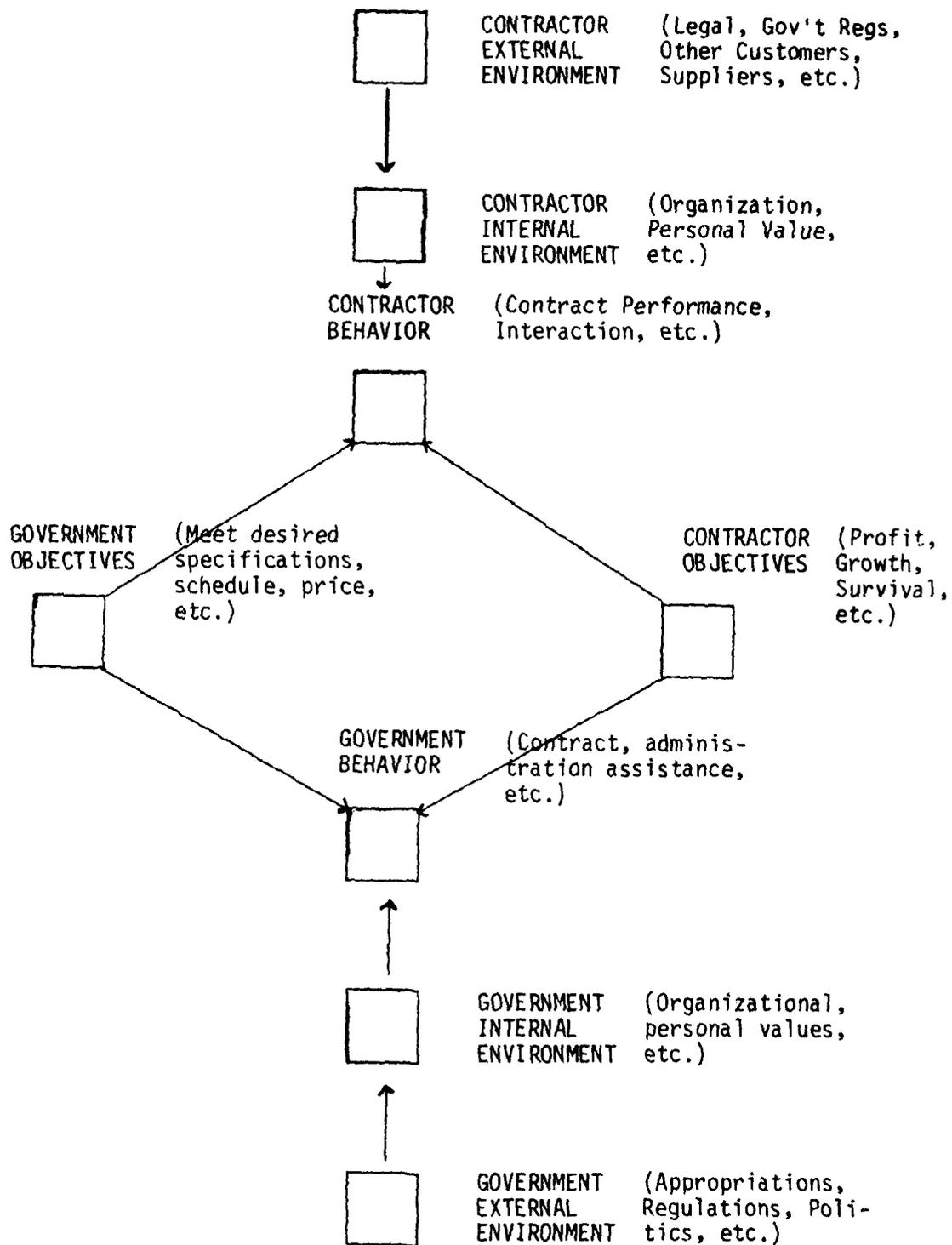


FIGURE 3. CONTRACTUAL EXCHANGE RELATIONSHIP

vulnerable to regulation and public expectations but less so to market exposure.⁷ The internal environment is defined by Lorsch and Morse as the set of signals available to organization members (e.g., dependence on customer satisfaction) about what is expected of them.⁸ The two organizations' internal environment include the organizational framework and practices, group interaction and the individuals. The viewpoint of managers is particularly important because they make critical decisions as to the disposition of a contract.

From the relationship in figure 3, a number of things can be seen (from the Government's standpoint). First, for a number of reasons (e.g., legal obligation) the contractor will tend to perform that behavior to accomplish the Government's objectives, but this tendency will be moderated by the contractor's dominant objective to maximize his benefit-cost ratio and by the contractor's environment. This suggests then the Government should know this ratio and this environment to the extent possible in order to properly bring about the right behavior. It is in the Government's best interest to give the contractor information about Government objectives and environmental constraints to allow the contractor to know how to maximize the Government benefits.

⁷H. G. Rainey, R. W. Backoff, and C. H. Levine, "Comparing Public and Private Organizations," Public Administration Review, March/April, 1976, pp. 233-244.

⁸Lorsch and Morse, Ibid, p. 13.

The Government behavior then, in general, should be that which makes it in the contractor's best interest to increase his efforts to accomplish the objectives of the contract. The Government manager should keep in mind the contractor will continually be trying to make the relationship optimally satisfy his objectives.

Congruent objectives which have both behaviors acting in concern give the best overall benefit and are in the long-run interests (i.e., beyond the immediate contract) of both parties, but achieving such congruence requires a great deal of enlightened negotiation. Squeezing the last dollar out of the contractor in negotiation to get a low price may maximize the short-term benefit-cost ratio, but it will definitely not help the contractor's ratio and it may jeopardize the performance of the contract because of the contractor's preoccupation with getting the dollar back rather than performing. By negotiation to a "fair deal," perhaps both parties will exhibit mutually beneficial behavior.

The second factor which might keep a contractor from performing to satisfy contractor objectives is his environment--internal and external. This environment may keep the contractor and the Government from performing the proper contractual behavior regardless of their intention. If a contractor has more profitable work in his plant, it would be irrational to work on a given contract unless coerced. If he experiences inflation on material, he cannot keep costs down. The Government, for example, cannot make informal reciprocal agreements which might quickly solve a problem because of legal constraints or may not give helpful information in order to avoid compromising other firms' decisions. The Government should attempt to understand the contractor's

environment and give the contractor an appreciation of his. It is these two phenomena--tendency to maximize own benefits and environmental constraints--which cause a so-called adversarial relationship. Unless each understands the nature of these phenomena, mutual or congruent objectives will be hard to achieve.

Further, this adversarial attitude is often reinforced and becomes a very powerful cause of negative behavior. This attitude is, in fact, in many ways close to the attitudes behind the gaming relationship described earlier ("what I win, you lose") in this situation. Each party will be glad to look at the objectives and the menu of potential behaviors of the other, but will be reluctant to reveal his own. The belief is that knowing an adversary's plans, one will not help him to realize them but to exploit them in pursuit of one's plans. Further, one party may believe his adversary's objectives are not in his best interest. In this adversarial environment (as perceived by either party), therefore, the objectives of the other party may not be known, but may have to be inferred. Then even at arm's length, one may try to accomplish (or conceivably exploit) the other's objectives so one can accomplish one's own.

One phenomenon of an adversarial relationship is conflict, a disagreement characterized by one or both parties' belief the other is thwarting accomplishment of his objectives. Conflicts may result in

claims, protests, terminations, or other negative resolution techniques or may be approached in a more positive manner with resolution strategies, such as bargaining or diplomacy.⁹

Another feature of the model is that the priority of the objectives or trade-offs each party will make on a given contract will influence the behaviors. The behaviors will have to satisfy multiple objectives in order of importance. It should not be assumed short-term profit is the firm's highest goal or meeting specifications is the highest Government goal on every contract. For example, if a Government agency wants a low-cost item and the firm wants to break into a new field, the proper behaviors can be exchanged. In its contract, the agency can offer technical assistance, test equipment, and relative latitude in design. In the contract, the contractor can give a "good deal" (because it is willing to subsidize a new venture). And, of course, appropriate behaviors (e.g., in technical assistance) continue until the contract is complete. In the contract, obviously low cost was more important to the Government than tight specifications (or implicitly meeting the delivery schedule). The contractor was willing to forego short-term profit maximization in order to foster company growth. This arrangement is for this contract only. In the next contract, both parties may have different objectives and the behaviors will change. One can imagine a completely different scenario if technical precision became paramount to the Government and high profit was the immediate goal of the firm. Further, the objectives of either party may change during the contract.

⁹L. W. Stern and A. I. El-Ansary, op. cit., pp. 292-309.

The model suggests it would be advantageous for the parties ceteris parabis to acknowledge any such change so behaviors can be changed to insure objective attainment.

The relationship is not seen to be active and passive. The firm motivates the Government as the Government motivates the firm. Government contracting veterans will describe behaviors of experienced firms to bring the Government around to a favored position; such as submission of proposals immediately prior to Government deadlines in order to gain a superior bargaining position.

The Government will have a tendency to lose power to the contractor and be less likely to accomplish its objectives if: (a) the Government must have the benefit provided (i.e., contractual objective achieved) by the contractor; (b) it cannot obtain it somewhere else; (c) it cannot force the contractor to provide the benefit; and (d) the Government cannot reciprocate equally (i.e., with a benefit of equal magnitude to the contractor). The Government must plan to avoid these conditions by planning an alternative (from b), having some strong incentive to bring on performance (from c), and on having something of value to the contractor. Of course, the Government can have power over the contractor if the four conditions are reversed; but, the establishment of such power has to be done with some restraints. A "power" relationship can be stable if both parties think their benefit-cost ratio is adequate and otherwise think the relationship is worthwhile. If such power is abused (i.e., if the objectives of one party are accomplished at the extreme disadvantage of the other), a relationship beyond the contract is in jeopardy.

Problems of conflicts (e.g., disputes) are suggested by the inevitable perception of the other party's thwarting one's objectives. Conflict-reducing strategies (e.g., appeal to Armed Services Board of Contract Appeals (ASBCA)) obviously must be employed to allow the relationship to continue. The more intensity in the relationship--the higher the stakes and the more exchanges--the likelier the conflict.

D. PARTIES IN THE CONTRACTUAL PERFORMANCE EXCHANGE.

The relationship in figure 3, in the interest of simplicity, does not describe some important considerations. Both the Government and the contractor are seen as monolithic entities when, in fact, both are made up of a number of people, each having different objectives and with the opportunity to exhibit a number of divergent behaviors. On the Government side, prominent parties on a given contract may include a project manager and his staff, contracting officer, administrative contracting officer, and small business office. Also on the Government side are other people who are part of the internal environment. The industrial side has a similar cast of players. Figure 4 is a graphic representation of the people involved in the process.

E. RESEARCHING THE CONTRACTUAL RELATIONSHIP.

The exchange model in figure 3 is the research focus of this report. The primary hypothesis is that the proper consideration of the elements of the model will result in better motivation of a contractor on a given contract. The model cannot at this time practicably be tested in toto. That is, an experiment to introduce a single incentive to a given contractor with known model elements and measure a certain contract behavior and replicate the conditions and results is probably not

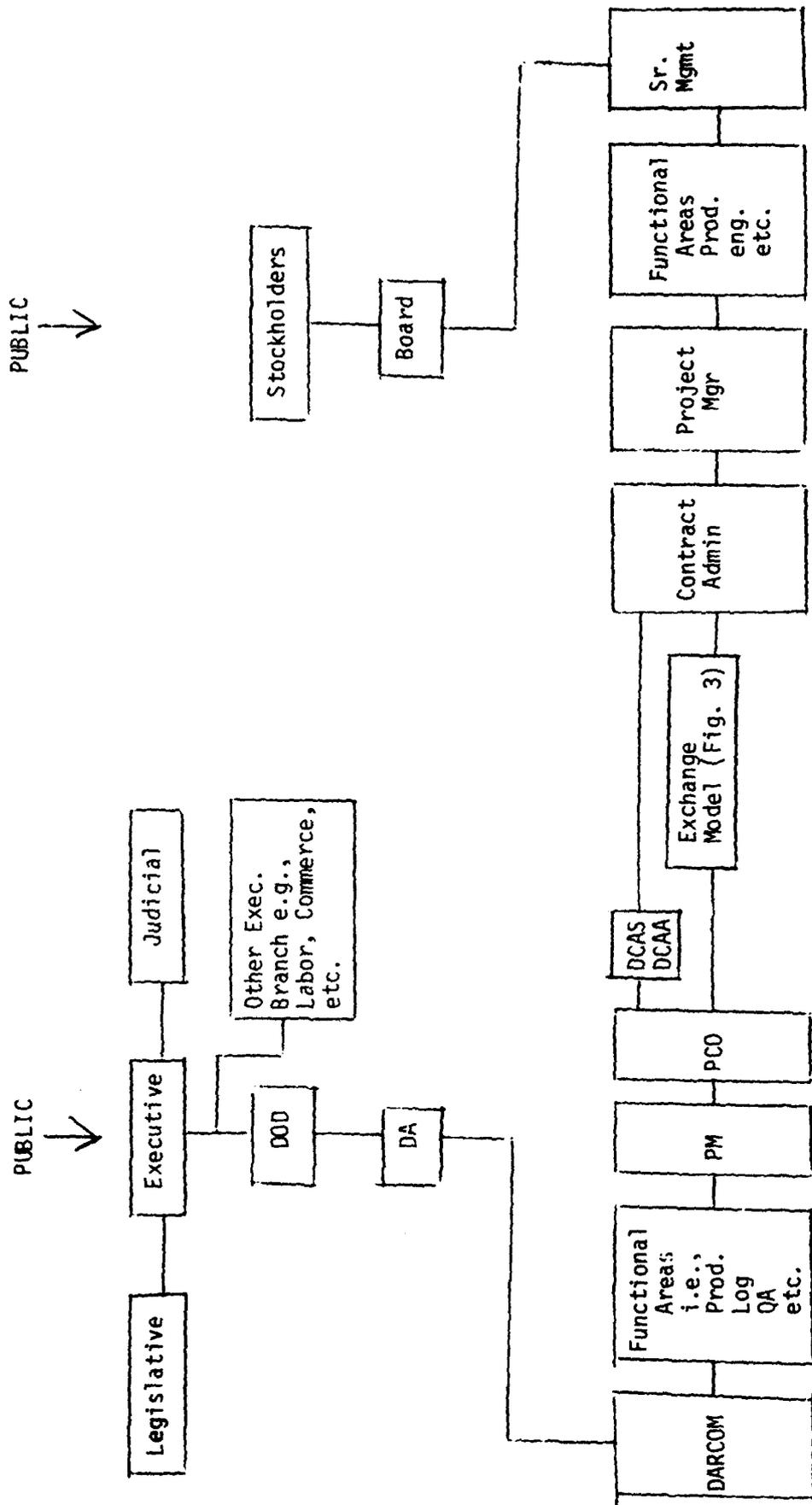


Figure 4. Parties in the Contractual Performance Exchange

feasible. However, it is possible techniques such as path analysis¹⁰ and system dynamics¹¹ could be employed to give some evidence toward total model validity.

In this study the attempt will be to relate levels of various combinations of these elements. For example, on a given contract, with given objectives, and Government constraints, what incentives should the Government use to motivate a contractor with given objectives and constraints? The study will provide the links between each element (e.g., Government objective-incentive, contractor objective-incentive, contractor behavior-contractor constraint), and an individual would have to assemble the combined effects (and assume the unexplained interactions are not large).

The study then will introduce the model and use it in a general sense, relating bundles of concepts. It will be up to subsequent research to fully validate the model and find explicit relationships between specific concepts and techniques. This study will, however, do a great deal of "spadework" for such follow-on work by addressing specific issues. The following chapter will incrementally examine the model, an element at a time, in terms of issues raised in the preliminary research.

¹⁰N. H. Nie, et. al., Statistical Package for the Social Sciences, McGraw-Hill, New York, 1975, pp. 387-397.

¹¹Jay Forrester, Industrial Dynamics, the M.I.T. Press: Cambridge, 1961.

CHAPTER III

CURRENT AND POTENTIAL USE OF CONTRACTOR MOTIVATION

A. CHAPTER COVERAGE.

This chapter will take the model developed and examine each element. An analysis of each of the elements will be made with the use of the accumulated data, most prominently the questionnaire data. In effect, implicit hypotheses about each element will be tested and appropriate judgments made.

B. DATA OVERVIEW.

The primary data sources in the study were the industrial and Government questionnaires (appendixes A and B). These questionnaires were designed around the general hypotheses developed in the preliminary research. The first part of each questionnaire was classificatory (e.g., job, type of firm). The second part dealt with perceptions about the tentative elements of the model (e.g., Government objectives, Government practices, etc.). Questions in this section were closed-end. For example:

"Rate the relative effectiveness in your firm.

Award fees

very strong (1)*: _____ : _____ : _____ : _____ : _____ : (7): very weak"

*Numbers not on questionnaire.

The last part of the questionnaires was open-ended, asking for responses about motivation not specifically contemplated in the questionnaire.

As mentioned earlier, the Government questionnaire was mailed to a structured sample of DARCOM procurement personnel. Of 120 questionnaires sent and received, 113 (94 percent) were returned and used in the

analysis. This usually high return was due to the use of key persons assisting in distributing and returning the questionnaires in each command. Table 1 summarizes the breakout of the sample. The tables of the report (except table Σ) are found in appendix C.

The industrial questionnaire was sent to the members of the National Security Industrial Association (NSIA). Of 278 questionnaires sent and received, 76 (27 percent) were returned. This return is considered good for the nature of the questionnaire and sample. Table 2 summarizes the breakout of this sample.

The questionnaire data and findings will be augmented by data and findings from the literature and interviews performed during the study. The most valuable secondary source is the 1971 Hunt study, "Extra Contractual Influences in Government Contracting,"¹² which covered many of the same topics.

C. ANALYSIS AND FINDINGS.

1. General.

Figure 3 is the basis for structuring the analysis. The elements will be treated in the following order: Government contracting objectives, Government behaviors (i.e., practices), Government environmental factors, contractor objectives, contractor behaviors (i.e., performance), and contractor environmental factors.

2. General Government Contracting Objectives.

It is certain that the Government wants to accomplish all of its objectives. The legal viewpoint is that we can accept nothing less

¹²R. G. Hunt, "Extra Contractual Influences in Government Contracting," State University of New York at Buffalo, 1971.

from the contractor than what the contract calls for: the right item at the right price. Yet as pointed out earlier, being legally correct may not be effective when we do not have a better alternative. When the Government needs the item and decides for whatever reason to stay with a troubled contractor, the Government should make clear, at least to itself, how it will "trade-off" in the progress of the contract. On a given contract, a Government agency may need an item quickly and may be willing to sacrifice price or waive some specification; it may be short of money and will trade off to keep costs down; it may need high performance and will spend the money and take the time to get it; and it may have a dominant nonperformance objective to bring in a new vendor or help a disadvantaged firm. It should be noted, from a legal point of view, the Government must obtain consideration for any of these trade-offs. However, in many cases, this consideration is nominal.

This acknowledgment of multiple objectives shows also motivation is not a single dimension issue. A contractor may be motivated to meet the specifications, for example, and not meet other objectives. The Government should strive to motivate the firm to accomplish what is wanted.

No comprehensive literature was found on the subject of Government objectives. This study is, as far as can be ascertained, the first that explicitly deals with it.

The questionnaire asked both Government and industry what they felt the relative importance the Government had for its contractual objectives. Table 3 summarizes the results.

Both Government and industry feel strongly that meeting the specifications is the most important Government objective. The Government feels meeting the delivery schedule is second most important and keeping the price at the agreed upon level is the least important objective (of the three). Industry feels price is second in importance and delivery is third, although the difference is slight. The main point of difference between the Government and industry is the perceived importance of price; industry feels the Government has far more utility for keeping price down than the Government feels it does.

Table 4 summarizes the different Government groups' response on Government objectives. Readiness personnel and those having production contracts feel price, delivery, and specifications are more important than do R&D personnel. Personnel dealing with small firms perceive more emphasis on meeting schedule. The higher the degree of price competition, the more emphasis is put on meeting specifications, price, and schedule objectives, with the strongest difference felt on keeping price. Apparently price competition brings on intensity in meeting all objectives; of course, these data could be tracking the R&D/readiness findings; that is, R&D has less price competition and readiness has more price competition, and the two parameters probably do correlate. On the other hand, there were no significant differences found in personnel dealing in differing levels of technical competition.

The feelings of the individual industrial groups as seen in table 5 are surprisingly uniform. There was a weak statistical indication larger divisions had a higher perceived importance of price to the Government. There was a somewhat stronger indication firms with less

public ownership perceived a stronger importance for meeting the delivery schedule. The only findings considered of any real significance, however, was as a firm's involvement in price competition increased, its perception of importance of price increased. Again, technical competition showed no differences.

The questionnaire results do indicate the Government does have definite priorities for its objectives. Both Government and industry feel the specifications are most important to the Government; that is, generally all other objectives will be traded off to achieve them. The Government strongly indicates its second preference is delivery. A significant difference here is industry's perception the Government has a higher utility for keeping price down than the Government indicates. This could indicate the Government, while emphasizing technical performance, is still chiding industry to keep price down without as much conviction as industry believes. The lower regard by Government R&D contracting personnel for all formal contract objectives seems to indicate their higher utility for creativity and innovation in design. This is consistent with Hunt's finding that R&D personnel have a relatively low regard for the contract.¹³ Consequently, what is a failed contract to a non-R&D observer (e.g., large cost overrun) may be a qualified success to R&D personnel (e.g., ultimate breakthrough is achieved). The low intensity for formal contract objectives by Government offices with less price competition could be tracking the R&D phenomenon.

¹³Hunt, op. cit., pp. 232-238.

but could also be verifying the suspicions of many high-level policy-makers the Government has little power here. It is also significant industry's perceptions about Government objectives are almost perfectly uniform throughout. Apparently, the Government is giving a consistent signal on what it wants.

3. Government Incentives and Disincentives.

If an incentive is any practice which will improve a contractor's motivation to perform, then indeed the list of these practices is a long one. In the design of this questionnaire, the most commonly raised practices from the preliminary research were chosen as response alternatives, although probably not all the salient responses possible. Given enough time, the researchers might have used an extensive factor analysis to infer the proper "true" set of responses; this is a possible follow-on research task. It should be noted from the list of 22 incentives the incentives can be broken into the groupings of contract type, contract provisions, and extra contractual practices.¹⁴ Also covered in this section are disincentives, practices which tend to diminish the contractor's motivation to perform. The open-ended responses in the last part of the questionnaire served to augment the responses given to the given list of alternatives.

Incentives is one area in which a lot of research has been accomplished. Prior to the discussion of the results of this study's research, a brief (and partial) summary of prior research is in order.

¹⁴R. F. Williams and W. V. Zabel, "Relating Contracting and Acquisition Planning", APRO 806, Army Procurement Research Office, Fort Lee, VA, 1979.

First, as mentioned at the onset of the study, nonprofit and extra contractual considerations can, contrary to past belief, dominate the concerns of a contractor. As an incentive, short-term profit is definitely important, but only one of a number of things of interest.¹⁵ Moreover, the contract is not the only factor in influencing contractor behavior. Incentivizing industry is a complex matter, and each contract presents a new situation. Some have suggested that actually motivation transcends one contract and should be viewed as a long-term phenomenon.¹⁶

Profit incidentally is not always perceived as profit on sales. Firms can also see profit as return on investment or return on total capital.¹⁷ The perception of the firm at hand must be obtained to tap the profit motivation potential. Techniques for enhancing capital growth, for example, could be effective.

Incentive-fee contracts are the subject of a number of studies.¹⁸ In fact, incentive-fee contracts are the "incentives" many readily think of in discussing motivation. Generally, incentive fees have not done well in accomplishing contractual objectives but appear to have some value in directing contractor attention and in communication among parties. However, industry feels better structured incentives,

¹⁵See, for example, LMI, pp. 8-9; Hunt, p. 148.

¹⁶See, for example, Hunt, *op. cit.*, p. 306.

¹⁷J. R. Fox, Arming America, Harvard, Boston, 1974, pp. 309-310.

¹⁸See referenced studies by LMI, Hunt, Fox and also the Council of Defense and Space Industry Association (CODSIA) Questionnaire concerning DOD/NASA Joint Incentive Contracting Guide, March 1973; R. F. Demong, "The Effectiveness of Incentive Contracts: What Research Tells Us," Seventh Annual Acquisition Research Symposium; W. B. Williams, "Effectiveness of Contract Incentives," Army Procurement Research Office, Fort Lee, VA, 1970.

even the much maligned multiple incentives, could be effective if better structured. Award-fee contracts appear to be more effective, but more research needs to be done.¹⁹

The effect of competition on obtaining a low contract price has been fairly well established.²⁰ There are indications, however, competition can cause some contractual difficulty, at least on initial production contracts.²¹ From reading the exchange behavior literature,²² one can see the immense value of competition in creating "leverage" by introducing new sources of supply, or its threat.

The use of past performance in considering future awards has often been said to be an effective performance incentive,²³ but this effectiveness is threatened by the difficulty in defending its usage before Congress and the General Accounting Office.²⁴ Similarly, the threat of termination for default would seem to be a potentially good incentive, but because of its specialized use for small business in primarily financial trouble,²⁵ its effectiveness is largely neutralized for most situations.

¹⁹R. F. Demong, op. cit., pp. 266-267.

²⁰E. T. Lovett and M. G. Norton, "Determining and Forecasting Savings from Competing Previously Sole-Source/Noncompetitive Contracts," APRO 709, 1978; G. G. Daly, H. P. Gates, and J. A. Schuttinga, IDA Paper P-1435, The Effect of Price Competition on Weapon System Acquisition Costs, 1979; J. A. Muller, "Competitive Missile Procurement," Army Logistician, November/December 1972.

²¹K. Griffiths and R. Williams, "Transmitting Technical Requirements in Competitive Reprocurement," Army Procurement Research Office, Ft. Lee, VA, 1970.

²²Jacobs, op. cit., pp. 114-119.

²³Government Purchasing Outlook, "Past Performance to be Award Factor," June 15, 1978, pp. 1-3.

²⁴Fox, op. cit., p. 303.

²⁵Knittle and Carr, op. cit., pp. 82-104.

There are indications better interpersonal relations between Government and industry will improve performance.²⁶ This is another area with intuitive appeal. More research is in order, however.

Table 6 summarizes the samples' feelings about the relative effectiveness of Government incentives.

The Government employees feel by far the most effective incentive is a guarantee of future business for a firm, followed by program continuity, then profit, fair and equitable contracts, and competition. Government employees felt the weakest incentives were nonmonetary awards and performance bonds followed by possibility of default, multiple incentives, award fees, and "jawboning."

Industry felt the four strongest incentives were a fair and equitable contract, guarantee of future business, program continuity, and appropriate contract type. Profit, improved cash flow and long-term funded contracts were next in importance. Industry indicated the lowest regard for nonmonetary awards and performance bonds, followed by Government funded capital investment, possibility of default, monetary loss for poor performance, and "jawboning."

Industry and Government personnel disagreed on the effectiveness of 8 of the 21 factors compared. Industry felt the following were significantly more effective than the Government did: award fees, incentive fees, multiple-incentive fees, program continuity, evaluation of past performance, good working relationship with Government

²⁶P. E. Oppedahl, "Understanding Contractor Motivation and Contract Incentives," Defense Systems Management College, Fort Belvoir, VA, 1977, pp. 21-26.

personnel, appropriate contract, and fair and suitable contract type. The Government felt somewhat more strongly Government-funded capital investment was more important. Industry's indicated low response on monetary loss for poor performance is suspect (and worthy of more research) because of industry's own heavy use of the technique.²⁷

Both agreed future business (long-term profit) and high profit on a contract and cash flow (short-term profit) are effective incentives. Both also agreed nonmonetary awards, possibility of default, performance bonds, and "jawboning" are relatively ineffective. One might think because of the perceived strength of program continuity, the threat of default would also be a strong motivator. Apparently, default is a "paper tiger" at least to all but very small businesses. Because performance bonds are largely a construction technique, they may not have "scored" well through lack of understanding. Perhaps most importantly, Government had better reevaluate the eight incentives listed above which industry felt was more effective and the one which industry felt was less effective.

The contract itself is the subject of five of the responses. Incentive (even multiple incentives) and award fees were seen as more effective by industry in spite of studies which show there is little empirical evidence for this effectiveness. As the CODSIA questionnaire results²⁸ indicate, however, this effectiveness is dependent on how

²⁷R. T. Hunt, et. al., "Federal Procurement: A Study of Some Pertinent Properties, Policies, and Practices of a Group of Business Organizations," National Contract Management Association, vol. 6, No. 2, (Fall 1970), pp. 245-299.

²⁸Results of CODSIA Questionnaire concerning DOD/NASA Joint Incentive Contracting Guide, March 1973.

well these complex pricing arrangements are structured. This interpretation is supported by industry's stronger feeling about appropriate and fair and equitable contracts. In sum, it would seem industry will be motivated by better contracts with better pricing arrangements from Government. Another area which is not only seen as a potentially good motivator for the Army, but is seen as legitimate by industry is the use of past performance. The Army would do well to follow the Air Force's experience here. Even though the Government perceives program continuity as important, industry cites it as being even more important. The potential for this incentive has to be tempered by the attendant loss of leverage by the Government and, of course, the lack of mechanisms to insure this continuity.

Significant differences were found in perceived effectiveness of incentives by many groupings of both samples. In the Government sample (table 7), R&D activities felt incentive fees, program continuity, guarantee of future business, Government-funded capital investment and the possibility of withholding future business (marginally) were more effective than did readiness activities. Those offices emphasizing technically competitive contracts felt fair and equitable contracts and "jawboning" less effective than did other offices. The offices dealing with small firms scored evaluation of past performance, possibility of default (as predicted by previous research) and appropriate contract types higher in effectiveness than did offices dealing with large firms. Offices with R&D contracts felt more strongly about the perceived effectiveness of competition than did those with production contracts. Those with production contracts emphasized profit

and possibility of default more. The Government personnel dealing with more price competition featured the effectiveness of multiple incentives, possibility of termination, and "jawboning." Government personnel with higher technical competition perceived a higher regard by industry for competition (of course), threat of competition, and good working relationship with industry. One unexplained difference was in the finding that Government personnel dealing with technical competition scored the threat of default higher than those involved in no technical competition or in a high degree of technical competition.

The industry sample (table 8) also had interesting grouping findings. Smaller firms expressed more concern with program continuity and evaluation of past performance. Smaller divisions emphasized profit and a good working relationship with the Government personnel more. Larger divisions were more impressed with multiple incentives, long-term funded contracts, Government-funded capital investment, and the possibility of competition. Low to medium technology firms showed more concern for evaluation of past performance and a good working relationship with Government personnel than did high technology firms. The questionnaire figures on firms experiencing different levels of growth were somewhat ambiguous; although slower growth firms appear to have more regard for incentive fees, intermediate growth firms appear to emphasize improved cash flow and appropriate contract types more than rapidly growing and mature firms. Capital intensive and labor intensive firms showed a large number of differences. Labor intensive firms, (relative to balanced capital and labor intensity firms) felt the following were more effective: award fees, incentive fees, multiple

incentives, improved cash flow, long-term funded contracts, evaluation of past performance, nonmonetary awards (although all felt it ineffective), and withholding of future business. Balanced intensity firms had somewhat more interest in Government-funded capital investment than labor or capital intensive firms. Firms with more Government business tended to react more to the possibility of withholding Government business. Divisions with large Government business tended to think more of award fees, incentive fees, multiple-incentive fees, improved cash flow (marginally), nonmonetary awards, possibility of withholding future business, appropriate contract types, and "jawboning." Closely held ownership was more responsive (than publicly held) to improved cash flow, program continuity, possibility of withholding future business, performance bonds, good working relationship with Government personnel, and fair and equitable contracts. Attention to nonmonetary awards increased with the degree of price competition. Firms in a highly technically competitive industry held more regard for award fees, multiple-incentive fees, improved cash flow (marginally), capital investment protection and competition than did less competitive firms.

The Government and industry grouping findings are rich with useful fodder for developing incentive programs. In fact, there is too much to generalize effectively here. Instead, the reader is encouraged to reread these last two paragraphs and tables 7 and 8 to match characteristics and effective incentives.

Another side to Government motivation is disincentives. Table 9 summarizes the feelings of the two samples on the subject. Government personnel cited excessive paperwork requirements as the perceived most

powerful disincentive, followed by undue delays in resolving problems, inadequate leadtime, and inability to compete with incumbents. Although all eight possible responses were rated relatively troublesome (≤ 3.4), the least troublesome listed were poor specifications, lack of continuous relationships, and socioeconomic requirements.

Excessive paperwork was also cited first by industrial respondents, followed closely by preoccupation with low price and undue delays in resolving problems. Again, all disincentives listed were relatively powerful (≤ 3.48); socioeconomic contract requirements and poor specifications were "least powerful."

Government and industrial personnel differed on two disincentives. As might be expected, industry felt lack of continuous contractual relationships and Government preoccupation with low price were more powerful disincentives than did the Government. These findings are in line with earlier ones. The lack of a continuous relationship is the opposite side of the program continuity coin which industry was seen to have regard for. Industry's perception of the Government's objective to keep down price is now seen as a disincentive.

Perceptions also differed among various sample groupings (tables 10 and 11). Government R&D activities felt inability to compete with incumbents and inadequate leadtime were more bothersome than did readiness activities. Activities dealing in price competition were more concerned with poor specifications than sole-source activities. Activities dealing with competitive industries felt more concern for the

lack of a continuous contractual relationship (marginally), and the more price competitive the industry, the more the perceived concern with preoccupation with low price and undue delays in resolving problems.

Small firms felt undue delays in resolving problems were more troublesome than did large firms. Labor intensive firms were troubled more by inadequate leadtime than capital intensive firms; balanced firms were even more concerned than labor intensive firms. Capital intensive firms felt excessive paperwork was more of a problem than did labor intensive firms; again balanced firms cited it as the most problematical of the three. Poor specifications were a powerful disincentive to balanced firms, less so to labor intensive firms, and least to capital intensive firms. Divisions with large Government business were more concerned with inadequate leadtime. Closely held firms mentioned excessive paperwork as a worse disincentive than publicly held firms did. Price competition firms saw lack of a continuous contractual relationship, Government preoccupations with low price, excessive paperwork, and poor specifications as more powerful disincentives than noncompetitive firms did. Nontechnical, competitive firms were concerned with inability to compete with incumbents and socioeconomic requirements more than were technically competitive firms.

Another alternative for assessing the perceived effectiveness of the various Government incentives (behaviors) is to correlate the responses of the two samples on incentives with the responses on contractor objectives; that is, some industries expressing a high rating

for a certain motive also have high utility for certain incentives. If the Government knows a firm has this motive, then it might employ those incentives which correlate with it.

Table 12 summarizes the higher correlations for the Government sample and table 13 for the industry sample. Somewhat arbitrarily only these top correlations (R's) with a P less than .01 (that R is not zero) are used.

The tables show quite a difference in opinion on what behavior is thought to be effective with various objectives. In the main, the contractor responses make more intuitive sense. For example, industry believes those firms which have "provided a good product" as a leading objective will respond well to evaluation of past performance, capital investment protection, nonmonetary awards, competition, possibility of withholding future business, and a good working relationship with the Government. These responses are more realistic than the Government's high responses on improved cash flow and program continuity. Perhaps industry's responses are better here because they are based on actual industry reaction; Government responses are based on perceived industry reaction. Consequently, table 13 is probably of more use in selecting incentives; on the other hand, Government perceptions in table 12 should be given more investigation.

This section has identified a large number of findings toward the proper use of incentives. In the last chapter, a synthesis of the major ideas will be presented.

4. Government Environmental Factors.

As mentioned earlier, the motivational model suggests the Government should want to satisfy contractor objectives through the proper behavior. Yet the proper behavior is often not exhibited (as seen in the disincentive discussion above). Why? There are other factors which affect Government contractual behavior other than the rational desire to motivate the contractor. The model shows them to be internal (e.g., Government characteristics) and external (e.g., inflation) factors.

Rainey et. al²⁹ have summarized the literature's findings on the unique Government environment. These environmental factors are categorized into three major influences. First, the Government has a low degree of market exposure; i.e., individual offices rely primarily on appropriations and far less on any marketplace acceptance. Consequently, they attempt to maximize their appropriation and deemphasize operating efficiency and the satisfaction of customer needs, and they have fewer indicators of productivity (e.g., profits, prices). Second, the Government is under the influence of considerable legal and formal constraints. Consequently, Government offices have little autonomy in operations, tend to proliferate formal procedures and controls, and are simply vulnerable to many external sources of diverse influences. Third, the Government is prey to political forces unfelt in industry. Government policy and procedures can be susceptible to the demands of a number of

²⁹Rainey, op. cit., p. 236.

informal influences (e.g., socioeconomic lobbyists) and Government agencies may, in turn, build support for their mission through various constituencies and authorities (e.g., congressmen).

Specific statutory and regulatory constraints can be identified which directly and indirectly reflect the impact of these factors.

The Government is limited in its flexibility in selecting its contractors in several ways. Formal advertising, in which award is made to the lowest responsive, responsible offeror, is the preferred method of procurement.³⁰ In formal advertising the judgment of the contracting officer and program office personnel is limited since award must be made to the low responsive, responsible bidder without examination of other factors. Even if an exception to formal advertising is appropriate the maximum possible competitor must be obtained. The Government has the obligation to allow all qualified contractors to participate³¹ and to select the winning contractor in a fair and objective manner. A large body of case law has built up over the years on protests by unsuccessful offerors. The Government's limited flexibility in selecting contractors tends to limit the use of certain incentives.

Profit is an important incentive, but the Government is limited on the amount of profit which can be paid to contractors. Profits are limited in two ways, through statutory limitations on profit rates on cost plus fixed-fee contracts³² and through renegotiation.³³ The

³⁰Armed Services Procurement Act, chapter 137, section 2304.

³¹Defense Acquisition Regulation (DAR), 1-1001, 1-1002.

³²Armed Services Procurement Act, chapter 137, section 2306.

³³Commerce Clearing House Government Contracts Reporter, section 2000.

weighted guidelines method of computing profit on negotiated procurements also tends to limit profits.³⁴

The Government is also limited in its ability to structure payment provisions. Limits have been placed on advance payments, progress payments,³⁵ and multiyear contracting.³⁶

The Government is limited in actions it can take against nonperforming contractors. Termination for default is seldom used except in extreme cases.³⁷ The use of liquidated damages provisions in other than construction contracts is severely limited.³⁸ The fact that a contractor has been a poor performer on previous contracts will not necessarily result in a negative determination of responsibility especially if the firm is a small business and a Small Business Administration (SBA) Certificate of Competency is involved.

Fox,³⁹ quoting a 1970 LMI Study, cites four major differences between commercial and defense source selection. Each of the four is discussed below:

1. The use of past experience in dealing with a supplier generally is given heavy weight in award of a contract. Past experience, in this sense, covers ease of managing the relationships as well as technical performance of the product or quality of the work. Some companies are put on favored commercial lists; others are barred from future awards.

³⁴DAR 3-808.

³⁵Armed Services Procurement Act, chapter 137, section 2307.

³⁶DAR 1-322.

³⁷Knittle and Carr, *op. cit.*

³⁸DAR 1-310.

³⁹Fox, *op. cit.*, pp. 276-284.

The Government makes limited use of past performance in awarding contracts, favored commercial lists are not allowed because of the policy to maximize competition and the regulations and court decisions on deferment make barring contractors from future awards, based on poor performance, almost impossible. Most contractors who are debarred from Government contracts are debarred for activity of a criminal nature or for violations of socioeconomic provisions such as Equal Employment Opportunity, Wage and Price Guidelines, Walsh-Healey or Davis-Bacon.

2. It is considered essential in the commercial world that the purchasing staffs be knowledgeable about the products and processes of key suppliers or have such knowledge readily at hand. . . .

In the Government, except for major systems, emphasis is often not placed on an indepth knowledge of the products, industry, and companies with which procurement personnel deal.

3. The processes, management structure, financial condition, and reputation of a potential new supplier of a key item are carefully examined before that supplier is approved as a candidate for a share of the business.

Source selection evaluation criteria and preaward surveys attempt to accomplish this examination in the Government; however, the subjective nature of these items combined with the Government's obligation to be fair limits the application of these factors in Government procurement.

4. Commercial purchasers recognize the potential peril to them if key suppliers develop serious problems. They protect against such problems by maintaining two or more sources of supply which are unlikely to be affected by the same calamity (e.g., strike, flood, financial failure). They

monitor the financial condition and market success of suppliers carefully. . . .

The Government attempts to recognize these problems through the Defense Contract Administration Service (DCAS) plant monitoring, contractor-provided progress reports, etc., but has limited success due to limited personnel resources and the fact even if a contractor is recognized as being in trouble, it is almost impossible to make a termination for default for failure to make progress hold up in the courts.

In summary, the constraints placed on the Government acquisition process by statute, regulation, and the courts limit the judgment allowed to Government contracting personnel and limit the incentives which can be used to motivate contractors.

The questionnaire tried to get at some of these internal and external factors by directly asking Government people what kept them from properly incentivizing contractors (table 14). Of course, the Government grouping of characteristics is a grouping of internal constraints. The second set of external (to the contracting office--contractor relationship) factors addressed by the questionnaire is the other Government agencies which affect contract performance through the Government contracting office or through the contractor himself.

Government personnel felt the two factors most inhibiting their motivation of contractors were Government regulations ruling out some good business practices and not enough time to tailor each contract to the situation. In interviews acquisition managers complained the pressure to obligate funds was so great, their personnel did not have

the time to individually design contracts. Nonperformance objectives (e.g., socioeconomic) and high-level management resistance to innovation were rated third and fourth in impact, although still significant (≤ 4.05). These responses were uniform throughout all Government groupings (table 15) and are apparently fairly reliable.

The Army must appreciate it can never fully motivate industry because of regulatory constraints barring some practices. It must also be acknowledged contractor motivation stands behind other goals such as rapidly awarding contracts and nonperformance programs (e.g., socioeconomic).

The governmental noncontracting agency perceived as most affecting contract performance by far was the project manager (table 16). The second was DCAS, and the third non-DOD (e.g., OSHA, SBA) agencies.

Table 17 describes the Government groupings responses on the external organization. Non-DOD agencies were perceived to have less impact by higher management. R&D offices perceived more effect on contracts from project managers and higher headquarters than did readiness activities. Personnel dealing with sole-source contracts saw more contractual impact from the project managers than did those with competitive contracts. Those working with price competitive contracts saw more effect on contracts from higher headquarters than did others. Offices dealing with larger firms again emphasized the impact of the project manager. Personnel with R&D contracts saw more impact from project managers than did production contract personnel. On the other hand, production personnel were significantly more concerned with

non-DOD agencies. The higher the degree of price competition, the greater the impact of DCAS is found. Personnel having no price competitive firms emphasized the importance of project managers more than did personnel working with price competitive industry. Government personnel dealing with technical competitive industry felt less concern for project management impact and higher headquarters than did those with both no technical competition and high technical competition.

As suspected, project managers are a significant external factor in contractor motivation, particularly in the R&D, large firm, and sole-source areas. DCAS is also understandably quite influential in virtually all groupings, with the exception of those dealing with low price competition firms. Non-DOD agencies were fairly uniformly significant. The project managers and DCAS offices are approachable by a contracting office, and coordination of incentives is far more likely than with non-DOD agencies.

One important part of the Government internal environment which was not treated in this report is the personality and attitudes of Government personnel. Hunt⁴⁰ has the most comprehensive coverage of the subject.

5. General Contractor Objectives.

Contractor objectives have been the subject of numerous studies. Researchers have found firms have indeed more objectives than just profit. This, of course, is a main hypothesis of this study--on a given contract, a contractor could have any of a number of objectives in

⁴⁰Hunt, op. cit., pp. 154-208.

mind; and, the study would seek to find out what to do to satisfy the given objectives (assuming they are not detrimental) to the Government's interests) in order to better complete the contract. It should be pointed out that the study asked about contractual objectives which, while drawn from, are not the same as corporate objectives.

Bilkey⁴¹ in summarizing the work of nine authors found profit, growth, and provide a good product (all described in many forms) the most mentioned business objectives. Shetty⁴² in a more recent study cited profitability, growth, and market share as most important and further showed importance of objectives varied by types of industry. LMI⁴³ found a similar listing of profit, growth, and market share and made the point that firms would readily trade-off profit in favor of many other objectives. Fox⁴⁴ made a similar point in describing the trade-off tendency toward contract objectives; in particular, he cited the importance of developing new skills and follow-on work. Hunt⁴⁵ perhaps made the most insightful listing by generalizing the nature of leading R&D industrial goals as conservation (i.e., preservation of status quo), effectiveness, growth, profit/risk aversion, and service and by isolating the leading corporate objective as actually "mastery," a desire to control one's destiny, not profit. Hunt et. al.⁴⁶ is an extension of that effort looked at contractual objectives and found

⁴¹Bilkey, op. cit., p. 630.

⁴²Y. K. Shetty, "New Look at Corporate Goals," California Management Review, Winter, 1979, pp. 71-79.

⁴³LMI, op. cit., pp. 8-9.

⁴⁴Fox, op. cit., p. 457.

⁴⁵Hunt, op. cit., p. 132.

⁴⁶Hunt, et. al., op. cit., pp. 245-289.

their relative importance to be: foster quality performance, avoid risk, safeguard proprietary interests, flexibility to customer, communication with customer, act to control costs, and only then high profit. The efforts of these many authors were, of course, influential in this research study.

The questionnaire asked industry respondents what they felt motivated their individual organization to perform and asked Government personnel what they perceived to motivate contractors with which they dealt (table 18).

The Government perceived the order of importance of industrial objectives were, in very close order, profit on sales, company survival, improve cash flow, develop dominant industry position and return on investment (ROI), followed by company growth and provide a good product. Public image was perceived last. Industry beliefs about its objectives were quite different. Industry felt to provide a good product was by far the most important objective, followed by a long-term continuing relationship with industry, and then improve cash flow, profit, and develop new capabilities. Use excess capacity was the last rated objective, with public image next to last. Profit and indirect profit objectives were understandably near the top here, but perhaps just as important, Government and industry differ significantly on five of the stated objectives. Although industry said its most important motive is to provide a good product, the Government perceived this motive as far less important. Industry felt a long-term business relationship was far more important than did Government. The development of new capability was said to be more important by industry than by Government. On the

other hand, the Government perceived using excess capacity was much more important to industry than industry expressed. Company survival was also perceived as a stronger motive by Government than as seen by industry. Again, the difference in perceptions is worthy of study.

Although as stated earlier, establishing a long-term business relationship will be difficult in view of current statutes on competition, it is possible the desire to provide a good product and develop new capability can be better used in planning than is done currently. The appeals to use excess capacity and helping companies survive will (as will be seen below) have to be used more selectively.

Government managers perceived less importance for company survival and developing a dominant industrial position than did nonmanagers (table 19). R&D activities saw develop new capability, long-term business relationship, and a dominant industry position as more important motives to industry than did readiness activities. Organizations having technically competitive contracts perceived a dominant position as more of an industrial motive than did other organizations. Organizations dealing with small organizations perceived company survival and use excess capacity as more important than organizations dealing with larger firms. Government activities emphasizing production contracts saw profit and improved cash flow as stronger motives than did R&D contracting personnel. However, those having R&D contracts found develop new capability and dominant industry position more important to industry than did production personnel. Government personnel working with highly competitive industry perceived establishing a dominant industry position as a stronger motive than did other Government

personnel. The higher the technical competition they dealt with, the higher the likelihood Government personnel perceived the importance of the development of new capability, development of a dominant industry position, and establishment of a long-term business relationship.

Small firms expressed far more concern for company survival than did larger firms (table 20). Growing firms expressed a somehow higher use for profit and ROI than did rapidly growing and mature firms. Labor intensive firms had the most regard, balanced firms the second most, and capital intensive firms the least regard for providing a good product, company survival, developing a skilled work force, developing new capability, establishing a long-term business relationship, and improving cash flow. These industrial firms with larger Government business expressed somewhat more utility for company survival, company growth, and improved cash flow than did other firms. Divisions with larger Government business had higher utility for company survival, company growth, ROI, public image, long-term business relationships (marginally), and improved cash flow. Firms with publicly held ownership showed far more interest in company survival, public image, and development of a skilled work force than did closely held firms. Production firms selected use of excess capacity as a stronger motive than R&D firms did. Highly technically competitive firms valued company survival (marginally), ROI, and public image more so than other firms.

Again, as had been hoped, the questionnaire overturned some significant differences in the responses of the samples and the groupings which will be useful in designing incentives.

6. Contractor Behaviors.

Desirable contractor behavior is, of course, the name of the game. The Government would like the contractor to simply follow the requirements of the contract: deliver the right item at the right time at the right price. As the exchange model (pp. 10-15) suggests, the contractor should have expectations that rewards (e.g., payment) will accrue from benefits provided (e.g., quality item), ceteris parabis. If the Government gives rewards without benefits being provided, then there is no basis for exchange, and further exchange is jeopardized.

There has been much data generated on contractor performance in DOD, and as stated earlier, the performance has often not been good. In the preliminary research in the field, it was found the reasons for poor performance were too confounding to be readily isolated and evaluated as to relative impact. In depth analysis and extensive interviews did reveal motivation was part of the problem, but did not allow for usable generalizations in this area. Consequently, the questionnaire could not be expected to induce any revelations as to the relative effect of ability, motivation, and other factors on performance, although some relevant insights from the synthesis of all information gathered will be gained.

The questionnaire did, however, ask not only for the perceived relative importance of Government objectives, but also for industry's relative difficulty in achieving them. This gave at least some indication of difficulty in behavior.

Government people felt by far the most difficult thing to do was meet the delivery schedule (table 21). Keeping down price was second most difficult and meeting the specifications was judged the easiest, although all three were on the "difficult" side of the scale (≤ 3.58). Industry said the most difficult objective to accomplish for the Government was keeping down price although meeting the schedule was a very close second. Again, the specifications were significantly easier than the other objectives. It is interesting that in spite of constant reports of complexity and high technical risk on Government contracts, meeting the specifications was judged by both groups to be the easiest objective to accomplish. The message may be that even though the work is difficult, it can be done if there were more time and money provided. The only disagreement between industry and Government was meeting the delivery schedule, which the Government felt was more difficult for industry to perform than did industry, which may well have been thinking of revised more "realistic" final schedules.

In the Government sample, (table 22) readiness activities saw meeting specifications and price objectives as less difficult than did R&D activities (which indicated less perceived importance for all three objectives). Activities with technical competitive contracts felt industry had more trouble meeting the specifications than did other activities; price competitive activities saw less difficulty in keeping down price. Government offices working with smaller firms saw meeting specifications (marginally) and keeping down price as more difficult

than did larger firms. Activities with R&D contracts felt price was a more troublesome objective to industry. The more technical competition Government offices had, the more they saw price as a problem.

Large firms and large divisions expressed far more difficulty in meeting price than did smaller firms and divisions (table 23). High technology firms expressed more difficulty in meeting all three objectives. Balanced intensity firms had somewhat more trouble with all objectives than did labor and capital intensive firms. Firms with more Government business admitted more trouble with specifications than did those less involved with Government. Divisions heavily involved in Government business expressed difficulty in meeting specifications and delivery requirements. R&D firms expressed more difficulty in meeting all objectives, but only delivery to a large extent.

There are many findings in this area, but one clear message is that firms dealing with R&D and technical uncertainty have more difficulty meeting the formal requirements of the contract than do others. Recall earlier these firms (and Government counterparts) may have different criteria for success (e.g., technological breakthroughs). This finding is in keeping with Hunt⁴⁷ who showed R&D personnel were relatively unconcerned with the contract itself.

7. Contractor Environmental Factors.

As Government behavior is prey to its environment, the contractor also has an environment which shapes his behavior. Again, the environment can be seen as internal and external. The questionnaire asks what

⁴⁷Hunt, et. al., pp. 154-208.

postaward factors keep the contractor from performing on Government contracts; this addresses a mixture of internal and external factors. There is also a direct question on the impact of external influences.

Although considerable literature has been written on the subject, the recent work by Lorsch and Morse⁴⁸ was found to be the most useful in approaching this area. Terms and concepts from this effort are incorporated into this section. Hunt's R&D report should be mentioned for its extensive coverage of a large part of the internal environment--the motivation of the individual.⁴⁹

The question asking why contractors did not choose to perform or "what events had an adverse impact on contract performance" got the most controversial responses of the entire questionnaire. Either contractors were too idealistic, Government personnel too cynical, or there is just a considerable amount of disagreement over contractual performance on the contractor's part. At any rate, there are vast differences between the responses of the two groups.

First of all, five of the nine suggested questionnaire responses were considered toward the nonproblematical (i.e., "no adverse impact") end of the scale (≥ 4.00) by industry, yet none were by the Government personnel (table 24). Government and industry disagreed drastically on many of the responses. The Government perceived more adverse impact on contract performance because of more profitable or higher priority work in the plant, a contractor's realization of a "bad deal," inability to solve a technical problem, and poor interpersonal relations between

⁴⁸Lorsch and Morse, *op. cit.*

⁴⁹Hunt, et. al., pp. 154-208.

industry and Government personnel. Industry's assessment of most adverse events were more technical or Government-oriented in nature. The least adverse indicated were willful decisions by industry not to perform, admittedly self-incriminating and perhaps unfair responses to elicit from industry. Government personnel were not quite as self-serving, admitting to the damaging impact of excessive changes and Government interference. Both parties expressed the relatively minor effect of disagreements and socioeconomic provision enforcement on the contract. From these disagreements one can readily see why there is an adversarial relationship between contractual parties with contractual troubles.

Intermediate Government managers saw higher adverse impact from more profitable and higher priority work in the contractor's plant than did contracting officers/specialists and higher managers (table 25). R&D activities had the same perceptions relative to the readiness commands. Production activities and those with more price competition saw more socioeconomic impact than did other activities. Activities dealing with smaller firms perceived contracts felt more adverse impact from higher priority work in a contractor's plant and the contractor's realization of a "bad deal" than did other activities. The higher the competition an organization is involved in, the higher is the perceived impact of technical problems which cannot be resolved.

Industry with balanced intensity saw unresolved technical problems as more a problem than did labor or capital intensive firms (table 26). Production firms expressed more impact from higher profitable work in the plant than did R&D firms, although neither saw it as very problematical. Competitive firms felt more impact from higher

priority work than did noncompetitive and highly competitive firms. Highly technical competitive firms expressed less concern for more profitable and higher priority work in the plant, Government disagreements, realization of a "bad deal" and Government enforcement of socio-economic provisions. It must be kept in mind the industrial grouping characteristics are surrogate measures for internal environmental factors; that is, for example, firms with large Government business are subject to forces not felt by other firms and will consequently tend to behave differently.

Government and industry personnel agreed fairly well on the three most important external influences on contract performance: inflation, interest rates, and Government regulation (the response "Government regulation" was inadvertently left off the questionnaire, but it is felt a high response can be imputed from the pattern of other Government responses) (table 27). The last two influences were both agreed on as labor disputes and international political situations. There were two areas of disagreement. Government personnel felt labor disputes were more of a problem than did industry. Industry expressed a problem of getting engineers which Government personnel did not appreciate. Both of these points are worthy of more study. At any rate, all responses (except industry feeling for labor disputes) were felt to have some degree of influence (≥ 4.00) on contract performance.

Government activities with sole-source contracts felt more influence from inflation and interest rates than did activities with competitive contracts; price competitive activities felt the second most influence. Price competitive activities realized more impact from

their relative importance to be: foster quality performance, avoid risk, safeguard proprietary interests, flexibility to customer, communication with customer, act to control costs, and only then high profit. The efforts of these many authors were, of course, influential in this research study.

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however, and surfaces only bundles of concepts; i.e., it suggests for given general circumstances, general behaviors to be employed. Actually, more study is needed on the individual elements.

Nonetheless, this is the proper way for the Government to use the model. Assemble as much information on each of the elements as possible and, through the model's operation, attempt to select those behaviors which will induce the contractor to perform to accomplish the Government's objectives. The question now becomes how to get the information on the model elements.

In order to motivate a contractor, planning starts before the award. The contracting officer must assemble information on the objectives of the acquisition, the Government internal and external constraints on the Government's behavior on the procurement, the contractor's objectives, and the constraints on his behavior.

Getting the objectives of the Government and their priority is not as simple as one might think. First of all, admitting the Government might trade off objectives (i.e., accept anything less than the contract requirements), is a bitter pill for the Government manager and may be resisted. Second, one might ask who is the one to select and prioritize the Government objectives. Answering this question involves defining the Government "buying center." The buying center is all the organizational members involved in the purchase decision.⁵⁰ Typically, for the Government, this involves the contracting officer (who alone can sign the contract), contract specialists who assist him, his supervisor,

⁵⁰F. E. Webster and Y. Wind, Organizational Buying Behavior, Englewood Cliffs, NJ, Prentice-Hall, 1972.

negotiators, technical personnel, requirements personnel, the system project officer (if there is one) and, as the size of the contract increases, higher levels of management on up to the Secretary of Defense. On a given contract, the contracting officer must decide who will make decisions significantly affecting contract performance. This buying center must decide what is to be done in the contract and the priority of the things to be done. This can, of course, be done in a number of ways, but probably the best way is simply to assemble the decisionmakers (or their representatives) and negotiate some kind of consensus. There are also many techniques (e.g., dividing 100 points among the objectives) to assist in prioritizing the objectives.

Identifying the constraints the Government decisionmakers will have on their behavior may also take some effort. The organization (e.g., DOD, Army, DARCOM, major Army command (MACOM), directorate, division branch) has policies toward proper behavior and policy may preclude the employment of some desired incentives. Government personnel should be aware of all the good practices which could be done and policies at all levels which preclude them. For example, a recent Air Force Study⁵¹ identified general provisions ("boilerplate") which could be eliminated in the purchase of commercial equipment. Noncontract performance objectives must be admitted to, however difficult. If contracting personnel are rewarded more for rapidly putting out contracts (to obligate dollars) rather than for thoughtfully individually

⁵¹G. S. Ostrowski and Lyle Lockwood, "Simplifying Contracts for Commercial Systems," in Ninth Annual DOD/FAI Acquisition Research Symposium Proceedings, 1980, pp. 3-15 to 3-22.

incentivizing each one, Government managers should not expect optimal contractor motivation. Another external influence on contract performance is noncontracting offices. Project managers and DCAS offices, for example, are commonly ranked as activities affecting performance. The contracting officer, or his representative, must insure all contacts with the contractor be coordinated with him so consistent behavior can be insured.

Information on the contractor's objectives and constraints on his behavior can be obtained directly and indirectly. The Government can ask the contractor in a draft request for proposal (RFP) or similar preliminary document what he wants to do on this proposed contract (e.g., maximize profit, get into new field) in order of priority and the potential constraints on his contract performance. The degree of frankness the contractor feels he can exhibit will vary considerably depending on the cooperative adversarial relationship which may have been established between the firm and this particular Government office. The Government is asking what is important to the contractor and what he will trade-off in contract performance. For example, will the firm sacrifice some short-term profit (through a lower price) in order to get into a new field. The Government should explicitly ask about certain contractor constraints on performance such as other work in the plant and pending organization upheavals (e.g., lawsuits, strikes). For planning purposes, the Government should know what the firm is facing in terms of inflation rates, interest rates, labor supply, and other such external factors. The Government can follow up to attempt to get the same information in the solicitation, in negotiation, and in any postaward conferences.

The Government contracting activity can also try to infer the information from trade journals, company literature (e.g., annual reports and prospectuses), Internal Revenue IOK reports submitted to the Security Exchange Commission (SEC), and investment surveys such as Moody's, Standard and Poor's, or Valueline. Also much information about companies and industries can be obtained from general business publications such as the Wall Street Journal, Barron's, Business Week, and Forbes.

On the basis of this information from the Government and industry, the Government contracting activity should attempt to pick out the proper behavior as indicated in the various findings of this report. Also in the same opportunities for communication listed above, (e.g., draft RFP's, RFP, negotiation, contract, postaward conferences) the Government should give as much information on its objectives and constraints as is deemed appropriate. It must be kept in mind contractor motivation is not just a contract phenomenon, but a full-time pursuit. Hunt points out for R&D personnel noncontractual factors may dominate contractor behavior.⁵² Figure 5 is a list of potential actions a Government office can take before, during, after, and not even contemplating a specific contract. Such a list of actions is an incentive strategy an office might develop for its major contractors and contracts.

⁵²Hunt, op. cit., pp. 232-238.

The proper use of motivation will not be easy; however, historically, the two parties have had some differences. Regardless of the amount of cooperation Government and industry should have, as suggested by the exchange model, questionnaire results show the relationship is not perfect. Although both industry and Government feel the relationship is toward the cooperative side, the Government is marginally more sanguine (3.08, 3.37) than is industry (table 30). Both feel the relationship should be more cooperative than it is to about the same degree (2.20, 2.40). Government offices dealing with smaller firms felt the relationship was more cooperative and felt it should be even more cooperative than did offices dealing with larger firms (table 31). Low-medium technology firms perceived the relationship more cooperative than high technology firms did; they also felt the relationship should be more cooperative (table 32). Closely held firms perceived a more cooperative relationship than did publicly held firms. R&D firms felt their Government relationship was more cooperative than did production firms. In any event, the relationships of the past will have to be overcome before enlightened new approaches can be fully effective.

It almost goes without saying that for a truly effective incentive program, the Government by word and deed must insure the contractor his objectives can best be met by helping to accomplish the Government's objectives. This will take prudent and enlightened behavior. "Squeezing out" that last dollar from the contractor is not in either party's best interests, if the contractor's motivation or survival is jeopardized. No model will substitute for good judgment in balancing the different inputs to make a decision (e.g., negotiating price).

GOVERNMENT INTERACTION WITH CONTRACTOR	EXAMPLES OF POSSIBLE INCENTIVES
PUBLIC DISCUSSION OF PERFORMANCE	ANNOUNCE GOOD PERFORMANCE BY ARMY CONTRACTORS
PROCUREMENT PLANNING	DEFINE GOVT OBJECTIVES AND PLANNING FOR MATCHING WITH CONTRACTOR OBJECTIVES. GENERATE COMPETITION. ASSESS POTENTIAL INCENTIVES.
SOLICITING/DRAFT SOLICITING	GENERATE POSITIVE FEELINGS ABOUT ARMY PROGRAM. GATHER INFORMATION OF FIRM'S OBJECTIVES, IDEAS OR PROGRAMS, ETC
DRAFTING OF PROCUREMENT INSTRUMENTS	OPTIMIZE AMOUNT OF PAYMENT, SCHEDULING OF PAYMENT, CONTINGENCY FOR PAYMENTS
CONTRACT TYPE/CONSIDERATIONS/CONTINGENCIES	E.G., LIQUIDATED DAMAGES, PERFORMANCE BOND, CAPITAL INVESTMENT INCENTIVES
CONTRACT PROVISIONS	ASSURE ADEQUATE SPECIFICATIONS AND FAIR, EQUITABLE SCHEDULE
SPECIFICATIONS AND SCHEDULE	FAIR, EQUITABLE EVALUATION: CONSIDERATION OF <u>ALL</u> WORK CONTRACTORS HAVE (AND, IF POSSIBLE, WILL HAVE)
PROPOSAL EVALUATION/BID EVALUATION	FIND CONTRACTOR OBJECTIVES AND TAILOR INCENTIVES TO NEEDS; MINIMIZE ADVERSARIAL ATTITUDES
NEGOTIATION/DISCUSSIONS	USE PAST PERFORMANCE. CONTINUITY IN PROGRAM (MULTI-YEAR, OPTIONS, LARGE QUANTITY). FAIR, EQUITABLE SELECTION
SOURCE SELECTION/AWARD	INSURE LOSING FIRMS ARE STILL MOTIVATED TOWARD ARMY PROGRAM. ARE CONVINCED PROPER AWARD WAS MADE
CONTRACT ADMINISTRATION	ASSURE CONTRACTOR OF FAIRNESS, EQUITY OF DEAL. INSURE CONTRACTOR UNDERSTANDS PROGRAM. ESTABLISH GOOD WORKING RELATIONSHIP. ESTABLISH DCAS, DCAA, ETC. AGREEMENTS.
DEBRIEF	QUICK, RESPONSIVE REPLIES TO CONTRACTOR NEEDS; "NON-BUREAUCRATIC" RESOLUTIONS
POST-AWARD DISCUSSIONS	MAKE PAYMENTS OR REDUCTION COMMENSURATE WITH GOOD OR BAD PERFORMANCE
CORRESPONDENCE	GENERATE POSITIVE FEELING ABOUT ARMY PROGRAMS. GATHER INFORMATION ON CONTRACTOR NEEDS AND EFFECTIVENESS OF INCENTIVES
PENALTY/REWARD	WRITE POLICY THAT ACKNOWLEDGES CONTRACTOR OBJECTIVES, NEEDS AND INCENTIVES APPEALING TO THEM. BASE POLICY ON PERFORMANCE FEEDBACK
NON-CONTRACTUAL DISCUSSIONS/CONFERENCES	
POLICY DEVELOPMENT	

Figure 5. Contractor Incentive Strategy

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

A. GENERAL CONCLUSIONS.

1. Contractor performance in DOD is both a function of ability and motivation. Contractor motivation is a significant factor because of the nature of the DOD buying process. DOD has a critical mission and associated critical deadlines; moreover, it buys relatively complex items, in relatively small lot sizes with stringent quality requirements. Because of this difficulty in performing DOD contracts, the fact DOD does not have the option to produce an item itself, and the extreme difficulty of going to an alternative source, DOD requires contractors who are highly motivated.

2. Contractor motivation has not been an easy task in DOD. Historically, motivation has been thought of in terms of money and exhortation. But both of these approaches have met with only limited success. A contractor with a fixed-price contract may cut costs and degrade performance; in a cost-reimbursement environment, while a contractor may perform to make profit from incentives or costs incurred, nonincentivized areas may not be performed and cost control is minimal. In either case, the DOD executive has found the contractor to treat a DOD contract as more or less another business venture and to be little moved by appeals to patriotism or threats of any kind.

3. This study has found contractor motivation is complex and, in order to successfully deal with it, an analysis of a number of factors is involved. To make this analysis, alternative motivational theories

were evaluated. Exchange theory based on the basic contract was found to best explain the contractor motivation process in DOD buying (see figure 3). The DOD contractual motivation process is typified by the following:

a. There are two interdependent parties; i.e., what one does affects the other.

b. They exchange a number of behaviors before, during, and after the contract.

c. The relationship will vary in intensity; i.e., number of interactions and amount of resources involved.

d. They operate in a dynamic environment.

e. Both expect benefits given will be reciprocated.

f. Both try to maximize their individual benefit/cost ratio; i.e., get the most for the benefit given. It is rational organizational behavior to further one's interest even at the expense of the other party.

g. Each will try to get power, "leverage," over the other by commanding uniquely desirable resources to insure its ratio is maximized. Each has expectations the other will protect its own interests and should take the consequences if it does not. The higher the intensity, the greater the struggle for power.

h. Each has its own set of objectives; the priority of these objectives will dictate what use a party has for various benefits (e.g., low cost, quick delivery).

i. Each will have its own internal and external environment which affects contractual behavior.

j. Each will use a reference party for a standard to see how it is doing in the relationship. Industry will typically use its commercial business. The Government will use the performance of other firms doing similar work.

4. From these features of the motivational process (and from figure 3), certain inferences can be drawn. First, the contractor will have a tendency to perform to achieve the Government's objectives, but this tendency will be moderated by his desire to maximize his benefit-cost ratio and by his environment. Second, the Government should attempt to find out the benefits (i.e., objectives) and environment appropriate to the contractor in order to understand the contractor and to decide on contingent behavior (i.e., incentives) to insure the contractor exhibits the right behavior. Particularly, the Government should seek out the attitude of key decisionmakers. Third, the Government should give information about its objectives and environmental constraints to the contractor so he can know how to perform to maximize the Government benefits (ceteris paribus). Fourth, the Government should plan to keep the contractor from dominating the contract by generating alternative sources, having incentives which force compliance, having something of high value to the contractor (e.g., follow-on business) and employing professional and expert behavior. Fifth, the Government can have the most efficient contract performance and best long-run Government contract relationship by having mutual or congruent objectives, although this agreement is difficult to achieve. Sixth, the contracting officer will have to control the actions of multiple noncontracting offices (e.g., DCAS, project manager) toward the contractor to insure they are

incentivizing in the proper manner. Seventh, this is not an active-passive relationship. Each party can motivate the other. Eighth, conflicts (claims, suits, show-cause notices) occur when one party thinks the other is thwarting his objectives.

The ninth point is more difficult to infer. Because of both parties' tendency to maximize their own benefit-cost ratio at the expense of the other and the extreme difficulty in understanding the environment of the other party, there is a natural adversarial relationship and lack of trust between them. The questionnaire results substantiated this problem, and industry felt it was significantly worse than did Government. Both expressed the desire, however, to make the relationship more cooperative. Such an improvement can only be made by each party giving true information about its objectives and environment to the other and attempting to take such action as necessary to satisfy both sets of objectives. Whether such enlightened behavior is really possible will have to be the subject of another study. In any case, attaining more cooperative relationships will be difficult.

5. The proper way, therefore, to plan to incentivize a contractor is to gather information on what makes him behave--objectives and environment--and information on what makes the Government behave--objectives and environment. To get the Government information, the contracting officer will have to get a consensus of the priority the Government decisionmakers (i.e., the "buying center") have for the contract objectives--what does the Government want to do and if pressed, what will it trade off? Finding the environmental information will take

a review of the contract situation: internal (e.g., organization policy, decisionmakers' philosophies) and external (e.g., economic and political situation).

The contracting officer can attempt to get contractor information by both direct and indirect means. He can ask for the contractor's objectives and his environmental constraints (industry questionnaire questions 15 and 16 material) through draft solicitations to the contractor, the actual solicitation, in negotiation and in postaward conferences. He can attempt to infer such information from trade journals, company literature, and business publications, such as Barron's and Standard and Poor's.

6. A contracting officer can, on the basis of his analysis of the contractual requirements and this contractor information, review the conditions for potentially poor contractual performance. He can plan to avoid a contractor who cannot perform by considering the factors of the left side of figure 6 in such activities as a preaward survey. He can plan to avoid a contractor who will not perform by considering the right side of the figure by developing an incentive strategy (figure 3). Figure 5 illustrates the continuous nature of contractor motivation, before, during, and after award. Contractor motivation is not the function of just the incentives of the instant contract. Government personnel (particularly acquisition) should not depend on the contract alone to motivate firms, especially under certain circumstances (e.g., R&D, no alternative sources).

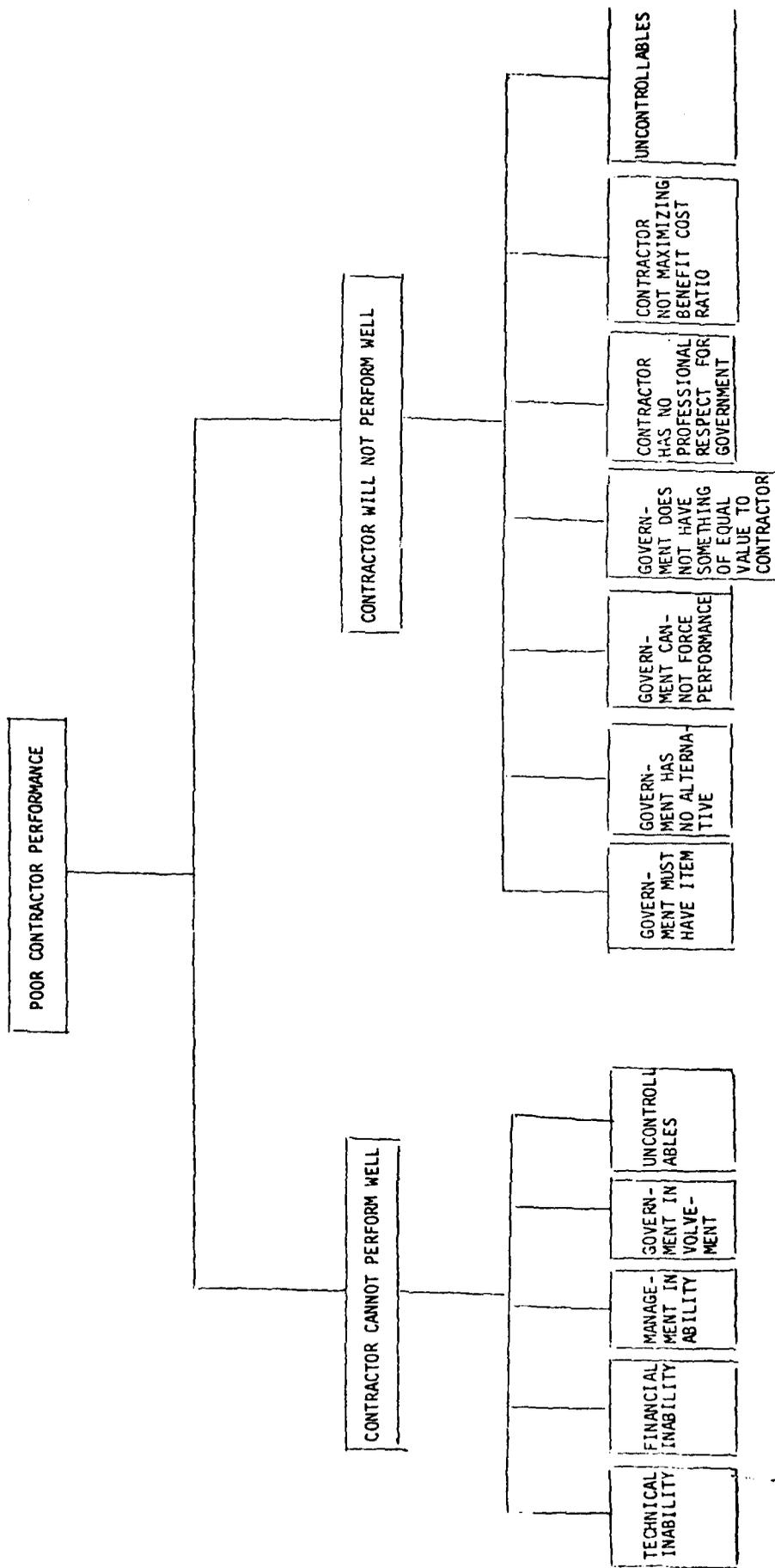


FIGURE 6: CONDITIONS FOR POOR PERFORMANCE IN THE CONTRACTUAL EXCHANGE

7. Good contractor motivation requires good judgment. A contracting officer may experience a high short-term benefit-cost ratio at the expense of the contractor through hard negotiation or through a unilaterally advantageous action, but such actions may not be in his long-term interest if the contractor is disincentivized. If the Government acquires in an adversarial manner, one should not be surprised to see adversarial response. A balanced professional view of the mission, the contract, and future contracts is needed to a successful incentive program.

8. Government personnel do not have the resources and flexibility required to fully evaluate individual contracts in order to develop the motivation of individual contractors.

9. Ultimately, contract managers must realize contractor motivation is more than a matter of legal arrangements and money. To truly motivate an organization, one must appreciate its needs and how to appeal to them in every interaction (as figure 5 shows). This is a challenging concept, because it requires more than drafting a standard legal document and interacting only through this document. Contractor motivation can include interorganizational (e.g., public praise of contract performance) and interpersonal (e.g., nonbureaucratic response) relationships. Legal monetary-based motivation, today's conventional approach, is simpler, less risky, and to be honest, more in line with today's resources. Real improvements in contractor motivation, it has been maintained in this paper, require a new approach.

B. SPECIFIC CONCLUSIONS.

Specific conclusions are those which deal with the data analysis of the relationships among the various elements of the exchange model. Table 2 (p. 58) summarizes most of the findings.

1. Government Objectives.

This is an under-researched area; no comprehensive body of literature was found, and this study is offered as one of the first explicitly on the subject.

The Government will "trade off" objectives and has a decided priority for them. Industry and Government agree meeting the specifications is most important to the Government. Government feels strongly that delivery is second most important. Industry perceives a higher importance for price than Government admits; this puts Government's conviction in its call for cost control (while meeting specifications) in some doubt. Government is giving a fairly constant message to industry on its objectives since all industry groupings gave the same responses. R&D personnel have lower regard for all formal contract objectives and apparently value creativity and innovation instead. Government R&D and production offices in effect have different measures of success for a contract.

2. Government Incentives.

Long-term and indirect profit incentives are as effective as, and more often more effective than, short-term profit incentives. Future business and contract quality are consistently ranked ahead of profit and cash flow in effectiveness. On the other hand, nonmonetary awards (e.g., good publicity) and jawboning were seen by industry and

Government as relatively ineffective and should, therefore, be used very selectively. The possibility of termination for default will also do little to affect performance in spite of industry's strong preference for program continuity. It is judged here to be a "paper tiger" to all but small business with managerial and financial difficulties.

There are Government and industry differences in perceived incentive effectiveness which should be studied by Government managers. Industry perceived incentive (including multiple incentives) and award-fee contracts as more effective than did Government in spite of many reports which show no such empirical evidence. Industry also expressed more use for appropriate and fair and equitable contracts than the Government perceived. Industry is saying it will be motivated to perform by better written contracts, particularly better structured pricing arrangements. Another immediate opportunity for motivation is the use of past performance. Industry perceives more importance in this area of interest, which indicates not only effectiveness but legitimacy for use by the Government. The Army should follow the Air Force's lead in the development of a past performance program.

As had been hoped, incentive effectiveness varies by contractor characteristics, and also by Government perception. Pages 29-39 and tables 13, 14 and E show significant relationships which might help design an incentive program based on the types of contractors dealt with (e.g., firm size, Government business amount, and so on). One particularly useful set of incentive relationships is seen in figure 16, which shows what incentives are effective if a contractor has given objectives.

It should be understood that the contract, in many instances, is not influencing performance to any great extent; i.e., contractor behavior is far more influenced by the contractor's other concerns.

The Government is apparently exhibiting a great deal of disincentive behavior, much of which individual offices are powerless to stop. Excessive paperwork and undue delays in resolving technical problems are the most troublesome to industry (as rated by industry and Government). Although all eight suggested disincentives were rated as significant (by both groups) in impact, poor specifications and socioeconomic requirements were surprisingly seen as least troublesome. The Government does not perceive industry's depth of feeling toward the lack of a continuous business relationship with the Government and toward the Government's preoccupation with low price as a disincentive, but, in any event, contracting offices may be powerless to use such information because of other considerations (e.g., competition and budget constraints).

3. Government Environment.

A Government contracting office is constrained from fully motivating contractors because of environmental factors. Regulation bars the use of potentially effective practices. The Government has objectives which are counter to good contractor motivation, such as the objective to obligate funds (which forces speed in awarding uniformly assembled contracts) and the objective to further nonperformance programs (e.g., socioeconomic). Noncontracting offices, such as the project manager office (ranked first) and DCAS office (ranked second), affect contractor performance and are not under contracting's control.

The impact of noncontracting offices varies by the type of contracting office; for example, R&D personnel contractual control was particularly affected by project managers and production personnel by non-DOD (e.g., OSHA) personnel.

The current environment in restricting flexibility has made the model for motivating contractors largely a theoretical one.

4. General Contractor Objectives.

This is a well-researched area, and this research reflects the widespread interest in seeing what generally motivates industry.

As reflected in the incentive data, the leading contractor objectives are short-term and long-term profit. The Government perceives more interest in short-term profit measures (e.g., profit on sales and cash flow). Industry expresses more interest in the less direct or long-term profit objectives (i.e., provide a good product and a continuing business relationship). Both parties feel "public image" is a relatively minor objective. A potential for improved motivation may be found in areas where the Government's perception of importance is significantly short of industry's. Some Government offices may be able to test the industry-expressed interest in providing a good product and developing new capability in negotiation and subsequent contract administration. At present, industry's desire to establish long-term business relationships can be appreciated but not easily accommodated. Because of industry's deemphasis (relative to the Government) of the use of excess capacity and of company survival, appeals to these objectives will have to be used selectively.

Objectives differ considerably among different types of firms. The findings on these objectives (pages 46-51) should be useful in generalizing on what type of objectives a firm might have and in using table 16 to infer what kind of incentive might be effective.

5. Contractor Behavior.

Contractors obviously exhibit a number of behaviors during the performance of a contract. As the study model suggests, some behavior will be to further the contract and some will not. A contractor will, of course, predominantly tend to work on a contract for a number of reasons (e.g., to gain benefits, uphold reputation, avoid breach), but may also not work on a contract for equally rational reasons (e.g., disagreements, other profitable work). These are incentives and disincentives the contractor uses (intentionally or not) to motivate the Government. In addition, there are attendant behaviors toward the contract, such as volunteering technical advice to the Government or holding up a proposal for a change, which are also incentives. This study looked only at part of this behavior issue--the difficulty in achieving Government objectives.

Of the delivery schedule, the specifications, and the price, industry had least trouble with meeting the specifications, in spite of constant reports of technical complexity and uncertainty. The message may be that the work is difficult but "do-able" given the time and money. The fact all three objectives are seen as relatively difficult (by both parties) suggests a Government contract is indeed a challenging package. The perception by the Government that industry has significant trouble

with delivery is not shared by industry; this could be explained by the Government's use of the original schedule as a standard and industry's use of the final agreed-upon schedule.

Different types of firms have varying difficulty with contract objectives. The clearest conclusion is that firms dealing in R&D and high technical complexity have more trouble in general in meeting the formal contract requirements. As suggested earlier, these firms (and their Government counterparts) may have different criteria for success.

6. Contractor Environment.

The wide difference between Government and industry in response as to what environmental factors cause contractual difficulty for the contractor typifies the ambiguous nature of the troubled contract. Each party tends to accuse the other, and consequently credibility is somewhat stretched and conclusions more painfully drawn. Industry feels most disruptions are technical or Government-driven. Government admits some culpability, but feels strongly about the industry's internal environments (e.g., decision to work on more profitable contracts and realization of a "bad deal") impact on contract performance. These differences are at the heart of the so-called adversarial relationship and bear more study.

The three most important external influences on contractor performance are inflation, interest rates, and Government regulation. The Government may have too high an estimation of the impact of labor disputes. One problem which the Government had better take more seriously is industry's difficulty in getting engineers.

Firms differ considerably as to their vulnerability to environmental factors. Again a review of the many findings in the text (pages 53-57) are in order to get a feel for the entire array.

C. RECOMMENDATIONS.

It is recommended DARCOM consider the following actions to affect the most benefit from this report:

1. Develop acquisition policy which features not only contractor ability in preaward planning, but also contractor motivation. This policy should acknowledge that the contract can be poorly done because the contractor cannot perform or because he will not perform. This policy should be along the lines suggested by figure 6, Conditions for Poor Performance in the Contractual Exchange (p. 70). The DARCOM acquisition manager should be able to use such a policy to anticipate if motivational or capability problems are likely and what to do to avoid them. In particular, motivation policy should promote the generation of "leverage"⁵³ on each contract by planning on having alternative sources (or even systems), methods for "forcing" performance, incentives strongly desired by specific contractor, and displaying professional and expert behavior.

2. Develop acquisition policy which calls for the development of incentive strategies as part of acquisition strategies. These strategies should be along the lines of figure 5, Contractor Incentive Strategy (p. 64). Considering the nature of the contract and the prospective

⁵³A promising approach to estimating relative leverage of the two parties can be found in Jain and Laric, "A Model for Purchasing Strategy," Journal of Purchasing and Material Management, March, 1980, pp. 2-7.

contractor(s), acquisition managers should assemble the proper incentives for the entire life cycle of the contract and beyond. In particular, this policy should feature the careful prioritizing of objectives by the contracting office with the aid of interested parties.

3. Promote a program for greater cooperation with industry. This involves the development of an appropriate acronym (e.g., Improved Industry Incentives Initiatives), a purpose and set of goals, and plans to insure the attitude of DARCOM acquisition personnel is toward more cooperation in contracts. The program should be based on: (a) the contractual exchange model (figure 3) and its characteristics; (b) communication about extra contractual information (e.g., contractual objectives and environmental conditions) between the two contracting parties; (c) mechanisms to gather this information; (d) attempts to make the parties' objectives congruent; (e) alternative conflict resolution techniques; and (f) doctrine and training on the subject given to DARCOM personnel.

4. Promote the incorporation of a block of training on DOD-contractor relations in all DOD courses related to contracting. This block can be based on the program developed above.

5. Promote the development of higher level policy which insures the establishment of the "one face to industry" concept. This policy should acknowledge contracting personnel have the responsibility for establishing the contractual relationship and all offices (e.g., DCAS, project manager) interacting with contractors should coordinate their activities with contracting offices, not just for legal but for focused motivational purposes.

6. Promote the use of all types of incentives, not just profit, to promote satisfaction of contract objectives through all available forums (e.g., solicitation reviews and management conferences). This report mentions at least 22 conditions for their use. Incentives which particularly warrant more attention are award-fee and incentive-fee contracts (which are properly structured), appropriate and fair and equitable contracts, use past performance in award decisions, better working relationships with industry, and any activity to insure industry a longer contractual relationship (e.g., multiyear contracts, production options in R&D contracts). Incentives which should be recommended for only specialized applications are "jawboning" and nonmonetary awards (e.g., public praise of a contractor).

7. Develop and/or revise policy on the proper use of specific incentives on the basis of the report findings (pp. 29-39). One particular incentive which should be used more effectively is the threat of termination for default. More aggressive policy (and practice) which streamlines and economizes the termination process could make default a credible and effective action. Another "incentive" which warrants more use is helping firms obtain engineering labor. This would improve capability and motivation. In general, more emphasis should be placed in the contracting community on knowledge of industries dealt with and individual companies regularly dealt with. Prior to solicitation, enough research should be performed on potential offerors to allow incentives to be selected which will optimize performance of the contract.

8. Reevaluate the constraints on the use of this wide range of incentives. Currently contracting personnel do not have the flexibility to use the appropriate combination of incentives.

9. Develop policy to identify and discourage disincentive behavior by Army personnel, such as the generation of excessive paperwork requirements, undue delays in resolving technical problems, and inappropriate preoccupation with low price.

10. Reevaluate priority of the acquisition management objectives of obligating funds and motivating contractors. If the continuing emphasis is on meeting obligation targets, contracting personnel will spend more time awarding uniform contracts rather than tailoring contracts to situation needs, and contractor motivation will not improve. In short, resources must be spent on contractor motivation and, in turn, sacrifices must be made on obligation schedules.

11. Promote the development of "doable" contracts in all available forums. Indications are the delivery schedule, price, and technical objectives of a contract are often reasonable individually, but as a package may be virtually impossible. It is entirely possible, however, the line between challenging and impossible work is too small to discern.

12. Develop policy to reduce ambiguity as to the causes of troubled contracts. It would be hoped a less adversarial relationship will help isolate such causes.

13. Promote research on: (a) using the contractor exchange model (figure 3) as a guide for general contract planning and planning for negotiation and award; (b) unconventional incentives not contemplated in

this report, particularly those incentives now prohibited by regulation and statute. There is evidence that tax arrangements, use of surplus Government materiel, Government management assistance, and other such opportunities for contractual exchange could be effective in enhancing contractual performance; (c) the increased use of performance bonds and monetary loss for poor performance as incentives. The study results were ambiguous on these topics; (d) flowing down incentives to workers on the defense production line. Current incentives appeal primarily to executives (e.g., profit); and (e) evaluation of the relieving of constraints on the use of various incentives.

APPENDIX A

INDUSTRIAL QUESTIONNAIRE



NATIONAL SECURITY INDUSTRIAL ASSOCIATION
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Vice Chairman
Executive Committee

W.H. Robinson, Jr.
President

21 April 1980

MEMO TO: Procurement Planning Committee
Contract Negotiation and Administration
Subcommittee

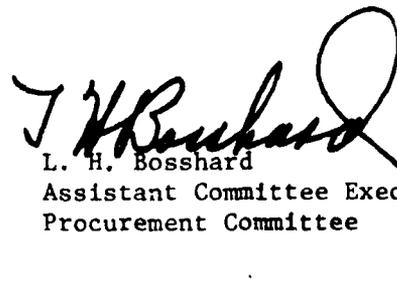
SUBJECT: Contractor Incentive Development Project

The U.S. Army Procurement Research Office of the Army Logistics Management Center, Fort Lee, Virginia, has been charged with the conduct of a study to identify possible improvements in the Army's contracting procedures.

One of the steps being taken to gather data on contractor incentives is to obtain information outlined in the attached questionnaire. Accordingly, it is requested that you complete the questionnaire and return it in the enclosed envelope.

Your specific attention is invited to that part of the introduction to the questionnaire which states that you need not identify yourself or company.

Thank you for your cooperation in helping to improve the procurement process. The data obtained is expected to be made available to you.


L. H. Bosshard
Assistant Committee Executive
Procurement Committee

LHB/md
attachment

ARMY PROCUREMENT RESEARCH OFFICE
INCENTIVES DEVELOPMENT PROJECT

The purpose of the attached questionnaire is to gather data on contractor characteristics, and reactions to various current and proposed possible incentives. We believe that current conditions of change in the defense contracting environment may have created a need for the government to initiate an effort to identify possible improvements in its contracting procedures. Among these improvements might be making incentives more appropriate to contractor needs and identifying disincentives which impede performance.

This questionnaire will develop information which will help us accomplish these purposes. The data will be used as a basis for review of Army contracting procedures and philosophy, which we hope will bring about improvements in the Government procurement process. The information you provide will not be disclosed outside the Army Procurement Research Office (except as part of aggregate statistics) and will be used solely as an aid to improve the procurement process.

We need your input in order to make this study as useful as possible in improving defense contracting. Please be as candid and open as you can. You need not identify yourself or your company, but we do very much need and appreciate your participation.

PLEASE RETURN NO LATER THAN MAY 23, 1980 IN ENCLOSED ENVELOPE.

Select the one response which best describes your organization. If you are a division of a corporation answer all questions based on your division unless otherwise specified.

1.a. How large is your firm? (check one)

- a. 1 - 100 employees _____
- b. 100 - 1000 employees _____
- c. 1000 - 10,000 employees _____
- d. more than 10,000 employees _____

1.b. How large is your division? (check one)

- a. 1 - 100 employees _____
- b. 100 - 1000 employees _____
- c. 1000 - 10,000 employees _____
- d. more than 10,000 employees _____

2. Which best describes your organizations technology? (check one)

- a. High technology _____
- b. Medium technology _____
- c. Low technology _____

3. Where is your organization in terms of growth? (check one)

- a. Rapidly growing _____
- b. Growing _____
- c. Mature _____
- d. Other (specify) _____

4. The basic manufacturing process of your organization's primary product can best be described as: (check one)

- a. Capital intensive _____
- b. Labor intensive _____
- c. Balanced capital and labor _____

5.a. How much Government business (sales) does your firm have? (check one)

- a. less than 10% _____
- b. 10% - 24% _____
- c. 25% - 39% _____
- d. 40% - 59% _____
- e. 60% - 74% _____
- f. 75% - 89% _____
- g. more than 90% _____

5.b. How much government business (sales) does your division have? (check one)

- a. less than 10% _____
- b. 10% - 24% _____
- c. 25% - 39% _____
- d. 40% - 59% _____
- e. 75% - 89% _____
- f. 75% - 89% _____
- g. more than 90% _____

6.a. Which best describes your firm's ownership. (check one)

- a. Closely held _____
- b. Publicly held _____
- c. Publicly held with institutional interest _____

6.b. What percentage of voting stock in your firm is controlled by management? (check one)

- a. less than 10% _____
- b. 10% - 24% _____
- c. 25% - 49% _____
- d. 50% - 75% _____
- e. greater than 75% _____

11. Which of the Government contractual objectives do you perceive as most difficult for your organization to achieve. Rate each of the following for relative difficulty of achievement.

- a. Keep price at agreed upon level
very difficult _____ : _____ : _____ : _____ : _____ : _____ : _____ not difficult
- b. Insure delivery schedule is met
very difficult _____ : _____ : _____ : _____ : _____ : _____ : _____ not difficult
- c. Meet the specifications
very difficult _____ : _____ : _____ : _____ : _____ : _____ : _____ not difficult
- d. Other (expand mobilization base, EEO, etc)
very difficult _____ : _____ : _____ : _____ : _____ : _____ : _____ not difficult

12. Companies have many motivations for performing Government contracts. Rate your perception of the relative strength of each of the motivators below on your organization's behavior on recent contracts.

- a. Provide good product
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- b. Company survival
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- c. Company growth
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- d. Profit on sales
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- e. Return on invested capital
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- f. Enhance public image
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- g. Develop or maintain a skilled workforce
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- h. Utilize excess capacity
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator
- i. Develop new capabilities
strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

j. Long term continuing business relationship with a customer

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

k. Develop a more dominant position in the industry

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

l. Improve cash flow

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

m. Other (identify)

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

n. Other (identify)

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

13. Many incentives, both positive and negative, are available or potentially available to incentivize performance (cost, technical, schedule) on Government contracts. Rate each incentive below in terms of your perception of it's relative effectiveness on your organization.

a. High profit on the contract

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

b. Award fees

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

c. Incentive fee on cost, schedule or technical performance

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

d. Multiple incentive fee on cost and/or schedule and/or technical performance

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

e. Improved cash flow (e.g., progress payments, advance payments)

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

f. Program continuity

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

g. Guarantee of future business or continuity of program

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

h. Long term funded contract (e.g., multi-year K, production options R&D contract, etc)

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

i. Evaluation of past performance in future awards

very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ : very weak

- j. Capital investment protection
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- k. Non-monetary awards (top 10 Army contractors of the year, etc)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- l. Government funded capital investment
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- m. Competition
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- n. Possibility of the withholding of future business
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- o. Monetary loss for poor performance (e.g., liquidated damages)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- p. Possibility of Termination for Default
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- q. Performance Bonds (financial guarantee of performance)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- r. Possibility of competing the next contract
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- s. Good working relationship with Government personnel
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- t. Appropriate contract type for the situation (e.g., FFP, CPFF, etc)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- u. Fair and equitable contract
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- v. High level management contact ("jawboning")
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- w. Other (specify)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- x. Other (specify)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

14. The Government does many things that are perceived to discourage good contractor performance on Government contracts. Rate your perception of the relative effect of the disincentives listed below on your organization.

a. Lack of continuous contractual relationships

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

b. Excessive Government activities involved during performance

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

c. Inadequate lead time

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

d. Government preoccupation with low price (regardless of performance)

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

e. Excessive paperwork requirements

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

f. Undue delays in resolving problems

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

g. Socio-economic contract requirements (e.g., EEO, subcontractor programs)

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

h. Poor specifications

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

i. Other (Identify)

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

j. Other (Identify)

very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

15. Today's economic and political environment influence companies to varying degrees. Rate your perception of the economic and political factors listed below in terms of their relative influence on your organization.

a. Inflation

high degree of influence ___ : ___ : ___ : ___ : ___ : ___ low degree of influence

b. Interest rates

high degree of influence ___ : ___ : ___ : ___ : ___ : ___ low degree of influence

c. Taxation

high degree of influence ___ : ___ : ___ : ___ : ___ : ___ low degree of influence

d. Labor supply (production)

high degree of influence ___:___:___:___:___:___:___ low degree of influence

e. Labor disputes

high degree of influence ___:___:___:___:___:___:___ low degree of influence

f. Labor supply (engineering)

high degree of influence ___:___:___:___:___:___:___ low degree of influence

g. International political situation (e.g., potential for military action)

high degree of influence ___:___:___:___:___:___:___ low degree of influence

h. Domestic political situation (e.g., Congressional and Executive attitudes)

high degree of influence ___:___:___:___:___:___:___ low degree of influence

i. Government regulation

high degree of influence ___:___:___:___:___:___:___ low degree of influence

j. Other (identify)

high degree of influence ___:___:___:___:___:___:___ low degree of influence

16. Events often occur after the award of a Government contract to adversely affect performance. Based on your experience on recent Government contracts rate each item below as to its relative adverse impact on the performance of these Government contracts.

a. There is other more profitable work in the facility

high adverse impact ___:___:___:___:___:___:___ low adverse impact

b. You have other work which has a perceived higher priority within your facility

high adverse impact ___:___:___:___:___:___:___ low adverse impact

c. You have a disagreement with the Government

high adverse impact ___:___:___:___:___:___:___ low adverse impact

d. You come to the realization that you have a "bad deal"

high adverse impact ___:___:___:___:___:___:___ low adverse impact

e. The Government has made excessive changes to the contract

high adverse impact ___:___:___:___:___:___:___ low adverse impact

f. You encounter technical problems which either cannot be resolved or can be resolved only at what you perceive to be an excessive cost

high adverse impact ___:___:___:___:___:___:___ low adverse impact

g. The Government has excessively interfered with contract performance

high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ low adverse impact

h. You have a poor interpersonal relationship with Government personnel involved in the contract (Engineers, QA, DCAS, DCAA, etc.)

high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ low adverse impact

i. Government enforcement of socio-economic provisions has interfered with contract performance

high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ low adverse impact

j. Other (specify)

high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ low adverse impact

17.a. How do you perceive the typical Government/Contractor relationship on your contracts?

completely cooperative _____ : _____ : _____ : _____ : _____ : _____ : _____ completely adversarial

17.b. What should the relationship be?

completely cooperative _____ : _____ : _____ : _____ : _____ : _____ : _____ completely adversarial

Questions 17.c. and 18. below request a written answer of one or two sentences. Please limit your answer to the space provided.

17.c. How can the Government/Contractor relationship be improved?

18. What do you consider to be the greatest future problems in the Government Procurement Process?

APPENDIX B

GOVERNMENT QUESTIONNAIRE



DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA. 22333

DRCPP

21 May 1980

SUBJECT: APRO Contractor Motivation Study

SEE DISTRIBUTION

1. The Army Procurement Research Office is conducting a study on ways to motivate improved contractor performance. The attached questionnaire is designed to obtain data to assess the experience and views of DARCOM procurement personnel on this subject. A companion questionnaire is being circulated by the National Security Industrial Association to a sample of industry members. The data from these questionnaires will be integrated and meaningful comparisons will be attempted. The results will identify areas for possible improvements in the Army's contracting procedures.
2. Your support of this research effort is essential. The final product of this study should provide guidance in improving both the DARCOM procurement process and the relationship between DARCOM and its contractors.

FOR THE COMMANDER:

- 2 Incl
1. Instructions to Coordinator
 2. Government Questionnaires

Jerre W. Sharp
JERRE W. SHARP
Major General, USA
Director of Procurement
and Production

ARMY PROCUREMENT RESEARCH OFFICE
INCENTIVE DEVELOPMENT PROJECT

The purpose of the attached questionnaire is to gather data on Government perception of contractor reactions to various current and proposed possible incentives in various procurement situations. A similar questionnaire is being sent to contractors. We believe that current conditions of change in the defense contracting environment may have created a need for the Government to initiate an effort to identify possible improvements in its contracting procedures. Among these improvements might be making incentives more appropriate to contractor needs and identifying disincentives which impede performance.

This questionnaire will develop information which will help us accomplish these purposes. The data will be used as a basis for review of Army contracting procedures and philosophy, which we hope will bring about improvements in the Government procurement process. The information you provide will not be disclosed outside the Army Procurement Research Office (except as part of aggregate statistics) and will be used solely as an aid to improve the procurement process.

We need your input in order to make this study as useful as possible in improving defense contracting. Please be as candid and open as possible. Your cooperation in this effort is appreciated and will hopefully lead to improvements in the way the Army acquisition process.

PLEASE RETURN NO LATER THAN 16 JUNE 1980 IN INCLOSED ENVELOPE.

Select the one response which best describes you and your organization.

1. What is your present job within your organization? (check one)
 - a. Contracting Officer _____
 - b. Supervisory Contracting Officer
(Branch or Division Chief) _____
 - c. Procurement Manager (above
Division Chief) _____
 - d. Other (specify) _____
2. Is your organization? (check one)
 - a. an R&D Activity _____
 - b. a Readiness Activity _____
 - c. Other (specify) _____
3. What is the primary emphasis of your workload? (check one)
 - a. Price competitive contracts _____
 - b. Technically competitive contracts _____
 - c. Sole source _____
 - d. Other (specify) _____
4. The typical size of firm you deal with is (check one)
 - a. 1 - 100 employees _____
 - b. 100 - 1000 employees _____
 - c. 1000 - 10,000 employees _____
 - d. more than 10,000 employees _____
5. What is the primary emphasis of your contract workload? (check one)
 - a. Basic, exploratory or applied research _____
 - b. Engineering development _____
 - c. Production _____
 - d. Services _____
 - e. Other (specify) _____

c. Ensure delivery is met

very difficult _____ : _____ : _____ : _____ : _____ : _____ : _____ not difficult

d. Other (e.g., expand mobilization base) (specify)

very difficult _____ : _____ : _____ : _____ : _____ : _____ : _____ not difficult

10. Companies have many motivators for performing Government Contracts. Rate the relative strength of each of the motivators below based on your perception of its strength on the contractors with which you deal.

a. Provide a good product

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

b. Company survival

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

c. Company growth

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

d. Profit on sales

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

e. Return on invested capital

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

f. Enhance public image

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

g. Develop or maintain a skilled workforce

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

h. Utilize excess capacity

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

i. Develop new capabilities

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

j. Long term continuing business relationship with a customer

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

k. Develop a more dominant position in the industry.

strong motivator _____ : _____ : _____ : _____ : _____ : _____ : _____ weak motivator

l. Improve cash flow

strong motivator _____:_____:_____:_____:_____:_____:_____ weak motivator

m. Other (identify)

strong motivator _____:_____:_____:_____:_____:_____:_____ weak motivator

n. Other (identify)

strong motivator _____:_____:_____:_____:_____:_____:_____ weak motivator

11. Many incentives, both positive and negative, are available or potentially available to incentivize performance (cost, technical, schedule) on Government contracts. Rate each incentive below in terms of your perception of its relative effectiveness on your contractors.

a. High profit on the contract

very strong _____:_____:_____:_____:_____:_____:_____ very weak

b. Award fees

very strong _____:_____:_____:_____:_____:_____:_____ very weak

c. Incentive fee on cost, schedule, or technical performance

very strong _____:_____:_____:_____:_____:_____:_____ very weak

d. Multiple incentive fee on cost and/or schedule and/or technical performance

very strong _____:_____:_____:_____:_____:_____:_____ very weak

e. Improved cash flow (e.g., progress payments, advance payments)

very strong _____:_____:_____:_____:_____:_____:_____ very weak

f. Program continuity

very strong _____:_____:_____:_____:_____:_____:_____ very weak

g. Guarantee of future business on continuity of program

very strong _____:_____:_____:_____:_____:_____:_____ very weak

h. Long term funded contract (e.g., multi year contract, production options in R&D contract, etc.)

very strong _____:_____:_____:_____:_____:_____:_____ very weak

i. Evaluation of past performance in future awards

very strong _____:_____:_____:_____:_____:_____:_____ very weak

j. Capital investment protection in case of program termination

very strong _____:_____:_____:_____:_____:_____:_____ very weak

- k. Non monetary awards (top 10 Army contractors of the year, etc)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- l. Government funded capital investment
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- m. Competition
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- n. Possibility of the withholding of future business
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- o. Possibility of termination for default
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- p. Performance bonds (financial guarantees of performance)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- q. Possibility of competing the next contract
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- r. Good working relationship with Government personnel
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- s. Appropriate contract type for the situation
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- t. Fair and equitable contract
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- u. High level management contract ("jawboning")
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- v. Other (specify _____)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak
- w. Other (specify _____)
 very strong _____ : _____ : _____ : _____ : _____ : _____ : _____ very weak

12. The Government does many things that are perceived to discourage good contractor performance on Government contracts. Rate your perception of the relative effect of the disincentives listed below on your contractors.

- a. Lack of continuous contractual relationships
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- b. Inability to compete with incumbent Government contractors
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- c. Inadequate lead time
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- d. Government preoccupation with low price (regardless of performance)
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- e. Excessive paperwork requirements
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- f. Undue delays in resolving problems
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- g. Socio-economic contract requirements (e.g., EEO, subcontractor programs)
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- h. Poor specifications
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive
- i. Other (Identify)
very powerful disincentive ___ : ___ : ___ : ___ : ___ : ___ : ___ not a disincentive

13. Today's economic and political environment influence companies to varying degrees. Rate your perception of the economic and political factors listed below in terms of their relative influence on your contractors.

- a. Inflation
high degree of influence ___ : ___ : ___ : ___ : ___ : ___ : ___ low degree of influence
- b. Interest rates
high degree of influence ___ : ___ : ___ : ___ : ___ : ___ : ___ low degree of influence
- c. Taxation
high degree of influence ___ : ___ : ___ : ___ : ___ : ___ : ___ low degree of influence
- d. Labor supply (production)
high degree of influence ___ : ___ : ___ : ___ : ___ : ___ : ___ low degree of influence

- e. Labor disputes
high degree of influence _____ : _____ : _____ : _____ : _____ : _____ : _____ low degree of influence
- f. Labor support (engineering)
high degree of influence _____ : _____ : _____ : _____ : _____ : _____ : _____ low degree of influence
- g. International political situation (e.g., potential for military action)
high degree of influence _____ : _____ : _____ : _____ : _____ : _____ : _____ low degree of influence
- h. Domestic political situation (e.g., Congressional and Executive attitudes)
high degree of influence _____ : _____ : _____ : _____ : _____ : _____ : _____ low degree of influence
- i. Other (specify)
high degree of influence _____ : _____ : _____ : _____ : _____ : _____ : _____ low degree of influence

14. Events often occur after the award of a Government contract to adversely affect performance. Based on your experience on recent contracts awarded by your office, rate your perception of each item on the list below as to its relative adverse impact on the performance of a Government contract.

- a. There is other more profitable work in the contractor's plant
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact
- b. The contractor has other work which has a perceived higher priority within his facility
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact
- c. The contractor has a disagreement with the Government
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact
- d. The contractor comes to the realization that he has a "bad deal"
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact
- e. The Government has made excessive changes to the contract
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact
- f. The contractor encounters technical problems which either cannot be resolved or can be resolved only at what he perceives to be an excessive cost
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact
- g. The Government has excessively interfered with contract performance
high adverse impact _____ : _____ : _____ : _____ : _____ : _____ : _____ no adverse impact

h. The contractor has a poor interpersonal relationship with Government personnel involved in the contract (Engineers, QA, DCAS, DCAA, etc.)

high adverse impact _____:_____:_____:_____:_____:_____ no adverse impact

i. Government enforcement of socio-economic provisions has interfered with contract performance

high adverse impact _____:_____:_____:_____:_____:_____ no adverse impact

j. Other (specify)

high adverse impact _____:_____:_____:_____:_____:_____ no adverse impact

15. Many factors prevent a buying office from properly incentivizing contractors. Rate each item below as to its relative impact on your attempts to utilize incentives.

a. Not enough time to tailor each contract to the situation

very high impact _____:_____:_____:_____:_____:_____ very low impact

b. Government regulations rule out some good business practices

very high impact _____:_____:_____:_____:_____:_____ very low impact

c. Too many non-performance objectives (e.g., socio-economic) detract from performance, cost and schedule objectives

very high impact _____:_____:_____:_____:_____:_____ very low impact

d. Higher level management resistance to innovative procurement techniques

very high impact _____:_____:_____:_____:_____:_____ very low impact

e. Other (specify)

very high impact _____:_____:_____:_____:_____:_____ very low impact

16. It is known that agencies other than the Contracting Office affect performance. Rate the following agencies as their relative effect on performance of contracts awarded by your organization.

a. DCAS

little or no effect _____:_____:_____:_____:_____:_____ considerable effect

b. DCAA

little or no effect _____:_____:_____:_____:_____:_____ considerable effect

c. Program Office

little or no effect _____:_____:_____:_____:_____:_____ considerable effect

d. Higher HQ

little or no effect _____:_____:_____:_____:_____:_____ considerable effect

e. Non-DOD Agencies (OSHA, SBA, FTC, etc.) (Specify)

little or no effect ___:___:___:___:___:___:___ considerable effect

f. Congressional Personnel

little or no effect ___:___:___:___:___:___:___ considerable effect

g. Other (specify)

little or no effect ___:___:___:___:___:___:___ considerable effect

17.a. How do you perceive the typical Government/Contractor relationship on your contracts?

completely cooperative ___:___:___:___:___:___:___ completely adversarial

17.b. What should the relationship be?

completely cooperative ___:___:___:___:___:___:___ completely adversarial

Questions 17c and 18 below request a written answer of one or two sentences. Please limit your answers to the space provided.

17.c. How can the Government contractor relationship be improved?

18. What do you consider to be the greatest future problem in the Government Procurement process?

APPENDIX C

TABLES

TABLE 1
GOVERNMENT RESPONDENTS

<u>JOB</u>	
Contracting Officer	47
Supervisory Contracting Officer	53
Procurement Manager (Division or higher)	8
Other	4
Missing	1
<u>TYPE OF ORGANIZATION</u>	
R&D	61
Readiness	43
Other	6
Missing	3
<u>WORKLOAD EMPHASIS</u>	
Price competition contracts	30
Technical competition contracts	32
Sole source	42
Other	5
Missing	4
<u>TYPICAL FIRM SIZE DEALT WITH</u>	
1 - 100 employees	2
100 - 1000 employees	42
1000 - 10,000 employees	47
> 10,000 employees	15
Missing	7
<u>CONTRACT WORKLOAD EMPHASIS</u>	
Engineering	44
Production	46
Services	2
Other	11
Missing	10
<u>DEGREE OF PRICE COMPETITION</u>	
Non-competitive	34
Competitive	57
Highly competitive	19
Missing	3
<u>DEGREE OF TECHNICAL COMPETITION</u>	
No technical competition	24
Technical competition	54
High technical competition	31
Missing	1

TABLE 2
INDUSTRY RESPONDENTS

<u>SIZE OF FIRM</u>	
1 - 100 employees	3
100 - 1000 employees	4
1000 - 10,000 employees	21
> 10,000 employees	45
Missing	3
<u>SIZE OF DIVISION</u>	
1 - 100 employees	2
100 - 1000 employees	8
1000 - 10,000 employees	39
> 10,000 employees	14
Missing	13
<u>TECHNOLOGY LEVEL</u>	
High	62
Low to medium	12
Missing	2
<u>GROWTH STATUS</u>	
Rapidly growing	13
Growing	42
Mature	19
Missing	2
<u>BASIC MANUFACTURING PROCESS</u>	
Capital intensive	12
Labor intensive	24
Balanced	37
Missing	3
<u>FIRM BUSINESS WITH GOVERNMENT</u>	
< 10%	14
10 - 24%	22
25 - 39%	8
40 - 59%	7
60 - 74%	9
75 - 89%	7
> 90%	8
Missing	1

TABLE 2 (CONT'D)

<u>DIVISION BUSINESS WITH GOVERNMENT</u>	
< 10%	8
10 - 24%	3
25 - 39%	7
40 - 59%	2
60 - 74%	9
75 - 89%	11
> 90%	25
Missing	11
<u>TYPE OF OWNERSHIP</u>	
Closely held	12
Publicly held	58
Publicly held with institutional interest	6
<u>% OF STOCK HELD BY MANAGEMENT</u>	
< 10%	52
10 - 24%	8
25 - 49%	4
50 - 75%	2
> 75%	8
Missing	2
<u>PRIMARY EMPHASIS OF GOVERNMENT BUSINESS</u>	
Research	4
Engineering development	25
Production	32
Services	4
Other	3
Missing	8
<u>DEGREE OF PRICE COMPETITION</u>	
Non-competitive	8
Competitive	35
Highly competitive	31
Missing	2
<u>DEGREE OF TECHNICAL COMPETITION</u>	
No technical competition	1
Technical competition	27
High technical competition	44
Missing	4

TABLE 3
 PERCEIVED RELATIVE IMPORTANCE GOVERNMENT HAS FOR ITS
 OBJECTIVES

<u>Objective</u>	<u>By Government Employees</u>		<u>By Industry</u>
Meet the specifications	1.812	(1)**	1.907 (1)*
Ensure delivery schedule met	2.446	(2)***	2.467 (3)
Keep price at agreed upon level****	2.741	(3)	2.267 (2)

*Significantly different from 2d place (P < .025)
 **Significantly different from 2d place (P < .000)
 ***Significantly different from 3rd place (P < .025)
 ****Group scores significantly different (P < .01)

TABLE 4

GOVERNMENT OBJECTIVES PERCEIVED BY GOVERNMENT GROUPINGS

	<u>Meet Specs</u>	<u>Keep Price</u>	<u>Meet Schedule</u>
<u>JOB</u>			
Contracting Officer	1.94	2.68	2.53
Supervisory Contracting Officer	1.70	2.75	2.38
Procurement Manager	1.88	2.63	2.25
<u>ORGANIZATION</u>			
R&D	1.95*	3.00*	2.72*
Readiness	1.58	2.35	1.91
	*P < .025)	*P < .025	*P < .001
<u>WORKLOAD EMPHASIS</u>			
Price competition	1.72	2.44	1.97*
Technical competition	1.72	2.97	3.03
Sole source	2.05	2.86	2.48
Other	1.40	2.20	2.20
			*P < .05
<u>FIRM SIZE DEALT WITH</u>			
1 - 100 employees	2.00	3.50*	2.00*
100 - 1000 employees	1.71	2.50	2.05
1000 - 10,000 employees	1.84	3.11	2.89
> 10,000 employees	2.00	2.27	2.53
		*P < .05	*P < .025
<u>CONTRACT EMPHASIS</u>			
R&D	1.93	3.25*	3.00*
Production	1.67	2.30	1.93
		*P < .001	*P < .000
<u>DEGREE OF PRICE COMPETITION</u>			
Non-competitive	2.00	3.18*	2.82*
Competitive	1.82	2.79	2.46
Highly competitive	1.47	1.89	1.84
		*P < .0025	*P < .05
<u>DEGREE OF TECHNICAL COMPETITION</u>			
No technical competition	1.88	2.67	2.25
Technical competition	1.80	2.61	2.29
Highly technical competition	1.79	3.00	2.82
	1.81	2.74	2.44

TABLE 5

GOVERNMENT OBJECTIVES PERCEIVED BY INDUSTRY GROUPINGS

	<u>Meet Specs</u>	<u>Keep Price</u>	<u>Keep Schedule</u>
<u>SIZE FIRM</u>			
Small (< 10,000)	1.75	2.32	2.64
Large (> 10,000)	2.02	2.25	2.41
<u>SIZE DIVISION</u>			
1 - 100 employees	2.00	3.50*	2.00
100 - 1000 employees	1.36	2.63	2.75
1000 - 10,000 employees	2.03	2.40	2.42
> 10,000 employees	1.86	1.80	2.57
		(T-Test, P ~ .05)	
<u>ORGANIZATION TECHNOLOGY</u>			
High	1.93	2.21	2.46
Medium-low	1.75	2.50	2.58
<u>GROWTH STATUS</u>			
Rapidly growing	1.83	2.25	2.42
Growing	2.00	2.29	2.50
Mature	1.74	2.11	2.47
<u>MANUFACTURING PROCESS</u>			
Capital intensive	1.58	2.67	2.08
Labor intensive	2.09	2.26	2.70
Balanced	1.89	2.11	2.41
<u>FIRM GOVERNMENT BUSINESS</u>			
< 10%	1.93	2.07	2.29
10 - 24%	2.23	2.50	2.41
25 - 39%	1.50	2.75	2.86
40 - 59%	1.86	3.14	2.71
60 - 74%	1.75	1.03	2.00
75 - 89%	1.86	1.71	3.29
> 90%	1.75	2.00	2.25
<u>DIVISION GOVERNMENT BUSINESS</u>			
< 10%	1.75	1.88	2.38
10 - 24%	3.00	2.33	3.00
25 - 39%	1.43	2.57	2.43
40 - 59%	1.50	2.00	1.50
60 - 74%	1.67	1.78	2.44
75 - 89%	2.00	2.09	2.72
> 90%	2.04	2.67	2.54

TABLE 5 (CONT'D)

	<u>Meet Specs</u>	<u>Keep Price</u>	<u>Keep Schedule</u>
<u>FIRM OWNERSHIP</u>			
Closely held	1.58	2.25	1.92*
Publicly held	1.97	2.23	2.58
			*P < .05
<u>% OWNERSHIP BY MANAGEMENT</u>			
< 10%	1.96	2.35	2.54
> 10%	1.77	2.14	2.32
<u>GOVERNMENT BUSINESS EMPHASIS</u>			
R&D	1.97	2.59	2.76
Production	1.81	2.19	2.34
<u>AMOUNT OF PRICE COMPETITION</u>			
Non-competitive	2.00	3.25*	2.13
Competitive	1.91	2.49	2.74
Highly competitive	1.90	1.77	2.26
		*P < .001	
<u>AMOUNT OF TECHNICAL COMPETITION</u>			
Technical competition	1.89	2.48	2.70
Highly competition	2.00	2.14	2.32

TABLE 6

EFFECTIVENESS OF GOVERNMENT INCENTIVES

<u>Incentive</u>	<u>By Government Emp.</u>	<u>By Industry</u>
High profit	2.54 (5)	2.34 (5)
Award fees***	4.01 (17)	3.23
Incentive fee#	3.66	3.09
Multiple incentive fee**	4.19 (18)	3.27
Improved Cash flow	2.64 (4)	2.41 (6)
Program continuity**	2.41 (2)	1.89 (3)#
Guarantee of future business	2.06 (1)*	1.88 (2)#
Long term funded contract	2.50 (3)	2.48 (7)
Evaluation of past performance***	3.74	3.12
Capital investment protection	3.10	3.00
Non-monetary awards	4.89 (21)	5.26 (22)
Government funded capital investments	3.46	3.93 (20)
Competition	2.80 (7)	3.01
Withholding of future business	3.40	3.29
Monetary loss for poor performance	Omitted	3.59 (18)
Termination	4.20 (19)	3.91 (19)
Performance bonds	4.89 (21)	4.88 (21)
Possibility of competing next contract	3.18	2.90
Good working relationship*	3.50	2.58
Appropriate contract type*	3.01	2.04 (4)#
Fair and equitable contract*	2.78 (16)	1.87 (1)#
High level management contract	3.90 (16)	3.57 (17)

*P < .0001 (Significantly different from those below)

**P < .001 (Groups significantly different)

***P < .01 (Groups significantly different)

#P < .025 (Significantly different from 5th and below)

TABLE 7

EFFECTIVENESS OF GOVERNMENT INCENTIVES BY GOVERNMENT GROUPINGS

JOB	High Profit	Award Fees	Incentive Fee	Multiple Incen. Fee	Cash Flow	Program Continuity	Future Business	Long-term Contract	Past Performance	Capital Investment	Non-Monetary Awards
Contracting Officer	2.55	4.07	3.48	4.18	2.47	2.39	2.13	2.58	3.57	3.11	4.77
Supervisory Con. Officer	2.72	4.14	3.85	4.31	2.74	2.41	2.04	2.61	3.92	3.25	5.06
Procurement Manager	3.00	3.88	4.00	4.14	2.88	2.38	1.75	1.75	3.88	2.25	5.13
<u>ORGANIZATION</u>											
R&D	2.85	3.95	3.44*	4.22	2.67	2.25*	1.84*	2.32	3.62	3.00	4.80
Readiness	2.42	4.37	4.12	4.39	2.70	2.70	2.48	2.80	3.83	3.37	5.14
			*p < .05			*p ~ .05	*p < .01				
<u>WORKLOAD EMPHASIS</u>											
Price competition	2.34	3.77	3.86	4.00	2.27	2.62	2.36	2.52	3.67	2.90	5.10
Technical competition	3.06	3.97	3.56	4.34	3.00	2.29	1.77	2.29	3.41	3.34	5.00
Sole source	2.57	4.15	3.66	4.40	2.67	2.40	2.07	2.70	4.05	2.98	4.76
Other	2.80	4.25	3.80	3.50	3.00	2.20	2.00	2.20	4.40	3.75	4.80
<u>FIRM SIZE DEALT WITH</u>											
1 - 100 employees	2.00	3.00	3.00	3.00	1.50	1.50	1.50	3.00	3.50*	2.50	5.50
100 - 1000 employees	2.76	4.00	3.93	4.18	2.64	2.55	2.25	2.44	3.38	3.02	4.88
1000 - 10,000 employees	2.65	3.98	3.50	4.13	2.70	2.23	1.80	2.37	3.93	3.13	4.98
> 10,000 employees	2.73	4.40	3.87	4.80	2.33	2.53	2.27	3.07	4.40	3.20	5.00
									*p < .05		
<u>CONTRACT EMPHASIS</u>											
R&D	2.91*	3.75	3.43	4.23	2.66	2.25	1.93	2.39	3.80	3.05	4.66
Production	2.22	4.13	3.93	4.05	2.52	2.58	2.35	2.69	3.67	3.02	5.00
<u>DEGREE OF PRICE COMPETITION</u>											
Non-competitive	2.82	4.27	3.79	4.79*	2.76	2.24	2.00	2.82	4.09	3.55	4.83
Competitive	2.55	3.91	3.70	4.13	2.77	2.44	2.05	2.36	3.67	2.96	5.00
Highly competitive	2.68	3.95	3.44	3.44	2.11	2.67	2.22	2.47	3.63	2.84	4.89
<u>DEGREE OF TECHNICAL COMPETITION</u>											
No technical competition	2.42	4.36	3.52	4.13	2.67	2.43	2.04	2.57	3.91	3.39	4.79
Technical competition	2.65	3.96	3.96	4.29	2.59	2.48	2.24	2.73	3.72	3.20	5.09
Highly technical comp.	2.82	3.91	3.35	4.12	2.68	2.23	1.79	2.09	3.68	2.74	4.71

TABLE 7 (CONT'D)

JOB	Gov't Invest.	Competition	Withholding Fut. Business	Termination	Perf. Bonds	Competing Next Cont.	Good Relat.	Appropriate Contract type	Fair & equitable	High-level Management
Contracting Officer	3.57	2.60	3.43	4.07	4.58	2.83	3.30	2.98	2.74	3.62
Supervisory Con. Officer	3.49	3.02	3.34	4.21	5.22	3.47	3.70	3.13	2.83	4.21
Procurement Manager	2.50	2.63	3.50	4.50	4.50	3.00	3.13	2.38	2.50	3.75
<u>ORGANIZATION</u>										
R&D	3.18*	2.64	3.16	4.36	4.73	3.02	3.43	2.90	2.80	3.90
Readiness	3.93	3.00	3.81	3.98	5.24	3.40	3.60	3.14	2.72	4.10
	*p < .05									
<u>WORKLOAD EMPHASIS</u>										
Price competition	4.00	2.77	3.52	3.52	4.90	3.40	3.17	2.90	2.57*	3.69*
Technical competition	3.47	2.44	3.09	4.22	5.00	2.66	3.53	3.22	3.13	4.44
Sole source	3.10	3.12	3.43	4.38	4.92	3.31	3.48	2.83	2.48	3.43
Other	3.00	2.40	3.80	5.20	3.75	3.20	4.00	3.00	3.60	5.50
				*p < .05					*p < .05	*p < .005
<u>FIRM SIZE DEALT WITH</u>										
1 - 100 employees	4.50	4.50	2.50	2.50*	5.50	3.00	2.50	3.00*	2.50	3.50
100 - 1000 employees	3.66	2.57	3.41	3.71	4.56	2.79	3.29	2.74	2.43	3.93
1000 - 10,000 employees	3.11	2.98	3.30	4.34	4.91	3.28	3.66	3.09	2.96	3.91
> 10,000 employees	3.53	2.40	3.40	4.60	5.36	3.33	3.33	3.27	2.87	3.67
				*p < .05				*p < .05		
<u>CONTRACT EMPHASIS</u>										
R&D	3.27	2.27*	3.39	4.50*	4.60	2.82	3.57	3.05	2.91	4.09
Production	3.70	2.91	3.36	3.33	5.00	3.33	3.39	3.02	2.50	3.73
		*p < .05		*p < .005						
<u>DEGREE OF PRICE COMPETITION</u>										
Non-competitive	3.18	3.06	3.59	4.82*	5.03	3.47	3.85	3.29	3.06	3.94*
Competitive	3.66	2.75	3.30	4.02	4.81	2.98	3.39	2.98	2.77	4.23
Highly competitive	3.58	2.26	3.56	3.50	4.79	3.05	3.16	2.68	2.32	3.00
				*p < .05						*p < .01
<u>DEGREE OF TECHNICAL COMPETITION</u>										
No technical competition	3.38	3.75*	3.83	4.50*	5.14	4.17*	4.13*	3.08	2.75	3.75
Technical competition	3.60	2.61	3.21	3.57	4.66	2.81	3.26	2.94	2.76	4.21
Highly technical comp.	3.29	2.41	3.41	4.91	5.10	3.06	3.41	3.09	2.79	3.56
		*p ~ .05		*p < .005		*p < .01	*p < .05			

TABLE 8

EFFECTIVENESS OF GOVERNMENT INCENTIVES PERCEIVED BY INDUSTRY GROUPINGS

	High Profit	Award Fees	Incent. Fee	Multiple Incent. Fee	Cash Flow	Program Continuity	Future Business	Long-term Contract	Past Perf.	Capital Invest.	Non-Monetary Awards	Gov't Investment
SIZE FIRM												
Small (< 10,000)	2.11	3.04	3.07	3.33	2.36	1.61*	1.68	2.43	2.64*	2.92	5.39	4.15
Large (> 10,000)	2.52	3.23	3.05	3.19	2.48	2.07	2.00	2.41	3.39	3.00	5.18	3.69
						*p < .05			*p < .05			
SIZE DIVISION												
1 - 100 employees	1.00*	3.00	5.00	6.50	2.00	1.00	1.00	5.00*	5.00	3.50	7.00	7.00*
100 - 1000 employees	1.38	2.50	2.75	3.00	3.25	1.88	1.75	3.00	3.25	3.13	4.75	4.00
1000 - 10,000 employees	2.55	3.46	3.28	3.39	2.36	1.87	1.82	2.21	3.05	3.05	5.13	3.97
> 10,000 employees	2.42	2.54	2.38	2.54	2.54	2.23	2.15	2.69	3.46	3.07	5.36	2.93
	*p < .025 (1-test)							*p < .05				*p < .025 T-test
ORGANIZATION TECHNOLOGY												
High	2.29	3.08	3.00	3.25	2.46	1.92	1.87	2.46	3.21*	2.94	5.23	3.85
Medium-low	2.58	3.33	3.17	3.09	2.17	1.67	1.83	2.33	2.42	3.30	3.91	3.91
									*p < .053			
GROWTH STATUS												
Rapidly growing	2.85	3.38	3.62*	3.73	3.15*	2.08	1.92	2.38	3.08	3.31	5.42	4.08
Growing	2.08	2.88	2.59	2.88	2.05	1.80	1.80	2.41	3.00	2.73	5.00	3.67
Mature	2.53	3.47	2.58	3.63	2.68	1.89	1.95	2.53	3.26	3.33	5.68	4.16
			*p < .025		*p < .05							
MANUFACTURING PROCESS												
Capital intensive	2.42	4.67*	4.33*	4.50*	3.50*	2.08	2.17	3.42*	4.08*	3.33	6.25*	4.25*
Labor intensive	2.21	3.17	3.08	3.09	2.08	1.71	1.63	2.17	2.71	2.70	5.04	4.43
Balanced	2.41	2.58	2.56	2.86	2.22	1.92	1.92	2.28	2.97	3.03	5.03	3.43
		*p < .001		*p < .005	*p < .01			*p < .05	*p < .025		*p < .05	*p < .05
FIRM GOVERNMENT BUSINESS												
< 10%	2.43	3.43	3.36	3.57	3.00	2.43	2.36	2.29	3.14	3.50	5.79	3.79
10 - 24%	2.68	3.52	3.24	3.29	2.43	2.00	1.86	2.57	3.48	2.91	4.86	3.95
25 - 39%	1.50	4.13	4.38	5.00	2.63	1.75	1.75	2.88	3.50	3.63	6.00	5.38
40 - 59%	2.29	2.71	2.43	2.71	2.29	1.86	1.86	2.86	3.43	2.83	5.57	3.43
60 - 74%	2.44	2.78	2.78	2.75	2.33	1.89	1.67	2.00	2.56	2.33	4.67	3.33
75 - 89%	2.29	2.71	2.43	2.71	1.71	1.43	1.57	1.71	3.00	2.29	5.00	3.00
> 90%	2.38	2.86	2.75	2.71	2.13	1.38	1.88	2.88	2.38	3.14	5.50	4.71

TABLE 8 (CONT'D)

	Competition	Withholding Fut. Business	Monetary Loss	Termination	Perf. Bonds	Competing Next Cont.	Good Relat.	Appropriate Contract Type	Fair & equitable	High-level Management
<u>SIZE FIRM</u>										
Small (< 10,000)	2.78	2.79	3.43	3.82	4.40	2.86	2.25	1.96	1.64	3.21
Large (> 10,000)	3.16	3.53	3.64	3.89	5.09	2.89	2.76	2.11	2.04	3.70
<u>SIZE DIVISION</u>										
1 - 100 employees	4.50	3.50	2.00	2.50	2.00	5.50	1.50*	2.00	2.00	4.00
100 - 1000 employees	2.88	2.88	3.38	3.13	4.25	2.63	2.63	1.63	1.38	3.00
1000 - 10,000 employees	3.05	3.56	3.44	3.72	4.95	2.56	2.36	1.92	1.87	3.26
> 10,000 employees	3.07	3.36	3.86	4.36	4.93	3.36	3.36	2.50	2.29	4.21
							*P < .05			
<u>ORGANIZATION TECHNOLOGY</u>										
High	3.00	3.26	3.60	3.82	4.98	2.89	2.71*	2.03	1.94	3.61
Medium-low	3.00	3.08	3.42	3.92	3.90	2.83	1.67	2.08	1.58	3.08
							*P < .05			
<u>GROWTH STATUS</u>										
Rapidly growing	3.62	3.23	3.92	4.69	4.83	2.92	2.38	2.31*	2.00	3.62
Growing	2.71	3.02	3.40	3.57	4.90	2.81	2.45	1.74	1.67	3.45
Mature	3.21	3.68	3.68	3.84	4.67	3.00	2.84	2.53	2.26	3.61
								*P < .05		
<u>MANUFACTURING PROCESS</u>										
Capital intensive	3.92	4.33*	3.75	4.42	5.18	3.75	2.83	2.67	2.08	3.55
Labor intensive	2.96	2.50	3.67	3.96	5.04	2.71	2.42	2.04	1.88	3.75
Balanced	2.69	3.32	3.49	3.62	4.67	2.70	2.46	1.78	1.76	3.43
		*P < .025								
<u>FIRM GOVERNMENT BUSINESS</u>										
< 10%	3.79	4.93*	4.07	3.93	5.21	3.29	2.64	2.50	2.14	4.15
10 - 24%	2.95	3.36	3.73	4.23	5.45	2.68	2.73	1.64	1.59	3.36
25 - 39%	3.14	3.50	3.38	3.25	3.83	3.25	2.88	2.50	2.00	3.50
40 - 59%	2.86	3.14	2.86	3.29	4.57	2.57	2.86	2.29	2.29	3.57
60 - 74%	2.67	3.00	3.11	4.33	4.44	2.89	2.56	2.11	1.89	3.78
75 - 89%	3.00	2.00	3.43	4.14	4.86	3.57	2.43	2.00	2.29	3.71
> 90%	2.38	1.75	3.88	3.75	4.29	2.13	1.88	1.75	1.38	2.88
		*P < .005								

TABLE 8 (CONT'D)

	High Profit	Award Fees	Incent. Fee	Multiple Incent. Fee	Cash Flow	Program Continuity	Future Business	Long-term Contract	Past Perf.	Capital Invest.	Non-Monetary Awards	Gov't Investment
<u>DIVISION GOVERNMENT BUSINESS</u>												
< 10%	2.50	3.63*	3.88*	3.75*	3.50	2.50	2.38	2.50	3.50	4.00	6.13*	3.88
10 - 24%	1.33	2.33	2.33	2.67	1.67	2.00	2.00	1.67	3.33	2.33	5.33	3.67
25 - 39%	1.86	4.57	4.14	4.86	3.00	2.00	1.86	2.14	3.43	3.86	6.29	5.43
40 - 59%	2.50	6.50	6.50	6.50	3.00	1.50	1.50	1.50	3.50	3.00	5.00	4.50
60 - 74%	2.00	3.33	2.33	2.33	2.11	1.67	1.78	2.89	3.22	3.00	4.67	4.22
75 - 89%	2.33	2.50	2.70	2.90	2.10	2.00	1.90	2.00	3.70	2.45	4.70	2.36
> 90%	2.58	2.88	2.92	3.08	2.32	1.80	1.72	2.92	2.96	2.88	5.00	4.12
		*p < .05	*p < .05	*p < .025							*p < .005	
		T-test	T-test	T-test							T-test	
<u>FIRM OWNERSHIP</u>												
Closely held	2.25	3.08	3.25	3.55	1.58*	1.42*	1.75	2.67	2.42	2.70	4.92	4.36
Publicly held	2.49	3.26	3.09	3.25	2.60	1.98	1.89	2.44	3.26	3.05	5.33	3.74
					*p < .0025	*p < .025						
<u>% OWNERSHIP BY MANAGEMENT</u>												
< 10%	2.33	3.29	2.92	3.06	2.41	1.84	1.78	2.33	3.18	2.88	5.27	3.77
> 10%	2.14	2.95	3.36	3.81	2.23	2.23	2.09	2.86	3.09	3.30	5.23	4.10
<u>GOVERNMENT BUSINESS EMPHASIS</u>												
R&D	2.36	2.75	2.93	3.22	2.43	1.86	1.64	2.25	3.11	3.24	5.00	4.07
Production	2.13	3.53	3.34	3.41	2.47	1.91	1.97	2.63	3.25	2.81	5.41	3.69
<u>AMOUNT OF PRICE COMPETITION</u>												
Non-competitive	3.38	3.63	3.13	3.25	2.63	1.88	1.75	3.25	4.13	3.63	6.13	4.63
Competitive	2.43	3.34	3.14	3.59	2.54	1.91	1.86	2.49	3.06	3.09	5.38	4.12
Highly competitive	2.07	2.97	2.97	2.97	2.10	1.80	1.86	2.23	2.97	2.74	4.90	3.45
<u>AMOUNT OF TECHNICAL COMPETITION</u>												
Technical competition	2.41	3.74	3.41	3.81	2.74	1.96	1.96	2.04	3.07	3.50*	5.42	3.93
Highly competition	2.27	2.91	2.81	2.93	2.14	1.86	1.84	2.58	3.23	2.81	5.16	3.81
											*p < .05	

TABLE 8 (CONT'D)

	Competition	Withholding Fut. Business	Monetary Loss	Termination	Perf. Bonds	Competing Next Cont.	Good Relat.	Appropriate Contract Type	Fair & Equitable	High-level Management
<u>DIVISION GOVERNMENT BUSINESS</u>										
< 10%	4.38	6.00*	5.13	4.75	4.88	3.63	2.88	2.75*	2.38	4.71*
10 - 24%	3.00	3.67	2.67	4.00	6.00	3.33	3.00	2.67	2.67	4.00
25 - 39%	2.67	4.43	4.14	3.86	4.67	2.71	2.86	2.43	1.86	3.86
40 - 59%	4.00	2.50	1.50	1.50	4.50	2.00	3.00	2.50	2.00	3.50
60 - 74%	2.89	2.56	3.11	4.44	5.56	3.33	2.11	1.44	1.56	3.44
75 - 89%	2.73	2.91	3.64	3.73	4.55	2.64	2.73	1.73	1.64	3.73
> 90%	2.84	2.88	3.12	3.40	4.67	2.64	2.56	1.84	1.84	3.04
		*p < .0001						*p < .05		*p < .05
								T-test		
<u>FIRM OWNERSHIP</u>										
Closely held	2.58	2.08*	3.00	3.17	3.10*	2.67	1.58*	1.58	1.42*	3.08
Publicly held	3.16	3.59	3.66	4.10	5.10	2.97	2.10	2.10	1.93	3.70
		*p < .025			*p < .005		*p < .01		*p < .05	
<u>% OWNERSHIP BY MANAGEMENT</u>										
< 10%	2.90	3.46	3.54	3.83	5.02	2.75	2.67	1.94	1.79	3.55
> 10%	3.18	2.82	3.55	3.91	3.27	3.27	2.45	2.32	2.09	3.45
<u>GOVERNMENT BUSINESS EMPHASIS</u>										
R&D	2.93	2.93	3.45	3.55	4.61	2.66	2.41	1.83	1.83	3.34
Production	3.06	3.69	3.59	3.88	4.84	3.22	2.69	2.16	1.88	3.87
<u>AMOUNT OF PRICE COMPETITION</u>										
Non-competitive	3.38	4.25	3.63	5.00	5.86	3.50	2.25	2.00	2.13	3.50
Competitive	3.24	3.06	3.51	3.91	4.73	2.71	2.57	2.11	1.83	3.63
Highly competitive	2.61	3.26	3.65	3.52	4.71	2.94	2.65	2.00	1.87	3.43
<u>AMOUNT OF TECHNICAL COMPETITION</u>										
Technical competition	3.46*	3.63	3.44	4.11	4.85	2.78	2.59	2.30	1.96	3.41
Highly competitive	2.68	3.16	3.75	3.77	4.84	2.95	2.61	1.98	1.89	3.65
		*p < .05								

TABLE 9
EFFECTIVENESS OF GOVERNMENT DISINCENTIVES

	<u>By Government Emp.</u>	<u>By Industry</u>
Lack of contractual relationships**	3.35 (7)	2.87 (6)
Inability to compete	2.99 (4)	2.69 (4)
Inadequate lead time	2.97 (3)	2.71 (5)
Preoccupation with low price**	3.11 (5)	2.40 (2)*
Excessive paperwork	2.36 (1)*	2.16 (1)*
Undue delays	2.63 (2)	2.43 (3)*
Socio-economic contract requirements	3.13 (6)	3.48 (8)
Poor specifications	3.42 (8)	3.36 (7)

*P < .001 (Significantly different from 4th and rest)
 **P < .001 (Significantly different groups)
 ***P < .025 (Significantly different groups)

TABLE 10

EFFECTIVENESS OF GOVERNMENT DISINCENTIVES PERCEIVED BY GOVERNMENT GROUPINGS

	Lack of Relationship	Inability to Compete	Inadequate lead time	Low Price	Excessive Paperwork	Delays	socio-economic	Poor Specs
<u>JOB</u>								
Contracting Officer	3.26	3.00	3.02	3.32	2.64	3.02*	3.30	3.72
Supervisory Con. Officer	3.51	3.11	2.96	3.09	2.15	2.32	3.04	3.23
Procurement Manager	2.88	2.38	2.25	2.63	2.50	2.75	3.25	3.13
						*p < .05		
<u>ORGANIZATION</u>								
R&D	3.26	2.72*	2.59*	3.28	2.52	2.82	3.41	3.51
Readiness	3.44	3.33	3.28	2.88	2.19	2.42	2.86	3.23
		*p < .05	*p < .025					
<u>WORKLOAD EMPHASIS</u>								
Price competition	3.20	3.30	3.17	2.63	2.47	2.33	3.06	3.03*
Technical competition	3.28	2.81	2.72	3.21	2.59	3.00	3.53	3.53
Sole source	3.57	2.93	2.95	3.36	2.19	2.67	3.00	3.86
Other	3.00	3.20	2.80	2.40	2.00	2.20	2.00	1.80
								*p < .05
<u>FIRM SIZE DEALT WITH</u>								
1-1000 employees	3.26	2.72	2.59	3.28	2.52	2.82	3.41	3.51
> 1000 employees	3.44	3.33	3.78	2.88	2.19	2.42	2.86	3.23
<u>CONTRACT EMPHASIS</u>								
R&D	3.36	2.75	2.84	3.34	2.36	2.82	3.36	3.45
Production	3.35	3.30	3.28	2.96	2.48	2.48	3.11	3.39
<u>DEGREE OF PRICE COMPETITION</u>								
Non-competitive	3.85	3.15	2.97	3.56*	2.32	3.09*	3.21	3.85
Competitive	3.11	2.93	2.91	3.07	2.39	3.21	3.21	3.11
Highly competitive	3.26	2.84	3.00	2.26	2.21	2.79	2.79	3.42
				*p < .025		*p < .025		
<u>DEGREE OF TECHNICAL COMPETITION</u>								
No technical competition	3.83	3.21	3.08	3.17	2.38	2.58	2.96	3.67
Technical competition	3.35	2.87	2.87	3.20	2.43	2.61	2.96	3.17
Highly technical comp.	2.94	3.00	3.03	2.94	2.29	2.52	2.52	2.65

TABLE 11

EFFECTIVENESS OF GOVERNMENT DISINCENTIVES PERCEIVED BY INDUSTRY GROUPINGS

	Lack of Relationship	Excessive activities	Inadequate lead time	Low Price	Excessive Paperwork	Delays	Socio-economic	Poor Specs
SIZE FIRM								
Small (< 10,000)	2.67	2.63	2.54	2.29	2.07	2.11*	3.07	3.11
Large (> 10,000)	2.87	2.76	2.82	2.49	2.24	2.62	3.73	3.49
						*p < .05		
SIZE DIVISION								
< 100 employees	3.50	4.00	2.50	4.50	1.50	2.00	4.50	4.50
100 - 1000 employees	3.00	2.25	2.38	2.13	2.50	2.50	3.75	3.13
1000 - 10,000 employees	2.76	2.67	2.67	2.38	2.15	2.36	3.38	3.54
> 10,000 employees	2.86	2.64	2.93	2.43	2.36	3.00	3.69	3.07
ORGANIZATION TECHNOLOGY								
High	2.85	2.71	2.73	2.27	2.13	2.40	3.59	3.29
Medium-Low	2.50	2.73	2.50	3.00	2.33	2.42	2.92	3.42
GROWTH STATUS								
Rapidly growing	2.83	2.69	2.77	2.31	2.54	2.69	3.00	3.46
Growing	2.79	2.66	2.50	2.21	2.10	2.31	3.80	3.14
Mature	2.79	2.84	3.05	2.84	2.05	2.42	3.11	3.58
MANUFACTURING PROCESS								
Capital intensive	2.58	3.08	2.92*	2.67	2.17*	3.00	3.42	4.17
Labor intensive	2.87	3.04	2.71	2.33	2.71	2.54	3.83	3.42
Balanced	2.84	2.41	2.30	2.30	1.84	2.16	3.33	2.97
			*p < .001		*p < .025			
FIRM GOVERNMENT BUSINESS								
< 10%	2.57	2.86	3.36	2.00	2.00	2.71	3.43	3.71
10 - 24%	3.05	2.59	2.77	2.41	2.36	2.55	4.27	3.77
25 - 39%	2.88	2.63	2.63	3.25	2.13	2.38	3.00	3.00
40 - 59%	2.14	2.29	2.86	3.00	2.43	2.00	2.86	3.14
60 - 74%	3.50	3.44	2.56	2.11	2.22	2.67	3.33	3.56
75 - 89%	3.00	2.14	2.00	2.57	1.86	2.29	2.50	2.86
> 90%	2.75	2.71	2.38	2.00	2.00	2.13	3.25	2.63

TABLE 11 (CONT'D)

	Lack of Relationship	Excessive activities	Inadequate lead time	Low Price	Excessive Paperwork	Delays	Socio-economic	Poor Specs
<u>DIVISION GOVERNMENT BUSINESS</u>								
< 10%	2.13	2.25	4.00*	2.00	1.63	3.13	3.00	4.50
10 - 24%	3.33	4.00	3.33	2.67	4.00	3.67	3.33	4.00
25 - 39%	3.29	2.57	2.71	2.57	1.57	2.29	3.43	2.86
40 - 59%	2.50	1.50	3.00	2.00	1.50	1.50	1.50	3.00
60 - 74%	3.78	3.00	2.22	1.89	2.11	2.11	3.89	3.00
75 - 89%	2.55	2.09	2.45	2.36	1.73	2.45	3.60	2.82
> 90%	2.88	2.88	2.48	2.68	2.68	2.56	3.80	3.72
			*P < .05					
<u>FIRM OWNERSHIP</u>								
Closely held	2.92	2.82	2.50	2.50	1.67*	2.17	2.83	3.25
Publicly held	2.89	2.67	2.67	2.38	2.29	2.48	3.58	3.36
					*P < .05			
<u>% OWNERSHIP BY MANAGEMENT</u>								
< 10%	2.88	2.58	2.65	2.35	2.06	2.29	3.57	3.23
> 10%	2.76	2.86	2.86	2.55	2.32	2.73	3.27	3.73
<u>GOVERNMENT BUSINESS EMPHASIS</u>								
R&D	3.00	2.55	2.59	2.45	2.10	2.28	3.93	3.34
Production	2.91	2.69	2.88	2.34	2.13	2.69	3.13	3.56
<u>AMOUNT OF PRICE COMPETITION</u>								
Non-competitive	3.86	3.00	3.50	3.63*	3.13*	2.50	3.88	4.63*
Competitive	2.71	2.41	2.54	2.29	2.11	2.37	3.32	3.34
Highly competitive	2.71	2.84	2.68	2.16	1.87	2.42	3.52	3.00
				*P < .01	*P < .05			*P < .05
<u>AMOUNT OF TECHNICAL COMPETITION</u>								
Technical competition	2.73	2.23*	2.70	2.26	2.19	2.30	2.56*	3.22
Highly competition	2.80	2.86	2.70	2.41	2.02	2.45	3.98	3.34
		*P < .05					*P < .0001	

TABLE 12

HIGHEST CORRELATIONS BETWEEN
CONTRACTOR OBJECTIVES AND EFFECTIVE
GOVERNMENT INCENTIVES: PERCEIVED BY GOVERNMENT**

	HIGH PROFIT	AWARD FEES	INCENT FEES	MULT INCENT	CASH FLOW	CONTINUITY	FUTURE BUS	LT FUNDED K	PAST PERF	CAP INVES PR	NON-MONETARY	GF CAP INVES	COMPETITION	DENY FUT BUS	POOR PERF LOS	T 4 0	PERF BONDS	THREAT OF COM	GOOD RELAT	APPROP K TYP	FAIR/EQ K	JAMMING
GOOD PRODUCT					*.272	.325												.316				
SURVIVAL																						
GROWTH			.296					.387														.298
PROFIT	.473							.417														
ROI	.452	*.283	*.312	*.261		.297	*.250	.551	.310	.551					.315			.491	.370	.308	.304	*.249
IMAGE				.364	*.265			.289	.289	.291	.312							.360				
SKILLS				.343	.389	.309		*.242	*.242	.336											.340	
EXCESS CAPNC								.308														.244
NEW CAPABIL				.309	.331	.380																
CONT RELAT				.375	.405				.400				*.249		.344			.379	*.251	*.272		
DOMINANT POS																						.287
CASH FLOW				*.278	*.515																	*.282

p < .0025 (No *)

P < .01 (*)

**incentive 15 left off Government Questionnaire

TABLE 13

HIGHEST CORRELATIONS BETWEEN
CONTRACTOR OBJECTIVES AND GOVERNMENT
INCENTIVES: CONTRACTOR PERCEPTIONS

	HIGH PROFIT	AWARD FEES	INCENT FEES	MULTI INCENT	CASH FLOW	CONTINUITY	FUTURE BUS	LT FUNDED K	PAST PERF	CAP INVES PR	NON-MONETARY	GF CAP INVES	COMPETITION	DENY FUT BUS	POOR PERF LOS	T 4 D	PERF BONDS	THREAT OF COM	GOOD RELAT	APPROP K TYP	FAIR/EQ K	ABANDONING
GOOD PRODUCT									.352	.422	.348	*.302	.481					.358				
SURVIVAL					.464	*.319			*.307	*.336				.542	.257	.344	.332					
GROWTH						*.322	.365		.383					.345	.377							
PROFIT	*.299				.514				.442				*.298	.348	.344							
ROI					*.303					.437	.355		.385	.421								
IMAGE						*.314							.369					.432				
SKILLS									.473	.386	.358		*.333	*.296		.419	.415				.357	
EXCESS CAPNC						*.298			.369	.437			.376					.377	.383	.452	.526	
NEW CAPABIL									.460	.411	*.329		.447	.431					.634	*.307	*.328	
CONT RELAT		*.323				.407	*.294															
DOMINANT POS							.360															.392
CASH FLOW					.518					.457				.398						*.300		

P < .0025 (No *)
P < .01 (*)

TABLE 14

FACTORS PREVENTING PROPER INCENTIVIZING

Not enough time	3.20	(2)*
Government regulations rule out business	3.10	(1)*
Too many non-performance objectives	3.46	(3)
Higher level management resistance	4.05	(4)

*P < .05 (Different from other two)

TABLE 15
FACTORS PREVENTING PROPER INCENTIVIZING
BY GOVERNMENT GROUPINGS

<u>JOB</u>	Not enough time	Rule out business	Non-performance objectives	Management Resistance
Contracting Officer	3.15	2.98	3.81	4.04
Supervisory Con. Officer	3.36	3.30	3.34	4.04
Procurement Manager	2.75	3.13	3.13	4.63
 <u>ORGANIZATION</u>				
R&D	3.07	3.21	3.74	4.05
Readiness	3.49	3.14	3.21	4.21
 <u>WORKLOAD EMPHASIS</u>				
Price competition	3.34	3.00	3.24	3.86
Technical competition	3.44	3.38	3.59	4.09
Sole Source	2.90	2.83	3.55	4.17
Other	2.00	2.00	1.80	2.80
 <u>FIRM SIZE DEALT WITH</u>				
1 - 100 employees	4.00	2.50	5.00	4.00
100 - 1000 employees	3.07	2.95	3.50	4.12
1000 - 10,000 employees	3.06	3.11	3.32	3.74
> 10,000 employees	3.67	3.07	3.60	4.33
 <u>CONTRACT EMPHASIS</u>				
R&D	2.89	2.86	3.34	4.00
Production	3.52	3.26	3.63	4.02
 <u>DEGREE OF PRICE COMPETITION</u>				
Non-competitive	2.88	2.91	3.47	3.65
Competitive	3.23	3.12	3.32	4.32
Highly competitive	3.42	3.42	3.74	4.11
 <u>DEGREE OF TECHNICAL COMPETITION</u>				
No technical competition	3.17	3.29	3.54	4.04
Technical competition	3.22	3.13	3.37	3.83
Highly technical comp.	3.18	2.91	3.53	4.39

TABLE 16
EFFECTIVENESS OF NON-CONTRACTING OFFICES ON
CONTRACT PERFORMANCE

DCAS	3.67 (2)
DCAA	4.30 (4)
Program Office	2.89* (1)
Higher HQ	4.30 (4)
Non-DOD Agencies	3.83 (3)
Congressional Personnel	4.47 (6)

*P < .001 (Significantly different from rest)

TABLE 17

EFFECTIVENESS OF NON-CONTRACTING OFFICES ON
CONTRACT PERFORMANCE BY GOVERNMENT GROUPINGS

	DCAS	DCAA	Program Office	Higher HQ	Non-DOD Agencies	Congressional Personnel
<u>JOB</u>						
Contracting Officer	4.29	3.88	5.01	3.62	3.62*	3.32
Supervisory Con. Officer	4.22	3.45	5.09	3.75	4.35	3.47
Procurement Manager	4.80	3.30	4.92	2.17	5.05	3.67
					*P < .05	
<u>ORGANIZATION</u>						
R&D	4.47	3.73	4.34*	3.41*	4.18*	3.36
Readiness	3.97	3.50	5.37	3.66	3.86	3.36
			*P ~ .001	*P < .05	*P < .005	
<u>WORKLOAD EMPHASIS</u>						
Price competition	4.43	3.47	3.61*	3.17	4.39*	3.24*
Technical competition	3.78	3.43	4.90	3.40	3.62	3.18
Sole source	4.34	3.72	5.77	3.89	3.72	3.39
Other	2.84	3.04	5.24	4.04	6.04	5.84
			*P < .0001		*P < .025	*P < .025
<u>FIRM SIZE DEALT WITH</u>						
1 - 100 employees	6.84	4.34	3.34*	2.34	4.34	3.84
100 - 1000 employees	4.35	3.70	4.39	3.46	4.15	3.34
1000 - 10,000 employees	3.90	3.56	5.18	3.52	3.97	3.44
> 10,000 employees	4.17	3.31	5.97	4.11	3.51	3.11
			*P < .005			
<u>CONTRACT EMPHASIS</u>						
R&D	3.96	3.59	5.39*	3.91	3.54*	3.23
Production	4.37	3.54	4.19	3.30	4.43	3.27
			*P ~ .001		*P < .025	
<u>DEGREE OF PRICE COMPETITION</u>						
Non-competitive	3.46*	3.63	5.55*	3.69	3.69	3.10
Competitive	4.43	3.42	4.76	3.37	4.23	3.63
Highly competitive	4.79	3.79	4.47	3.84	3.73	3.05
	*P < .025		*P < .05			
<u>DEGREE OF TECHNICAL COMPETITION</u>						
No technical competition	3.76	3.26	5.26*	3.51*	4.10	3.05
Technical competition	4.26	3.58	4.45	3.17	4.27	3.47
Highly technical comp.	4.43	3.66	5.55	4.10	3.58	3.40
			*P ~ .01	*P < .06		

TABLE 18
STRENGTH OF INDUSTRY MOTIVATORS

<u>Motivator</u>	<u>By Government Employees</u>		<u>By Industry Employees</u>	
Good Product*	2.90	(7)	1.83	(1)#
Company Survival**	2.43	(2)***	3.09	(9)
Company Growth	2.84	(6)	3.09	(9)
Profit on Sales	2.41	(1)***	2.78	(4)
Invested Capital	2.76	(4)***	2.88	(6)
Public Image	4.11	(12)	3.96	(11)
Develop workforce	3.28	(9)	2.93	(8)
Utilize capacity*	3.34	(11)	4.25	(12)
Develop capabilities**	3.33	(10)	2.80	(5)
Long-term relationship*	3.12	(8)	2.19	(2)
Develop dominant position	2.74	(4)***	2.88	(6)
Improve cash flow	2.66	(3)***	2.70	(3)

*P < .001 (Groups significantly different)
 **P < .01 (Groups significantly different)
 ***P < .05 (Significantly different from 6th and lower)
 #P < .025 (Significantly different from rest)

TABLE 19
STRENGTH OF INDUSTRY MOTIVATORS AS PERCEIVED BY GOVERNMENT GROUPINGS

JOB	Good Product	Company Survival	Company Growth	Sales Profit	Invested Capital	Public Image	Develop Workforce	Utilize Capacity	Develop Capab.	Long-term Relat.	Dominant Position	Improve Cash Flow
Contracting Officer	2.78	2.34*	2.53	2.36	2.74	3.96	3.30	3.45	3.23	3.00	2.34*	2.83
Supervisory Con. Officer	3.02	2.30	3.09	2.53	2.83	4.25	3.23	3.22	3.30	3.21	2.96	2.43
Procurement Manager	3.00	4.00	3.38	2.38	3.00	4.00	3.25	3.38	4.25	3.25	3.38	2.88
		*p < .025									*p < .07	
<u>ORGANIZATION</u>												
R&D	2.89	2.59	2.69	2.52	2.66	4.10	3.20	3.36	3.08*	2.89*	2.34*	2.84
Readiness	2.91	2.26	3.07	2.30	3.00	4.16	3.40	3.16	3.74	3.44	3.33	2.49
									*p < .01	*p < .05	*p < .001	
<u>WORKLOAD EMPHASIS</u>												
Price competition	2.83	2.17	2.63	2.20	2.60	3.90	3.30	3.13	3.67	3.30	2.97*	2.30
Technical competition	2.94	2.72	2.84	2.78	2.81	4.03	3.00	3.28	3.00	2.78	2.34	2.69
Sole source	2.86	2.45	2.76	2.21	2.79	4.07	3.40	3.67	3.31	3.24	2.60	2.93
Other	3.20	2.00	4.40	3.00	2.80	5.40	4.40	3.00	3.40	3.80	4.00	2.80
											*p < .05	
<u>FIRM SIZE DEALT WITH</u>												
1 - 100 employees	4.00	2.50*	4.00	2.50	3.00	5.00	4.00	3.00*	3.50	3.00	3.00	2.50
100 - 1000 employees	2.83	2.07	2.90	2.33	2.67	4.00	3.02	3.07	3.50	3.12	2.81	2.55
1000 - 10,000 employees	2.85	2.85	2.85	2.51	2.57	4.11	3.43	3.51	3.11	3.28	2.64	2.83
> 10,000 employees	3.00	2.27	2.47	2.60	3.53	3.93	3.40	3.73	3.40	2.80	2.33	2.40
		*p < .05						*p < .05				
<u>CONTRACT EMPHASIS</u>												
R&D	2.82	2.70	2.77	2.68*	2.73	4.16	3.30	3.52	2.95*	2.93	2.27*	2.98*
Production	2.96	2.13	2.74	2.09	2.72	3.92	3.17	3.07	3.67	3.33	3.15	2.24
				*p < .05					*p < .01		*p < .025	*p < .025
<u>DEGREE OF PRICE COMPETITION</u>												
Non-competitive	2.88	2.44	2.79	2.56	3.06	4.41	3.32	3.38	3.26	3.29	2.71*	2.97
Competitive	2.83	2.51	3.02	2.28	2.54	4.07	3.26	3.40	3.23	3.11	3.02	2.63
Highly competitive	2.79	2.26	2.53	2.58	2.95	3.79	3.21	3.05	3.79	3.00	2.11	2.11
											*p < .05	
<u>DEGREE OF TECHNICAL COMPETITION</u>												
No technical competition	2.79	2.63	3.29	2.46	2.83	4.46	3.29	3.29	3.58*	3.42	3.13*	2.58
Technical competition	3.09	2.13	2.81	2.35	2.96	4.11	3.33	3.26	3.54	3.26	3.00	2.56
Highly technical comp.	2.65	2.79	2.62	2.50	2.41	3.88	3.15	3.47	2.82	2.68	2.06	2.88
									*p < .025		*p < .005	

TABLE 20
STRENGTH OF INDUSTRY MOTIVATORS AS PERCEIVED BY INDUSTRY GROUPINGS

	Good Product	Company Survival	Company Growth	Sales Profit	Invested Capital	Public Image	Develop Workforce	Utilize Capacity	Develop Capab.	Long-term Relat.	Dominant Position	Improve Cash Flow
SIZE FIRM												
Small (< 10,000)	1.74	2.21*	2.82	2.82	3.00	3.89	2.68	4.00	2.50	2.04	2.57	2.85
Large (> 10,000)	1.87	3.71	3.27	2.76	2.80	4.00	3.09	4.43	3.05	2.25	3.00	2.65
		*p < .0001										
SIZE DIVISION												
1 - 100 employees	3.50	1.50	5.00	2.50	3.50	2.50	2.50	5.50	5.50	2.00	3.50	4.00
100 - 1000 employees	1.50	2.50	2.75	3.38	3.50	4.88	3.38	3.75	2.25	2.63	2.50	3.14
1000 - 10,000 employees	1.95	3.38	3.10	2.59	2.62	4.00	2.82	4.39	2.79	1.97	2.49	2.47
> 10,000 employees	1.57	3.79	3.50	3.07	3.21	4.43	3.64	4.00	3.43	2.92	4.00	3.23
ORGANIZATION TECHNOLOGY												
High	1.87	3.19	3.03	2.76	2.74	3.92	2.97	4.34	2.73	2.23	2.85	2.66
Medium-low	1.50	2.67	3.50	2.83	3.58	4.08	2.67	3.73	3.27	1.75	2.92	2.92
GROWTH STATUS												
Rapidly growing	2.85	3.38	3.62	3.73	3.15*	2.08	1.92	2.38	3.08	3.31	5.42	4.08
Growing	2.08	2.88	2.59	2.87	2.05	1.80	1.80	2.41	3.00	2.73	5.00	3.67
Mature	2.53	3.47	3.58	3.63	2.68	1.89	1.95	2.53	3.26	3.33	5.68	4.16
					*p < .05							
MANUFACTURING PROCESS												
Capital intensive	2.67*	3.92*	3.58	3.58	3.67	4.50	3.75	5.08	3.75*	3.00*	2.83	3.73*
Labor intensive	1.58	2.42	2.83	2.50	2.54	3.46	2.46	4.04	2.22	1.67	2.50	2.04
Balanced	1.67	3.32	3.11	2.68	2.84	4.08	2.97	4.19	2.81	2.17	3.17	2.86
	*p < .05	*p < .05							*p < .01	*p < .025		*p < .025
FIRM GOVERNMENT BUSINESS												
< 10%	1.86	5.29*	4.29*	3.21	3.29	4.79	4.00	4.36	3.36	2.93	3.79	3.54*
10 - 24%	1.95	3.18	2.77	2.71	2.27	4.27	2.82	4.68	2.73	2.29	2.76	2.45
25 - 39%	2.50	2.25	3.75	3.00	3.63	4.00	3.13	4.25	3.25	2.50	2.75	3.50
40 - 59%	1.57	2.71	3.14	2.57	3.29	3.86	3.00	4.00	2.50	2.00	2.43	1.86
60 - 74%	2.25	1.89	2.22	2.67	2.78	3.00	2.33	3.67	2.56	2.00	2.44	2.89
75 - 89%	1.14	2.71	2.00	1.57	1.71	2.86	2.14	3.71	2.71	1.57	2.14	1.43
> 90%	1.25	2.13	3.00	3.25	3.88	3.88	2.63	4.38	2.38	1.38	3.00	3.00
		*p < .0001	*p < .0025									*p < .05

TABLE 20 (CONT'D)

	Good Product	Company Survival	Company Growth	Sales Profit	Invested Capital	Public Image	Develop Workforce	Utilize Capacity	Develop Capab.	Long-term Relat.	Dominant Position	Improve Cash Flow
<u>DIVISION GOVERNMENT BUSINESS</u>												
< 10%	2.25	6.00*	5.13*	3.88	4.13	5.63	5.13*	4.75	4.25*	3.75*	3.75	4.57*
10 - 24%	1.67	4.33	2.33	3.00	3.00	4.33	3.00	4.00	2.67	1.67	3.67	2.00
25 - 39%	2.57	2.43	3.57	3.29	3.86	4.29	2.71	4.00	2.71	2.57	3.14	3.57
40 - 59%	1.50	3.50	1.50	1.00	1.00	4.00	2.00	4.50	2.50	2.00	1.50	2.00
60 - 74%	1.33	2.33	2.11	1.78	2.22	3.56	2.33	3.78	1.89	1.33	3.11	1.78
75 - 89%	1.73	3.27	2.91	2.82	2.91	4.27	2.82	4.55	2.73	2.50	2.60	2.80
> 90%	1.75	2.60	3.12	2.64	2.44	3.64	2.92	4.13	3.13	2.04	2.40	2.38
		*p < .0001	*p < .0001				*p < .01		*p < .05	*p < .025		*p < .025
<u>FIRM OWNERSHIP</u>												
Closely held	1.73	1.67*	3.17	2.58	3.42	3.17*	1.83*	3.58	2.67	1.83	3.08	3.00
Publicly held	1.79	3.38	3.09	2.79	2.76	4.16	3.09	4.26	2.86	2.30	2.79	2.56
		*p < .0001				*p ~ .06	*p < .001					
<u>% OWNERSHIP BY MANAGEMENT</u>												
< 10%	1.83	3.29	2.98	2.73	2.67	4.12	3.13	4.37	2.82	2.16	2.78	2.55
> 10%	1.81	2.59	3.32	2.73	3.23	3.55	2.45	4.00	2.82	2.27	3.09	2.95
<u>GOVERNMENT BUSINESS EMPHASIS</u>												
R&D	1.93	2.97	3.07	2.93	2.72	4.00	2.62	4.69*	2.86	2.07	2.79	3.07
Production	1.78	3.25	3.03	2.56	2.84	3.88	3.28	3.84	3.10	2.34	2.66	2.42
								*p < .05				
<u>AMOUNT OF PRICE COMPETITION</u>												
Non-competitive	2.25	3.63	3.25	2.38	2.88	4.00	3.00	5.13	3.00	1.63	2.50	2.38
Competitive	1.97	2.97	3.14	3.03	3.11	4.20	2.80	4.31	2.71	2.31	2.80	2.97
Highly competitive	1.55	3.10	2.97	2.48	2.52	3.61	2.97	3.90	2.87	2.17	3.03	2.45
<u>AMOUNT OF TECHNICAL COMPETITION</u>												
Technical competitive	2.00	3.67	3.33	3.04	3.33*	4.37*	2.89	4.04	2.74	2.37	2.89	3.04
Highly competitive	1.74	2.89	2.98	2.52	2.55	3.59	2.77	4.35	2.86	2.12	2.95	2.51
						*p ~ .06	*p < .05					

TABLE 21

PERCEIVED RELATIVE DIFFICULTY INDUSTRY HAS
IN ACHIEVING OBJECTIVES

<u>OBJECTIVE</u>	<u>BY GOVERNMENT EMPLOYEES</u>	<u>BY INDUSTRY EMPLOYEES</u>
Keep price at agreed upon level	3.186 (2)**	3.013 (1)
Ensure delivery schedule met***	2.637 (1)*	3.289 (2)**
Meet the specifications	3.580 (3)	3.827 (3)

*Significantly different from 2nd place (P < .01)

**Significantly different from 3rd place (P < .01)

***Group scores significantly different (P < .01)

TABLE 22

GOVERNMENT PERCEPTION OF DIFFICULTY IN
MEETING OBJECTIVES

	Perform Specs	Keep Price	Ensure Delivery
<u>JOB</u>			
Contracting Officer	3.74	3.02	2.87
Supervisory Con. Officer	3.50	3.51	2.53
Procurement Manager	3.13	2.38	2.25
<u>ORGANIZATION</u>			
R&D	3.34*	2.69*	2.74
Readiness	3.93	4.14	2.49
	*P ~ .05	*P < .0001	
<u>WORKLOAD EMPHASIS</u>			
Price competition	3.77*	3.93*	2.37
Technical competition	3.22	2.78	2.91
Sole source	3.67	2.71	2.86
Other	5.00	4.20	1.40
	*P < .06	*P < .005	
<u>FIRM SIZE DEALT WITH</u>			
1 - 100 employees	2.50	4.00*	1.00
100 - 1000 employees	4.00	3.98	2.76
1000 - 10,000 employees	3.26	2.45	2.53
> 10,000 employees	3.80	2.73	2.93
		*P < .0001	
<u>CONTRACT EMPHASIS</u>			
R&D	3.32	2.73*	2.80
Production	3.76	3.80	2.57
		*P < .0025	
<u>DEGREE OF PRICE COMPETITION</u>			
Non-competitive	3.88	3.06	2.65
Competitive	3.26	3.07	2.61
Highly competitive	3.89	3.53	2.68
<u>DEGREE OF TECHNICAL COMPETITION</u>			
No technical competition	3.91	4.00*	2.63
Technical competition	3.63	3.31	2.61
Highly technical comp.	3.29	2.44	2.74
		*P < .0025	

TABLE 23

INDUSTRY PERCEPTION OF CONTRACTOR DIFFICULTY IN
MEETING OBJECTIVES

	Keep Price	Insure Delivery	Meet Specs
<u>SIZE FIRM</u>			
Small (< 10,000)	3.57*	3.57	4.07
Large (≥ 10,000)	2.53	3.07	3.59
	*P < .01		
<u>SIZE DIVISION</u>			
1 - 100 employees	5.50*	3.00	4.50
100 - 1000 employees	3.50	3.50	4.38
1000 - 10,000 employees	2.74	3.21	3.79
> 10,000 employees	2.36	3.00	3.15
	*P < .025		
<u>ORGANIZATION TECHNOLOGY</u>			
High	2.81	3.10*	3.66
Medium-low	3.83	4.25	4.55
		*P < .052	
<u>GROWTH STATUS</u>			
Rapidly growing	3.00	3.23	4.08
Growing	3.02	3.14	3.71
Mature	2.84	3.63	3.79
<u>MANUFACTURING PROCESS</u>			
Capital intensive	3.42	4.33*	4.75
Labor intensive	3.04	3.38	3.75
Balanced	2.78	2.92	3.50
		*P < .05	
<u>FIRM GOVERNMENT BUSINESS</u>			
< 10%	2.36	3.86	4.15*
10 - 24%	3.18	2.86	3.73
25 - 39%	3.88	3.88	5.13
40 - 59%	2.86	3.14	2.57
60 - 74%	2.44	2.67	2.89
75 - 89%	2.71	3.43	4.00
> 90%	3.50	3.38	4.13
		*P < .05	
<u>DIVISION GOVERNMENT BUSINESS</u>			
< 10%	2.25	4.75*	4.86*
10 - 24%	2.67	3.00	3.33
25 - 39%	4.14	3.86	4.86
40 - 59%	6.50	3.00	4.00
60 - 74%	3.00	3.00	3.11
75 - 89%	2.27	2.18	3.27
> 90%	2.68	3.00	3.68
		*P < .025	*P < .025
		T-test	T-test

TABLE 23 (CONT'D)

	Keep Price	Insure Delivery	Meet Specs
<u>FIRM OWNERSHIP</u>			
Closely held	3.92	3.17	3.67
Publicly held	2.88	3.29	3.95
<u>% OWNERSHIP BY MANAGEMENT</u>			
< 10%	2.80	3.27	3.75
> 10%	3.50	3.14	3.82
<u>GOVERNMENT BUSINESS EMPHASIS</u>			
R&D	2.97	2.79*	3.59
Production	3.13	3.84	4.23
		*P < .01	
<u>AMOUNT OF PRICE COMPETITION</u>			
Non-competitive	3.00	2.75	3.50
Competitive	3.43	3.31	4.00
Highly competitive	2.61	3.35	3.73
<u>AMOUNT OF TECHNICAL COMPETITION</u>			
Technical competition	3.41	3.52	4.00
Highly competitive	2.77	3.09	3.61

TABLE 24
POST AWARD EVENTS IMPACT

<u>EVENT</u>	<u>BY GOVERNMENT EMPLOYEES</u>		<u>BY INDUSTRY EMP.</u>	
More profitable work*	2.92	(2)#	4.80	(9)
Higher priority work*	2.93	(3)#	4.37	(8)
Disagreement with Government	3.86	(9)	4.12	(5)
Realization of bad deal*	3.27	(7)	4.31	(7)
Excessive changes by Government	3.05	(4)	3.39	(3)
Contractor can't solve technical problems**	2.69	(1)#	3.25	(2)****
Excessive Government interference	3.19	(5)	3.00	(1)****
Poor interpersonal relationship***	3.24	(6)	3.72	(4)
Socio-economic enforcement	3.76	(8)	4.19	(6)

- *P <.0001 (Groups significantly different)
- **P <.025 (Groups significantly different)
- ***P <.05 (Groups significantly different)
- ****P <.025 (Significantly different from 3rd and below)
- #P <.01 (Significantly different from rest)

TABLE 25

POST AWARD EVENTS IMPACT BY GOVERNMENT GROUPINGS

JOB	Profit. Work	Higher Priority	Dis-agreement	Bad Deal	Changes	Technical Problems	Inter-ference	Poor Relat.	Socio-economic
Contracting Officer	3.34*	3.32*	4.11	3.65	3.23	2.98	3.23	3.51	4.04
Supervisory Con. Officer	2.51	2.54	3.79	3.09	3.02	2.58	3.25	3.17	3.64
Procurement Manager	3.13	3.38	3.25	2.88	2.25	2.00	2.63	2.38	3.88
	*P < .05	*P < .05							
<u>ORGANIZATION</u>									
R&D	3.26*	3.23*	4.08	3.48	2.82	2.77	3.16	3.34	4.08*
Readiness	2.37	2.36	3.70	3.09	3.33	2.60	3.28	3.07	3.35
	*P < .005	*P < .0025							*P < .05
<u>NO LOAD EMPHASIS</u>									
Price competition	2.69	2.69	3.52	2.96	3.07	2.55	3.03	3.34	3.38
Technical competition	3.34	3.19	3.97	3.53	3.06	2.88	3.47	3.28	4.06
Sole source	2.93	3.14	4.02	3.33	2.95	2.79	2.95	3.21	4.02
Other	2.20	2.00	4.20	2.80	2.60	1.80	2.80	2.60	1.40
<u>FIRM SIZE DEALT WITH</u>									
1 - 100 employees	2.00	2.50*	4.00	3.50*	4.00	3.00	3.50	2.50	4.00
100 - 1000 employees	2.69	2.66	3.71	2.83	3.00	2.52	3.14	3.17	3.64
1000 - 10,000 employees	3.17	3.30	3.96	3.53	3.04	2.91	3.19	3.45	3.87
> 10,000 employees	3.00	3.00	4.07	3.80	2.67	2.67	2.93	2.87	3.93
		*P < .05		*P < .025					
		T-test		T-test					
<u>CONTRACT EMPHASIS</u>									
R&D	3.11	3.23	4.05	3.45	2.89	2.73	3.13	3.27	3.84
Production	2.61	2.67	3.67	3.20	3.42	2.72	3.33	3.24	3.76
<u>DEGREE OF PRICE COMPETITION</u>									
Non-competitive	2.82	2.97	3.97	3.50	3.09	3.09	3.24*	3.50	3.91
Competitive	3.04	3.04	2.88	3.19	3.12	2.53	3.19	3.09	3.63
Highly competitive	2.84	2.61	3.47	3.11	2.50	2.21	2.84	3.05	3.68
							*P < .05		
<u>DEGREE OF TECHNICAL COMPETITION</u>									
No technical competition	2.58	2.70	3.75	3.29	3.04	2.83	3.58	3.11	3.38
Technical competition	2.78	2.80	3.83	3.13	3.17	2.74	3.15	3.20	3.63
Highly technical comp.	3.38	3.29	3.97	3.47	2.85	2.50	2.97	3.35	4.24

TABLE 26

POST AWARD EVENTS IMPACT BY INDUSTRY GROUPINGS

SIZE FIRM	Profit. Work	Higher Priority	Dis- agreement	Bad Deal	Changes	Technical Problems	Inter- ference	Poor Relat.	Socio- economic
<u>SIZE DIVISION</u>									
Small (< 10,000)	4.60	4.10	4.20	3.60	3.20	2.90	3.00	4.10	4.60
Large (> 10,000)	4.93	4.43	4.29	3.64	3.64	3.21	2.93	3.79	4.21
<u>SIZE DIVISION</u>									
1 - 100 employees	6.50	6.50	6.00	4.50	5.50	4.50	6.00	6.50	7.00
100 - 1000 employees	4.13	3.50	3.75	3.38	2.63	2.50	2.25	3.50	4.00
1000 - 10,000 employees	4.58	4.23	4.00	4.18	3.33	3.36	3.21	3.72	3.97
> 10,000 employees	4.93	4.43	4.29	4.64	3.64	3.21	2.93	3.79	4.21
<u>ORGANIZATION TECHNOLOGY</u>									
High	4.87	4.37	4.11	4.26	3.31	3.16	2.90	3.68	4.18
Medium-low	4.45	4.45	4.45	4.45	4.00	3.73	3.82	4.36	4.26
<u>GROWTH STATUS</u>									
Rapidly growing	4.42	3.54	4.08	3.69	3.77	3.77	3.00	4.08	4.00
Growing	4.83	4.44	4.05	4.20	3.12	3.00	2.78	3.56	4.15
Mature	5.00	4.84	4.47	4.89	3.79	3.42	3.63	4.05	4.47
<u>MANUFACTURING PROCESS</u>									
Capital intensive	4.83	4.83	4.25	4.42	3.67	4.33*	4.00	4.33	4.17
Labor intensive	5.18	4.22	4.74	4.74	3.65	3.74	3.04	3.70	4.70
Balanced	4.62	4.38	3.84	3.97	3.16	2.57	2.75	3.73	3.97
									*P < .0025
<u>FIRM GOVERNMENT BUSINESS</u>									
< 10%	4.93	5.00	4.29	4.79	3.43	4.00	3.64	4.00	4.50
10 - 24%	4.36	3.82	3.73	4.05	2.82	2.77	2.73	3.41	4.36
25 - 39%	4.63	4.38	4.38	4.13	4.00	3.50	3.86	4.63	4.50
40 - 59%	4.29	4.57	3.86	4.14	3.57	3.00	2.43	3.14	3.14
60 - 74%	6.00	4.89	4.44	3.89	3.89	3.33	2.89	3.56	3.56
75 - 89%	4.71	4.57	4.14	4.86	3.57	3.00	2.57	3.86	4.00
> 90%	5.43	3.86	5.00	4.57	3.71	3.71	2.86	4.14	5.00

TABLE 26 (CONT'D)

	Profit Work	Higher Priority	Dis-agreement	Bad Deal	Changes	Technical Problems	Inter-ference	Poor Relat.	Socio economic
<u>DIVISION GOVERNMENT BUSINESS</u>									
< 10%	5.25	5.13	4.13	5.25	3.25	4.25*	3.88	3.88	3.88
10 - 24%	3.67	3.67	4.33	3.67	4.00	4.33	3.67	4.00	5.67
25 - 39%	4.29	4.00	3.71	3.43	3.29	2.71	2.83	4.29	4.43
40 - 59%	2.00	2.00	2.50	2.00	1.50	1.50	2.00	2.50	1.50
60 - 74%	5.56	4.89	4.11	4.33	3.11	3.22	3.22	3.67	4.33
75 - 89%	5.00	4.55	3.55	4.00	3.00	2.09	1.91	3.18	3.73
> 90%	4.50	3.92	4.52	4.44	3.72	3.68	3.24	3.80	4.28
						*P < .05			
<u>FIRM OWNERSHIP</u>									
Closely held	5.45	5.18	4.82	4.45	4.18	3.91	3.45	4.09	4.18
Publicly held	4.67	4.22	3.98	4.21	3.21	3.10	2.88	3.57	4.10
<u>% OWNERSHIP BY MANAGEMENT</u>									
< 10%	4.67	4.27	3.96	4.30	3.10	2.96	2.86	3.58	4.21
≥ 10%	5.00	4.48	4.38	4.19	3.86	3.71	3.19	3.86	3.95
<u>GOVERNMENT BUSINESS EMPHASIS</u>									
R&D	5.25*	4.38	4.24	4.34	3.59	3.17	3.04	3.86	4.55
Production	4.31	4.19	3.66	4.38	3.06	3.19	2.69	3.22	3.78
	*P < .05								
<u>AMOUNT OF PRICE COMPETITION</u>									
Non-competitive	5.57	4.75*	3.88	4.13	4.25	3.50	2.88	3.63	4.50
Competitive	4.35	3.56	4.00	3.88	3.26	2.97	2.82	3.53	3.85
Highly competitive	5.03	5.03	4.26	4.77	3.26	3.45	3.13	3.81	4.39
	*P < .0025								
<u>AMOUNT OF TECHNICAL COMPETITION</u>									
Technical competition	4.20*	3.65*	3.42*	3.50*	2.96	2.81	2.48	3.27	3.27*
Highly competitive	5.09	4.73	4.48	4.75	3.57	3.43	3.16	3.84	4.55
	*P < .05 *P < .01 *P < .001 *P < .005								

TABLE 27
INFLUENCE OF ENVIRONMENT FACTORS

<u>ENVIRONMENTAL FACTOR</u>	<u>BY GOVERNMENT EMPLOYEES</u>		<u>BY INDUSTRY EMPLOYEES</u>	
Inflation	1.89	(1)##	2.08	(1)***
Interest Rates	2.07	(2)	2.34	(3)
Taxation	3.22	(4)	3.09	(4)
Labor supply	3.42	(6)	3.32	(5)
Labor disputes**	3.70	(8)	5.00	(9)
Labor support**	3.43	(7)	2.46	(7)
International political situation	3.75	(9)	3.49	(8)
Domestic political situation	3.39	(5)	3.41	(6)
Government regulation	omitted	(~3)*	2.27	(2)***

*Imputed to be high from pattern of responses to other questions and other sources

**P < .001 (Groups significantly different)

***P < .05 (Significantly different from 3rd and below)

#*P < .01 (Significantly different from rest)

TABLE 28

INFLUENCE OF ENVIRONMENT FACTORS BY GOVERNMENT GROUPINGS

JOB	Inflation	Interest Rates	Taxation	Pro. Labor Supply	Labor Disputes	Eng. Labor Support	Int'l Pol. situation	Dom. Pol. situation
Contracting Officer	1.89	2.04	3.19	3.43	3.55	3.28	3.79	3.23
Supervisory Con. Officer	1.75	2.02	3.30	3.32	3.87	3.58	3.74	3.53
Procurement Manager	2.13	2.25	3.50	3.75	4.00	3.38	4.13	4.00
<u>ORGANIZATION</u>								
R&D	1.98	2.25	3.44	3.23	3.62	3.25	3.74	3.18
Readiness	1.70	1.86	3.00	3.60	3.86	3.67	3.93	3.77
<u>WORKLOAD EMPHASIS</u>								
Price competition	1.97*	2.03*	2.80*	3.47	3.33	3.23	3.97	3.90
Technical competition	2.41	2.69	3.46	3.25	3.63	3.31	3.84	3.50
Sole source	1.57	1.74	3.45	3.45	3.93	3.48	3.50	3.00
Other	1.20	1.40	1.60	4.20	4.60	4.60	3.00	3.00
	*P < .005 *P < .005 *P < .01							
<u>FIRM SIZE DEALT WITH</u>								
1 - 100 employees	1.50	1.50	2.00	2.00	4.00	3.00	4.00	3.50
100 - 1000 employees	1.89	2.07	2.93	3.57	3.71	3.60	3.74	3.60
1000 - 10,000 employees	1.94	2.15	3.47	3.23	3.70	3.34	3.70	3.43
> 10,000 employees	1.80	1.87	3.33	3.53	3.80	3.27	3.93	3.07
<u>CONTRACT EMPHASIS</u>								
R&D	2.05	2.27	3.25	3.32	3.52	3.11	3.66	3.27
Production	1.78	1.91	3.09	3.22	3.65	3.41	3.87	3.74
<u>DEGREE OF PRICE COMPETITION</u>								
Non-competitive	1.94	2.21	3.29	3.35	3.97	3.56	3.85	3.56
Competitive	1.91	2.12	3.04	3.39	3.53	3.33	3.72	3.35
Highly competitive	1.63	1.63	3.68	3.63	3.63	3.47	3.53	3.32
<u>DEGREE OF TECHNICAL COMPETITION</u>								
No technical competition	1.83	2.04	3.08	3.79	4.33*	3.88	3.71	3.63*
Technical competition	1.78	1.96	3.17	3.19	3.43	3.35	4.02	3.61
Highly technical comp.	2.09	2.26	3.44	3.50	3.74	3.24	3.38	2.88
	*P < .025 *P < .06							

TABLE 29

INFLUENCE OF ENVIRONMENT FACTORS BY INDUSTRY GROUPINGS

	Inflation	Interest Rates	Taxation	Pro. Labor Supply	Labor Disputes	Eng. Labor Supply	Int'l. Pol. situation	Dom. Pol. situation	Gov't Reg
<u>SIZE FIRM</u>									
Small (< 10,000)	1.80	2.50	2.90	3.10	5.00	2.20	3.90	3.80	2.50
Large (> 10,000)	2.21	2.29	3.07	3.43	4.79	2.77	3.50	3.43	2.43
<u>SIZE DIVISION</u>									
1 - 100 employees	1.50	2.50	3.00	5.50	5.50	5.00	4.00	3.00	2.50
100 - 1000 employees	1.88	2.50	2.88	2.50	4.88	1.50	3.88	4.00	2.50
1000 - 10,000 employees	2.10	2.33	3.23	3.41	5.08	2.44	3.31	3.33	2.15
> 10,000 employees	2.21	2.29	3.07	3.43	4.79	2.77	3.50	3.43	2.43
<u>ORGANIZATION TECHNOLOGY</u>									
High	2.05	2.31	3.08	3.23	5.05	2.39	3.48	3.32	2.26
Medium-low	2.25	2.58	3.17	3.70	4.82	2.82	3.45	3.82	2.27
<u>GROWTH STATUS</u>									
Rapidly growing	2.15	2.38	3.23	2.67	4.92	2.69*	4.77*	4.00	2.92
Growing	2.19	2.38	3.17	3.20	4.93	2.05	2.98	3.17	2.00
Mature	1.79	2.26	2.84	3.89	5.26	3.16	3.68	3.47	2.37
						*p < .025	*p < .005		
<u>MANUFACTURING PROCESS</u>									
Capital intensive	1.75	2.67	2.67	3.58	5.50	3.42*	3.92	4.00	2.17
Labor intensive	2.33	2.50	3.33	3.23	5.13	2.05	3.87	3.78	2.57
Balanced	2.05	2.19	3.11	3.16	4.81	3.16	3.11	2.97	2.14
						*p < .05		*p ~ .05	
<u>FIRM GOVERNMENT BUSINESS</u>									
< 10%	2.50	3.00	3.14	4.43	4.71	3.57*	4.36	4.07	2.57
10 - 24%	2.23	2.36	3.36	3.41	5.14	2.00	3.14	3.45	2.14
25 - 39%	1.50	1.88	2.88	3.00	5.00	3.13	3.38	3.63	2.38
40 - 59%	1.71	2.00	3.14	3.00	4.71	2.00	2.71	2.71	1.86
60 - 74%	1.89	2.11	2.78	3.00	4.44	2.22	2.78	2.78	2.56
75 - 89%	2.00	1.71	3.00	3.43	5.57	2.17	4.00	3.43	1.71
> 90%	2.13	2.75	3.13	2.00	5.43	2.14	4.14	3.14	2.71
						*p < .05			

TABLE 29 (CONT'D)

	Inflation	Interest rates	Taxation	Pro. Labor Supply	Labor Disputes	Eng. Labor Supply	Int'l. Pol. situation	Dom. Pol. situation	Gov't Reg
<u>DIVISION GOVERNMENT BUSINESS</u>									
< 10%	2.50	3.00	2.75	4.75	5.00	4.25*	5.00*	4.50*	2.38*
10 - 24%	2.33	2.67	2.67	3.33	3.33	4.00	5.67	5.33	5.00
25 - 39%	1.57	1.71	2.86	2.86	5.57	2.71	2.29	3.43	2.14
40 - 59%	1.50	1.50	2.50	1.50	5.50	1.50	2.50	2.50	2.00
60 - 74%	2.22	2.11	2.89	3.44	3.89	1.67	3.11	2.89	2.11
75 - 89%	1.72	1.91	2.91	3.00	4.73	1.80	3.00	2.36	1.64
> 90%	2.16	2.52	3.60	3.28	5.32	2.20	3.36	3.52	2.32
						*P < .001	*P < .025	*P < .025	*P < .025
<u>FIRM OWNERSHIP</u>									
Closey held	1.83	2.25	2.83	3.50	5.36	3.00	3.55	2.73	2.09
Publicly held	2.19	2.43	3.22	3.40	4.93	2.44	3.64	3.69	2.36
<u>% OWNERSHIP BY MANIAGEMENT</u>									
< 10%	2.12	2.37	3.21	3.37	4.92	2.24	3.23	3.33	2.12
> 10%	1.91	2.23	2.64	3.25	5.10	2.81	3.90	3.48	2.52
<u>GOVERNMENT BUSINESS EMPHASIS</u>									
R&D	2.31	2.66*	3.66*	3.59	5.55	2.31	3.55	3.24	2.24
Production	1.84	1.94	2.56	3.28	4.78	2.65	3.34	3.63	2.16
		*P < .05	*P < .005						
<u>AMOUNT OF PRICE COMPETITION</u>									
Non-competitive	2.00	2.50	3.13	3.88	5.63	2.25	3.75	3.13	2.50
Competitive	2.11	2.43	3.14	3.18	4.71	2.33	3.59	3.53	2.29
Highly competitive	2.03	2.13	2.94	3.42	5.16	2.65	3.32	3.29	2.10
<u>AMOUNT OF TECHNICAL COMPETITION</u>									
Technical competitive	2.15	2.48	2.93	2.85*	4.58	2.38	3.30	3.62	2.27
Highly competitive	2.05	2.18	3.16	3.63	5.32	2.51	3.52	3.25	2.09
				*P < .06					

TABLE 30
PERCEPTION OF GOVERNMENT/CONTRACTOR RELATIONSHIP

	<u>How it is</u>	<u>How it should be</u>
Government	3.08	2.20
Industry	3.36*	2.04

*P < .05 (Significantly different from Government)

TABLE 31
PERCEPTION OF GOVERNMENT/CONTRACTOR RELATIONSHIP
BY GOVERNMENT GROUPINGS

	How it is	How it should be
<u>JOB</u>		
Contracting Officer	3.13	2.04
Supervisory Con. Officer	3.04	2.33
Procurement Manager	2.75	2.29
<u>ORGANIZATION</u>		
R&D	2.68	1.84
Readiness	3.35	2.41
<u>WORKLOAD EMPHASIS</u>		
Price competition	2.83	1.93
Technical competition	2.88	2.19
Sole source	3.36	2.44
Other	3.80	1.60
<u>FIRM SIZE DEALT WITH</u>		
1 - 100 employees	3.00*	1.00*
100 - 1000 employees	2.67	1.88
1000 - 10,000 employees	3.21	2.30
> 10,000 employees	2.80	2.73
	*P < .01	*P < .025
<u>CONTRACT EMPHASIS</u>		
R&D	2.95	2.21
Production	2.93	2.09
<u>DEGREE OF PRICE COMPETITION</u>		
Non-competitive	3.42	2.48
Competitive	2.93	2.00
Highly competitive	3.00	2.21
<u>DEGREE OF TECHNICAL COMPETITION</u>		
No technical competition	3.13	2.26
Technical competition	3.02	2.09
Highly technical comp.	3.12	2.27

TABLE 32

PERCEPTION OF GOVERNMENT/CONTRACTOR RELATIONSHIP
BY INDUSTRY GROUPINGS

	How it is	How it should be
<u>SIZE FIRM</u>		
Small (< 10,000)	3.40	2.30
Large (> 10,000)	3.36	2.07
<u>SIZE DIVISION</u>		
1 - 100 employees	3.00	2.50
100 - 1000 employees	3.50	2.25
1000 - 10,000 employees	3.32	1.95
> 10,000 employees	3.36	2.07
<u>ORGANIZATION TECHNOLOGY</u>		
High	3.46*	2.06*
Medium-low	2.73	1.64
	*P < .05	*P < .05
<u>GROWTH STATUS</u>		
Rapidly growing	3.08	2.00
Growing	3.29	1.98
Mature	3.63	2.05
<u>MANUFACTURING PROCESS</u>		
Capital intensive	3.25	2.08
Labor intensive	3.50	2.22
Balanced	3.27	1.84
<u>FIRM GOVERNMENT BUSINESS</u>		
< 10%	3.57	2.00
10 - 24%	3.59	2.36
25 - 39%	3.75	2.38
40 - 59%	3.14	1.57
60 - 74%	2.88	2.00
75 - 89%	3.29	1.57
> 90%	2.71	1.86
<u>DIVISION GOVERNMENT BUSINESS</u>		
< 10%	3.75	1.75
10 - 24%	2.33	2.33
25 - 39%	3.86	2.43
40 - 59%	2.50	1.00
60 - 74%	3.33	2.33
75 - 89%	3.36	1.63
> 90%	3.25	2.16

TABLE 32 (CONT'D)

	How it is	How it should be
<u>FIRM OWNERSHIP</u>		
Closely held	2.64*	1.82
Publicly held	3.51	2.07
	*P < .05	
<u>% OWNERSHIP BY MANAGEMENT</u>		
< 10%	2.54	2.06
> 10%	3.00	2.10
<u>GOVERNMENT BUSINESS EMPHASIS</u>		
R&D	3.75*	2.14
Production	3.16	1.94
	*P < .05	
<u>AMOUNT OF PRICE COMPETITION</u>		
Non-competitive	3.14	2.38
Competitive	3.50	2.12
Highly competitive	3.29	1.94
<u>AMOUNT OF TECHNICAL COMPETITION</u>		
Technical competition	3.48	2.12
Highly competition	3.36	2.00

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13. ABSTRACT Contractor motivation is extremely important to the Department of Defense (DOD) because its contracts are critical, there is no alternative to produce in-house, and it is extremely difficult to switch to an alternative source. In spite of this importance, there is little guidance on contractor motivation in DOD acquisition policy and procedure, except for coverage on profit and incentive-fee contracts. There is a need to examine the broader issues of motivation and see if improvements can be made. The study found that contractor motivation is complex and is a function of many contract and noncontract factors beyond profit. The Government should consider motivation as well as capability potential in preaward planning. Government contracting personnel should consider both Government and industry objectives and environments in selecting incentives for a given contract. The contractor motivation process can be modeled in terms of its leading characteristics for use by the Government in contract planning. Unfortunately, contracting personnel do not currently have the resources and flexibility to fully motivate contractors along the lines suggested in the study.			

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