

CONTRACTING FOR STATISTICAL SURVEYS--APPROACHING THE PROBLEMS

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I. INTRODUCTION

Statistical surveys are a major source of data for many agencies of the Federal Government. These surveys cover a broad range of topics spanning diverse governmental concerns. They include surveys on the effectiveness of Government programs, the impact of regulated and unregulated industrial activities, and problems for which population groups are currently or may in the future be in need of Government assistance in some form. Although these topics are highly diverse, the issues in the use and conduct of statistical surveys to obtain data on them through contracts, inhouse work, or interagency agreements are far more amenable to systematic treatment with a unified focus.

For many statistical survey efforts, it becomes necessary that agencies of government utilize the services of outside organizations. A range of such services is available under contract from sources other than the Federal Government. Depending on the needs of the individual agency or survey, these may include carefully delineated and defined services related to specific areas, such as data collection and processing, or conduct of an entire survey from planning to final report.

Yet beyond the general standards of the Office of Management and Budget (OMB) and the Federal Procurement Regulations, there is no specific guidance on the use by Federal agencies of contractors for the conduct of statistical surveys. Neither OMB nor the Federal Procurement Regulations defines when and how the procurement mechanism should be used for such a purpose; nor do they indicate what the relationships should be among an agency's need for survey data and analysis, its staff resources, and the specification of contract requirements and monitoring of contractor performance. As a result, the Federal Committee on Statistical Methodology established the Subcommittee on Contracting for Statistical Surveys¹ to make recommendations to improve the statistical survey contracting process in the U.S. Federal Government in the future.

An indication of the extent to which Federal agencies use contracts for conduct of statistical data collection can be obtained from the data file containing information on data collections approved by OMB described in the paper in this session by Thornberry, Nicholls, and Kulpinski. Of their file of slightly more than 2,000 projects active as of August 1981, almost a quarter (23 percent) had the data collection carried out by a private contractor. Not all of the projects being carried out under contract had a reported "cost to Federal Government," but the 45 percent of the projects for which cost was reported had a total cost of about \$72 million.

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The report to be prepared by the Subcommittee is intended for circulation to agencies and Federal offices that may utilize contracting for statistical surveys, but a broader audience may find the report of interest. This paper summarizes many of the points to be made in the report, which attempts to draw attention to what issues need to be considered, how to use or obtain the necessary resources in preparing for and using the contract mechanism, and how to maximize contractor performance.

The focus of the Subcommittee report is on contracts awarded through an open competitive, negotiated procurement mechanism based on evaluation of the technical and business proposals submitted in response to generally available Requests for Proposal (RFPs). This particular mechanism offers the agency the maximum opportunity to set the requirements for the statistical survey and the standards for contractor performance and to select the organization that offers the best combination of anticipated product quality and cost factors. Alternative contract approaches are sole source selection, based on a unique capacity to perform or an unsolicited proposal, and set-aside programs for competition only among small businesses in general or minority-owned small businesses.

The report does not deal with statistical surveys conducted or supported under grants or interagency agreements; statistical interagency agreements have been the focus of another subcommittee, whose work is reported in another paper in this session. In line with the Subcommittee's intention to provide information designed to improve the ability to use the contracting mechanism for procurement of statistical survey services, it was important to learn more about what the agencies were currently doing. To this end, discussions were held with staff of selected Federal agencies involved in contracting for statistical surveys and with some of the contractors with which they did business. A summary of the findings of this effort will be included as an appendix to the full report.

2. TECHNICAL EXPERTISE

Once an agency has determined a need to conduct a survey for collection of statistical information, responsibility is typically given to some one individual to develop the statement of work for the contract, to manage the proposal review process, and to monitor the project once the contract has been awarded. This person is known as the Project Officer. Each step in the life of the project requires technical skills in several areas. These areas of expertise include: (1) developing project objectives, specifications, and scheduling; (2) subject matter knowledge; (3) instrument design and testing; (4) sample design; (5) data collection; (6) data processing; (7) data analysis; (8) quality control; and (9) report writing.

It is highly unusual to find all the skills required for a particular survey in one individual, although it is often true that a person will possess more than one of these skills. Consequently, it is usually necessary for the Project Officer to call upon various "technical advisors" to supply the required technical skills. It is important that at least some of these technical advisors

participate in all of the major phases of the survey contract process from development of the statement of work and award of the contract through monitoring of work under the contract. In instances in which the agency contracting for a statistical survey does not contain on its staff all the technical advisors needed, technical staff employed by other Federal agencies or private consultants should be made part of the project team.

It is generally a mistake to rely solely on the contractor to provide the technical expertise required during the execution of the survey plan and the processing and analysis of the data. Even with the highest quality contractor, the Government should still provide technical review and guidance as part of the monitoring of the survey process.

3. PREPARING THE RFP

The first step in preparation of an RFP is consultation with the agency procurement office. This will enable the staff to determine the contracting options that are available, the input expected of the program staff, the steps that should be followed from RFP development through award of the contract, and the amount of time each step is likely to take. The RFP will be prepared by the procurement office on the basis of the statement of work, to be developed by the Project Officer, and decisions about various alternative aspects of the specific procurement.

3.1 General Considerations

At the same time that conversations begin with the procurement office, contact should also be made with the individual responsible for implementation of the Paperwork Reduction Act of 1980 for the program. This is to determine OMB requirements for review and approval of specific data collection plans and questionnaires. OMB review and approval is typically a lengthy process, and time must be allowed for it in the overall project schedule; this should be specified in the RFP. One way to handle this situation is to write a phased contract in which certain activities are clearly identified to be done prior to receipt of OMB clearance and others are to be done after receipt of OMB clearance. Other contracting methods can be used to avoid cost escalations that could result from delays in OMB clearance while a contractor's staff is unable to work but is being paid under a contract. For example, the contract can include provisions that (1) no additional sums are authorized because of delays in clearance and (2) the duration of the contract is day-for-day extended for delays encountered in clearance. The procurement office can provide information on how each agency handles these types of provisions.

One key decision to be made early in the development of the RFP concerns the payment provisions of the proposed contract. A contract may stipulate a fixed price that is agreed upon in advance by the sponsor and the contractor, or it may provide for reimbursement of allowable costs incurred by the contractor in performance of the survey. The decision about which approach to use is made by the procurement office, based on administrative considerations. However, some agencies prefer one or

the other approach.

There are advantages and disadvantages to each of these payment mechanisms. Fixed-price contracts assure in advance that sufficient funds are available for completion of the work and keep the sponsor's administrative audit expenses to a minimum. However, some contractors are reluctant to submit a proposal for a fixed-price contract. It is particularly important that fixed-price contracts contain comprehensive, detailed statements of the requirements for the work to be performed by the contractor to avoid misunderstandings about what the agreed-upon price actually covers. If there are many unknown or undecided factors in the survey plan that affect the predictability of costs, a cost-type contract may be preferable, provided adequate funding will be available. A "dollar cap" or maximum cost can be included in a cost-type contract; this can allow greater control over potential cost overruns. The RFP should indicate whether the proposed contract will stipulate a fixed price or will provide for reimbursement of costs incurred by the contractor.

Federal procurement regulations allow for use of incentives in either fixed-price or cost-type contracts; the incentive may be based on performance or price or both. For example, a formula could be included in the contract for additional payment to the contractor based on the amount by which a specified minimum target response rate is exceeded. Although incentives are sometimes used, they do not seem to be widely used in survey contracts. Perhaps this is because the dollar amounts are relatively small and sponsors and contracting officers do not wish to introduce additional complications into an already complex procurement process; or, it may be that some sponsors are not aware of the possibility of using incentives. If incentive provisions are contemplated, they should be discussed in the RFP.

If there are any serious doubts about the feasibility of key aspects of the survey plans because of unknown factors such as the ability or willingness of designated respondents to provide the information sought, it may be prudent to limit the scope of the project to which the sponsor will be committed. One approach that might be appropriate in this situation is to issue an RFP solely for an evaluation of the proposed methodology, with the stated intention of issuing another RFP for a full-scale survey if the initial effort indicates the methodology is feasible. Of course, this would consume more time because two RFPs would be involved. Another possible approach is to specify optional work segments, which the sponsor may authorize during the course of the contract if the concerns are resolved in the earlier stages of the contract. Again, such alternatives should be discussed with the procurement office.

RFPs may state all, some, or none of the survey design elements. The level of survey design specification found in RFPs ranges from "This is exactly what we want, including the questionnaire to be used..." to "We have a problem and need information to help solve it; what do you suggest?" The choice among these alternatives is dictated by a number of considerations, such as the nature of the survey to be conducted, the applicable regulations and policies, and the technical skills available among the sponsor's staff

or consultants. Care must be taken when specifying criteria for evaluation of proposals, however, because only explicitly stated criteria can be used to declare that a technical proposal is technically unacceptable. For example, failure to specify that a probability sample is required would mean that a proposal based on a nonprobability sample could not be declared technically unacceptable solely on the basis of the proposed sample design.

Optimally, an RFP (1) requests the development of or specifies a technically sound survey design that will meet the sponsor's information needs and that is realistic, considering the time and funds available for the project and the capabilities and resources of potential offerors; (2) conveys all the information needed by potential contractors to prepare a responsive proposal, including all the terms, conditions, and provisions that the sponsor intends to incorporate in the contract; (3) asks for all the information that procurement and technical personnel will need to conduct an accurate and equitable evaluation of the proposals received; and (4) attracts responsive proposals from enough qualified offerors to provide adequate competition for the contract.

Every RFP should begin with a clear statement of the research problem to be investigated and the specific objectives of the survey to be conducted under the ensuing contract. If data from the survey or an interpretative report of the findings must be provided in time to meet a deadline, the date of and reason for the deadline should also be stated.

Any reference material that would be helpful to potential offerors in planning the broad outline of the proposed survey or in estimating time, skill, or cost requirements should be cited and also included in the RFP package. If the material cannot be provided with the RFP, information on where and when it can be accessed or obtained should be supplied. Appropriate reference material might include such information as estimated numbers of eligible respondents, geographic distribution of eligible respondents, and the methodology and results of any related research that has been conducted by or is known to the sponsoring agency. However, materials that would be of interest only to the successful offeror should not be included with the RFP.

RFPs sometimes state anticipated "level of effort" in terms of person-years or similar proxies for dollar estimates. This may be less helpful to offerors than dollar estimates because of wide variations from agency to agency in the dollar amount one person-year signifies. When agency procurement policies permit, it is desirable to inform potential offerors of the approximate amount of funds available for the contract, expressed as either a dollar cap or dollar range.

Criteria for review of technical proposals must be included in the RFP. Only review criteria specified in the RFP can be used as a basis for determining which proposals are technically acceptable. For example, if a probability sample is deemed necessary for a survey, it must be specified in the RFP as a contract requirement. Review criteria for a statistical survey typically include: (1) evidence of understanding the problem to be addressed through the survey, (2) technical plans for sample design and selection and for

data collection and processing, (3) corporate experience of the offeror with similar subject matter and equally complex surveys, (4) training and experience of staff members proposed to work on the project, and (5) availability of suitable space and equipment for all aspects of the work.

3.2 Survey Design

The content of the RFP with respect to the survey design depends on many factors. The following list of topics should be used as a guide, and the appropriateness of each item should be judged separately for each RFP. However, if an issue is not specified in detail in the RFP, it should be mentioned as an item to be discussed by the offerors in their technical proposals.

(a) Definition of the target population and key subgroups. -- The objectives of the survey should define exactly the population that is intended to be covered. Is it the population of the conterminous United States or the population of the 50 States? Cost differences may be significant if the latter is specified and personal interviews have to be conducted in Alaska or Hawaii. Similarly, it may be necessary to have estimates for specific geographic areas or population subgroups by demographic characteristics such as age, income, or race.

(b) Coverage of the sampling frame. -- Ideally, the sampling frame should fully cover the target population and every effort should be made to assure that the source is as current and as complete as possible. If multiple frames are used, a method to identify and handle overlap in them must be developed.

(c) Sample selection. -- The RFP should specify that some type of probability sample be selected for the survey and that the sample design be adequately defined. This includes a description of the proposed sampling plan for each stage of sampling. For each stage of selection the description should include information on the following: definition of the sampling unit and sampling frame to be used (any sampling units not specified in the RFP should be clearly defined in the proposal); number, or expected number, of sampling units to be chosen; and specific method of selecting units from the frame at a given stage (e.g., simple random sampling, systematic sampling, or stratified sampling) should be clearly specified. Offerors should base their choice of sampling units, sample sizes, and selection methods for the various stages of a sample design on optimization considerations, i.e., maximum precision per unit of cost. The RFP should require that proposals include a justification for all the sample design choices made. At least one sampling statistician with experience in the particular area of interest should assist in the preparation of this and related portions of the RFP and in review of proposals.

(d) Sampling error. -- Two quite different approaches are commonly used in RFPs for sample surveys to specify the level of effort desired by sponsors to provide estimates that are sufficiently reliable for their purposes. One method is to specify the sample size; the other is to specify the desired level of sampling error for estimates of key variables. It is not desirable or practical to specify both sample size and precision in the RFP. Whichever is specified, the

other should be used to evaluate the proposals. If the sample size is specified, then in order to aid the evaluation process a clear definition of the sampling unit is necessary. There must be no ambiguities concerning the nature of the ultimate sampling unit. It is also necessary to specify whether a sample unit is a selected unit, a unit that is in scope, or a unit for which acceptable data are collected. In some business surveys, especially, the main respondent (for example, a company) may have to sample within its product lines or its operating divisions in order to obtain the needed information; this subsampling needs to be specified carefully. The RFP should be precise when defining acceptable data.

3.3 Data Collection

When preparing the RFP, a number of issues concerning data collection and questionnaire development and testing should be considered. While they may not apply in all cases, when they do, they will have an effect on the contract price. In an attempt to avoid any misinterpretation by potential offerors, these issues should be addressed when applicable.

(a) Method of data collection. -- The three most common types are personal (face-to-face) interview, telephone (including random-digit dialing) interview, and self-administered (primarily mail) questionnaires. Each has specific advantages and disadvantages, and they may be used in combination in a survey. The method or combination selected should be that which will result in the most accurate information with an acceptable response rate within the limits of the available budget.

(b) Data specifications or information to be obtained. -- There should be sufficient information about the questionnaire content and the amount of effort required in developing and testing the questionnaire.

(c) Need for a pretest. -- The need for a pretest is paramount in any survey. Without a pretest, the chances of achieving good results are minimal. Three primary issues arise in a pretest which must be considered. These are sample size, probability sampling, and timing. Sample size should be sufficient to learn about significant problems that may be encountered. Specifying a pretest of no more than nine respondents in order to avoid OMB clearance should be avoided; it is better to determine the sample size needed without reference to clearance requirements and to ensure that the survey development schedule allows enough time for necessary clearances. Probability sampling may not always be indicated for pretests. Purposive sample designs are frequently used in pretests to assure including important subpopulations; probability selection methods at the final stages (e.g., households within block) are still desirable to avoid selecting the "easy to get" units. The survey time schedule should allow for adequate time and professional staff to conduct and analyze the findings from pretests and to use the findings effectively in subsequent stages of development.

(d) Participation requirements. -- Most surveys are voluntary on the part of respondents. However, if participation in the survey is mandatory, this could greatly affect the proposals.

(e) Incentive payments to respondents. -- This will require justification to OMB to show that payment is necessary to obtain usable data and an adequate response rate. Several studies have yielded mixed results in this area.

(f) Training. -- It must be determined who will be responsible for training supervisors and interviewers and for preparing the necessary materials (e.g., manuals with question by question specifications and other training materials). In addition, the types of training requirements (e.g., group training sessions in a central location versus training by mail) should be specified and the role of the sponsor's staff in the training as observers or participants should be clearly stated.

(g) Response rates. -- The required response rate must be specified along with the method that will be used to calculate it. This includes the number of completed questionnaires received. The definition of a completed sample unit is also needed.

(h) Followups. -- The time-of-day and day-of-week requirements for followups must be included in the procedures for personal interviews. This is in addition to the type and number of followups required.

(i) Quality control. -- The quality controls that will be required in the data collection process and the validation requirements must be addressed in the RFP. Who will perform this work must also be specified.

3.4 Contract Products

The final products and quality of the completed work should be monitored very closely. To facilitate the monitoring process, certain items should be addressed in the RFP. These include:

(a) Deliverables. -- A schedule of all deliverables, including a description of all reports to be written, should be included. The content and time of delivery for progress reports should be specified. Provision should be made for submission for approval of a draft of the final report. When it is feasible, the format and content of all required tables should be included in the proposals.

(b) Quality control. -- A list of quality control procedures should be included in the RFP. In addition to those discussed previously, these might include coding and data entry verification, consistency runs, and machine editing.

(c) Documentation. -- All data supplied should be accompanied by sufficient documentation. For example, there should be complete information on the formats of any data tapes and a description of how any weights were calculated.

(d) Final report. -- This should include a complete report on the tasks to be performed as required under the terms of the contract. At a minimum, the final report should include the contractor's evaluation of the effectiveness of the survey procedures and all appropriate technical appendices. Appendices might include: copies of all forms, documentation of all procedures in all phases, all adjustments for nonresponse and missing data, estimates of sampling errors, full accounting of all data collection results including interviewer validation results, coding and keying error rates, methodological findings, suggestions for improved methods in future surveys, and a

description of the procedures used in handling confidential data.

3.5 Offeror Experience

The RFP must request relevant information about the offeror. It is not sufficient for an RFP to simply define the requirements for the technical proposals. Before a contract is awarded, the capacity to perform and the reliability of the offeror must be established. When appropriate, a description of offeror experience should be obtained. This experience should include frame development, probability sample designs, data collection methodology (including callback procedures), variance computation procedures, training of interviewers and coders, analysis of data, data processing, quality control, and publications. Examples of a contractor's previous work should be requested, including questionnaires, sampling documentation, interviewing manuals, and reports containing progress and final results of the projects. Along with all of this information, the name and current telephone number of the sponsor's representative for these other surveys should be requested so that at least some of the references can be verified before awarding any contract.

In addition, information should be requested about the experience of the current staff of the offeror. This could differ significantly from the company's experience. Information should be requested about the background in statistical methodology, previous contracts, and subject matter areas for each staff member proposed for the contract.

Provision should be made for including a "key personnel" clause in the final negotiated contract. Such a clause specifies that the Government has the right to approve any replacements that must be made to key positions related to the survey, such as the project director or field director for data collection.

In the event that an offeror plans to use consultants not already members of the firm's staff, letters of intent should be obtained from these individuals and included with the technical proposal. Information on the background of interviewers in the primary sampling units in the frame from which the sample will be drawn should be requested, and background information on supervisory and clerical field staff should be requested.

Finally, information should be requested about the computer capabilities to handle all data processing requirements. If necessary, this should include a requirement of compatibility with the agency's data processing facilities.

4. CONTRACTOR SELECTION

The response to an RFP is submitted in two separate parts, the Technical Proposal and the Business and Cost Proposal. These are evaluated separately, with evaluation of the Business and Cost Proposal being the responsibility of the Contracting Officer upon determination by the technical review panel of technically acceptable proposals. It is the responsibility of the Contracting Officer to assure that the technical evaluation is conducted in a way that satisfies the Federal Procurement Regulations and

agency requirements. The program office bears responsibility for the conduct of this review.

The Project Officer for the contract is responsible for proposing the names of individuals to be on the technical evaluation panel. The Project Officer is expected to be a member of the panel and may chair the panel, which is usually composed only of Government personnel. Outside evaluators are used only under unusual circumstances, such as when required expertise for evaluation is not available within the Government. The prime requirements for the review are that the process be equitable, that the basis for the evaluation of each proposal be documented, and that the review be conducted in terms of the criteria published in the RFP for contractor selection.

In assembling the technical review panel, the Project Officer should attempt to obtain a balance of areas of expertise and programmatic interest as related to the purpose of the contract and the needs of the agency. It is important that there be continuity over the full process of proposal review and contractor selection; individuals selected for the panel should be available to review later modifications and additions as well as the initial responses to the RFP.

The definition of a proposal as acceptable or unacceptable is based on technical consideration of the offeror's proposal in terms of the requirements of the RFP. A determination of unacceptability must be supported by concrete, factual statements consistent with the evaluation criteria and must indicate the proposal's deficiencies are so major it could not be brought up to an acceptable level without the equivalent of a new proposal being submitted. A competitive range is established for further negotiations.

The process of negotiations results in best and final offers and the selection of a single offeror who will be the final contractor. It is the Contracting Officer's responsibility to ensure that negotiations do not change the RFP's requirements nor make any other changes that would impact on the selection process. If there is a material change in requirements because of negotiations, the competition must be reopened to all offerors who were in the competitive range. A significant change in the offeror's cost proposal may also require reopening of the competition.

Upon completion of all negotiations, the final contract document is prepared. The option should be considered of specifically incorporating the offeror's final proposal to avoid any question as to what was offered and accepted. This can be of particular value when the RFP specified only an area of survey concern and not the specific approach to be used.

5. POST AWARD ACTIVITIES

The Project Officer's responsibilities do not end with the award of the contract. In many ways, these responsibilities are just beginning.

The Project Officer is responsible for seeing to it that any Government responsibilities for provision of information, material, or comments on contractor drafts are accomplished in a timely manner. Complete files should be maintained of all reports and communications between the Project Officer and the

contractor, and decisions mutually agreed to must be documented for the files. This is important because it is not unusual for Project Officers to change over the period of the contract and the new Project Officer will depend on the files to provide a complete picture of the project to date. It must be remembered, however, that only the Contracting Officer has the authority to commit the Government to any changes relating to the scope or execution of work covered by the contract, since these changes often have cost implications. Such changes must be made through a formal modification to the negotiated contract.

The Contracting Officer typically delegates to the Project Officer responsibility for monitoring the technical work under the contract. Upon receipt of all contractor reports, the Project Officer should review them carefully to see that work is being completed in a timely and acceptable manner. Meetings should be held periodically with contractor staff to review progress and problems. As appropriate, technical advisors should be involved in review of written materials and in meetings with the contractor to assist the Project Officer in project monitoring and management.

The Project Officer will also be responsible for developing and submitting the request for and obtaining OMB approval for the data collection portion of the project. This approval is required if identical information is requested from more than nine respondents. If the contract involves a pretest intended to result in decisions about data collection procedures and questionnaire content prior to the fielding of the main survey, then two separate OMB approvals may be required. Since this can be a lengthy process, provision should have been made in the RFP for what the contractor will and will not do while it is occurring.

The Project Officer and technical advisors on the project team should take steps to participate as actively as possible, as allowed or specified by the negotiated contract, in many aspects of the survey design and implementation. This should include review and approval of all data collection instruments and related materials, attendance at and perhaps participation in interviewer training sessions, observation of field work, and onsite review of all data processing activities.

Only through active participation in most aspects of the survey operation will the Project Officer obtain the necessary working knowledge and understanding of how the survey data were derived and how any analytic conclusions based on them were arrived at in order to permit best use of the survey findings. Most contractors welcome this type of active participation by the Project Officer. It is only through continuing, active involvement in the work of the contract that the

sponsoring program can maximize the likelihood of a high quality job.

6. SUMMARY

The Federal Government often conducts statistical surveys under the auspices of the open competitive, negotiated procurement mechanism. This type of contract offers an agency the maximum opportunity to specify the requirements for the survey, to set the standards for contractor performance, and to select the organization that offers the best combination of expected product quality and cost factors.

It is essential that the program Project Officer who is assigned responsibility for developing the RFP and for monitoring the performance of work under the contract consult with the agency procurement office about contracting options available; several such options are identified and discussed briefly in this paper. Then, with knowledge of these options, the statement of work and schedule of deliverables for a statistical survey contract can be developed in a manner most likely to produce the best survey within the constraints of available time and financial resources. Survey design elements that should be given specific consideration in development of the RFP and contract statement of work are identified and discussed for consideration as they may apply to any given survey.

The range of skills required to develop and monitor a statistical survey are seldom found in a single individual Project Officer. Therefore consultants should be identified to assist in developing the statement of work, reviewing technical proposals, and monitoring contractor performance.

Even with the highest quality contractor, a statistical survey requires careful planning and continuing involvement on the part of the Project Officer and project consultants. Effective monitoring of contract activities includes considerably more than receipt and review of required contractor reports. Frequent meetings or telephone conversations, periodic site visits, and personal involvement in and monitoring of various contract activities from training sessions through data processing and analysis phases are typically appropriate.

It is hoped that the recommendations of the Subcommittee on Contracting for Statistical Surveys will be of assistance to agency personnel responsible for contracts for statistical surveys. Through their application to such survey contracts, higher quality surveys may be conducted by agencies of the Federal Government.