A Primer On Source Selection Planning:
Evaluation Factors And Rating Methods

By Vernon J. Edwards*

The Government awards its largest contracts through competitive negotiation, the process known as source selection. The conduct of source selections accounts for much of the most difficult and time-consuming work done by Government contracting and program office personnel. A source selection can require the work of hundreds of persons in Government and industry, take months or even years,¹ and can prompt costly and lengthy litigation that delays a contract award and the progress of an important Government program.

Successful and timely completion of a source selection requires comprehensive and detailed planning. The single most important and fateful planning decision an agency must make is its choice of the criteria to be used to evaluate proposals, called evaluation factors for award. The choice of evaluation factors determines proposal content and size, the selection of evaluators and advisors, the organization and size of the proposal evaluation team, the evaluation methods to be used, the likely duration of the evaluation process, the firms that will be able to compete, the outcome of the competition, and, by extension, the outcome of a Government program.

This Briefing Paper is a primer on source selection evaluation factors for award and the rules regarding their selection and use. It is intended for those who plan to use the tradeoff process method of source selection; however, some parts of it may also be of interest to those who plan to use the lowest price technically acceptable method.

Overview Of The Source Selection Process

A Government agency conducts a source selection because it has objectives that it hopes to fulfill through the performance of a contractor. Statute and regulation require that agencies seek competition when awarding contracts and make their contract award decisions on the basis of “best value,” which FAR 2.101 defines as follows:

Best value means the expected outcome of an acquisition that, in the Govern-

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ment’s estimation, provides the greatest overall benefit in response to the requirement.

Note that best value means the outcome of the “acquisition,” not of the source selection process. What the Government seeks through competition is what it hopes will be the best contract performance outcome. Hopes. The best value determination is a prediction. The Government will not know what value it will receive until contract completion, at which point it will have received it, whatever it turns out to be. Source selection is about making good decisions based on sound predictions.

In order to conduct a source selection a Government agency must first determine its requirements. Simply put, an agency’s requirements are the things it wants: products or services and contract terms. It then must describe those things in a specification or statement of work and assemble contract clauses, which include terms mandated by statute or regulation and terms chosen as a matter of agency discretion. The agency must then develop a Request for Proposals (RFP), which contains a draft of the contract the agency wants to enter into.\(^2\) The RFP also specifies (a) the procedures firms must follow in order to compete for the contract award, (b) the content and format of proposals, and (c) the bases on which the agency will make its source selection decision—the evaluation factors for award.

Upon receipt of proposals from competing firms, called offerors, the agency assembles proposal evaluators—ranging from one or two persons to one hundred or more, depending on the nature of the acquisition—and organizes them into a panel frequently referred to as a Source Selection Evaluation Board or Team (SSEB or SSET).\(^3\) The evaluators read the proposals and determine the merits of each of the competitors based on the evaluation factors.

When the SSEB has completed its work the agency will then ordinarily take one of two possible courses of action. It will either (1) proceed to a source selection decision and contract award or it will (2) conduct discussions with the most highly rated competitors. If the agency conducts discussions it will permit each of the most highly rated competitors to improve its offer by revision and then reconvene its SSEB to consider the revised offers. When the SSEB have completed their evaluation they submit their findings to a Government official referred to as the source selection authority (SSA). The SSA considers the relative merits of the competitors and decides which is to receive the contract. Contract award and debriefing of unsuccessful offerors ordinarily concludes the process, unless one or more of the unsuccessful competitors protests the source selection decision.

The Rules

The rules that govern the planning and conduct of source selections are prescribed by statute, regulation, and agency policy. Government and private sector personnel who will actively participate in source selections should study those rules. Federal Acquisition Regulation (FAR) Part 15, “Contracting by Negotiation,” implements the statutory requirements, but does not prescribe a process in detail. Generally, detailed process prescriptions are to be found in agency FAR supplements and in various memoranda, handbooks, manuals, and “guides.”\(^4\)

Rules for source selection are also prescribed in decisions of the Government’s two bid protest tribunals: the Government Accountability Office (GAO) and the U.S. Court of Federal Claims (COFC). Those tribunals interpret and apply the statutes and regulations when deciding bid protests, and familiarity with their decisions is essential to the effective planning and conduct of source selections.\(^5\)
The Problem Of Proposal-Based Competition

A signal feature of source selection as conducted today is solicitation and evaluation of “technical” proposals. Although FAR 2.101 conflates proposals with offers,8 that attributes more dignity to “technical” proposals than they deserve.

Under FAR Part 15, contracts are formed through offer and acceptance. Offers are promises—prospectively binding commitments to act or refrain from acting in a specified way.7 “Technical” proposals are packages of information, the specific content of which depends on the instructions in RFPs. “Technical” proposals may contain promises, to be sure, but if they do they also contain illusory promises and nonpromissory statements: assertions of fact, descriptions, estimates, statements of expectation and contingent intention, sales pitches, and so forth. In most cases the various kinds of statements in proposals are so intermingled and worded as to make it hard to distinguish between what is being promised and what it not. As explained by one commentator:

The meaning of an “offer” for contract purposes is well settled. FAR Part 2 defines an “offer” as “a response to a solicitation that, if accepted, would bind the offeror to perform the resultant contract.” This accords with the commercial meaning of an offer, defined as “the manifestation of willingness to enter into a bargain, so made as to justify another person in understanding that his assent to that bargain is invited and will conclude it.” Both the GAO and the [Court of Federal Claims] have used this commercial definition to determine whether a government contract has been created.

In accord with the general rule for commercial contracts as expressed in the Restatement [(Second) of Contracts] and the FAR definition, the offer in a government contract consists of (1) a proffer of terms, i.e., performance specifications and clauses, consistent with those specified in the solicitation, and (2) the price specified by the offeror. If the Government selects an offer for award, it forms a contract by accepting the terms, including the price, of the offer. . . .

The FAR does not define the word “proposal,” and the definition of “offer” [in FAR 2.101] fails to distinguish between the two terms, stating that “responses to requests for proposals (negotiation) are offers called ‘proposals.”’ However, proposals in response to a solicitation frequently contain much more than what is within the legal concept of an offer, as that term is used in contract law and defined in the FAR. The response may include other proposal information, such as past performance data, the qualifications of proposed key personnel, capability descriptions, and cost estimates not to be incorporated into any subsequent contract.8

So when an agency awards a contract to an offeror, it will not be contractually entitled to everything that is in the winner’s “technical” proposal. It will be entitled only to that offeror’s performance as its contractor and to what that offeror promised to do or deliver.

Unfortunately, what is so often found in “technical” proposals is the product of what is little more than an essay-writing contest. That is because essays are what agencies instruct offerors to submit. Consider the following technical proposal preparation instruction in an RFP for sign language interpreter services:

35.3 NON-COST/PRICE EVALUATION CRITERIA

Factor 1: Technical Approach - Offeror will be evaluated on interpreter service involving unusual or unique problems demanding creative approach and solutions. Offers will be evaluated on problem solving alternative approaches and recommended solutions. Offeror should address the following topics relative to your overall approach:

- Demonstrate the company’s knowledge of current trends in the Deaf Community and interpreting profession;
- Demonstrate the ability to provide services in all location within five business days of award of the contract;
- Demonstrate your scheduling process to meet the scope of this contract;
- Demonstrate the ability to provide the community building activities and trainings;
- Demonstrate bills are current, complete, timely and accurate.

Factor 2: Personnel (Staffing) - Offeror's academic, technical, and professional qualifications of interpreting staff are the most important aspects of personnel. Offeror must demonstrate the ability to obtain sufficient subject matter experts with recognized industry expertise to understand the technical factors. The Offeror shall present resumes, limited to two (2) pages each, representing the qualifications and certifications of the interpreters who will be assigned to this contract to provide core services. Resumes for Key Personnel and Non-Key Personnel shall address the following topics relative to the Contractors overall approach:

- Demonstrate the ability to provide interpreters with various interpreting styles as indicated in the RFP
- Demonstrate your staffing to meet criteria 1 of this contract.
- Demonstrate your staffing to meet criteria 2 of this contract.

Those instructions do not call for promises, but “demonstrations,” i.e., persuasive descriptions of various things—i.e., a sales pitch.9

The “technical” proposal approach to source selection, in which offerors describe (but do not necessarily promise) how they intend to do this or that during contract perfor-
mance and submit various plans for facets of performance such as systems engineering, safety management, risk management, and quality assurance, is in widespread use in source selection. Such content usually is not subjected to a thorough legal analysis. Instead, “technical” evaluators with no legal training read offerors’ submissions and judge them largely on subjective bases. The evaluators react to what they read by tagging certain statements in proposals as “strengths,” “weaknesses,” or “deficiencies” and assign what they consider to be an appropriate adjectival rating—outstanding, good, acceptable, marginal, unacceptable, and the like—much like a professor grading a college test essay. The result of this method of source selection is decisions that are based on what is essentially advertising copy. Such proposals may not have high predictive value, and such practices do not ensure that the Government will be entitled to or will receive “best value.”

The value to which the Government will be entitled will be obtained, if at all, from the things that the agency will be entitled to receive under contract and actually does receive. What it will be entitled to receive is (a) fulfillment of the promises the winning offeror made and (b) competent performance by that offeror. Thus, the proper things to evaluate are not essays in “technical” proposals, but offerors and their offers (promises). The offerors and their offers are the proper objects of evaluation. Evaluation of offers determines what and how much value each offeror promises. Evaluation of offerors determines the likelihood that each offeror will keep its promises. Source selection planners must ensure that evaluations are based on the attributes of offerors and their offers and not merely on imaginative writing.

Unfortunately, rather than thinking matters through on the basis of clear concepts and sound principles, many agencies take a cut-and-paste approach to source selection, uncritically borrowing schemes used in past acquisitions and cutting and pasting text from past RFPs. The result is that many half-baked ideas and poor practices are deeply embedded in acquisition culture and are passed on to future generations of acquisition personnel through on-the-job training. Regrettably, acquisition culture and bid protest system are very forgiving, despite catastrophes. No one knows how such practices have affected the value received from actual contract outcomes. The solution to these problems begins with effective source selection planning.

**Source Selection Planning**

Source selection confronts an agency with a difficult and fateful problem in decisionmaking, and proper planning requires concentrated thought. An agency must plan its source selection process in detail in order to successfully and efficiently choose a good contractor and award a good contract.

The SSA is the official responsible for source selection planning. According to FAR 15.303(b):

(b) The source selection authority shall—

1. Establish an evaluation team, tailored for the particular acquisition, that includes appropriate contracting, legal, logistics, technical, and other expertise to ensure a comprehensive evaluation of offers;

2. Approve the source selection strategy or acquisition plan, if applicable, before solicitation release;

3. Ensure consistency among the solicitation requirements, notices to offerors, proposal preparation instructions, evaluation factors and subfactors, solicitation provisions or contract clauses, and data requirements;

4. Ensure that proposals are evaluated based solely on the factors and subfactors contained in the solicitation (10 U.S.C. 2305(b)(4)(C) and 41 U.S.C. 3703(c));

5. Consider the recommendations of advisory boards or panels (if any); and

6. Select the source or sources whose proposal is the best value to the Government (10 U.S.C. 2305(b)(4)(C) and 41 U.S.C. 3703(c)).

Some agencies require the preparation of formal source selection plans. See, for example, the Department of Defense (DOD) *Source Selection Procedures, Paragraph 2.2 “Develop a Source Selection Plan (SSP)”*:

A written SSP is required for all competitive acquisitions that use these source selection procedures. In accordance with [Defense FAR Supplement (DFARS)] 215.303(b)(2), the SSA shall approve the SSP before the final solicitation is issued. At a minimum, the SSP shall include:

2.2.1 Background and Objectives. Include a brief description of the requirement, a summary of the objectives, and any reference to applicable guidance.

A vital tool in collecting information and feedback important to framing the Department’s acquisition strategy is the use of Industry days (e.g., presolicitation conferences, pre-proposal conferences). An Industry day is highly recommended, and in many cases, there should be more than one as the acquisition strategy formulation evolves and evaluation criteria are developed.

2.2.2 Acquisition Strategy. Provide a synopsis of the planned acquisition approach to include a description of how the specific acquisition being competed fits into the entire program.
2.2.3 Source Selection Team. Describe the organizational structure and identify the various roles and responsibilities of the source selection team, such as the SSA, Advisors, [Source Selection Advisory Council (SSAC)], SSEB, the [Procuring Contracting Officer (PCO)], and functional teams (e.g., Technical, Cost/Price, Small Business, and Past Performance). List members and advisors by name, position and title, organization, company affiliation (if applicable), and functional area.

2.2.4 Communications. Describe the process and controls for communication with industry as well as internal Government team communication, to include the use of email, during the source selection. Outline the security measures that will be utilized to ensure that “source selection information” is marked “Source Selection Information—See FAR 2.101 and 3.104” and the network(s) on which such information is stored or shared is protected from staff members or support contractors outside the [Source Selection Team (SST)] (see FAR 2.101 and FAR 3.104).

2.2.5 Evaluation Factors and Subfactors. Include evaluation criteria within the SSP document or attach the relevant and most current portions of the solicitation (e.g., Section L (Instructions, Conditions, and Notices to Offerors) and Section M (Evaluation Factors for Award)) to preclude inconsistencies between the SSP and the solicitation.

2.2.6 Documentation. Identify the types of documents that will be prepared during the course of the source selection, to include at a minimum, an SSEB Report covering the initial evaluation, updated as necessary following responses to discussions; a final SSEB Report after receipt of Final Proposal Revisions; an SSAC Report, if there is an SSAC, which reflects the SSAC’s consideration of the final SSEB Report and makes the SSAC’s recommendation to the SSA; and the [source selection decision document (SSDD)], which reflects the SSA’s independent judgment in accordance with FAR 15.308. The SSDD shall document the rationale for any tradeoffs made or relied upon by the SSA, including benefits associated with additional costs, and for any business judgments.

2.2.7 Schedule of Events. List the major acquisition activities and projected completion dates. Include key events such as peer reviews, Industry Days, and draft RFPs (see paragraph 2.1) as significant source selection activities.

2.2.8 Nongovernment Advisors. Address the use of nongovernment advisors and compliance with requirements of paragraph 1.4.6.2.

2.2.9 Securing Source Selection Materials. Detail the plan for securing all source selection materials throughout the evaluation process.

Sadly, requirements to prepare formal source selection plans do not ensure good planning. As often as not they create opportunities to cut and paste from old plans that successfully passed muster before the plan approval bureaucracy. Agency personnel are often told to “Go with what has worked” and “Don’t reinvent the wheel.”

As previously mentioned, the single most fateful source selection planning decisions an agency will make are its choices of evaluation factors for award. FAR 15.304, “Evaluation factors and significant subfactors,” prescribes the principal rules that govern the choice and use of evaluation factors:

(a) The award decision is based on evaluation factors and significant subfactors that are tailored to the acquisition.

(b) Evaluation factors and significant subfactors must—

(1) Represent the key areas of importance and emphasis to be considered in the source selection decision; and

(2) Support meaningful comparison and discrimination between and among competing proposals.

(c) The evaluation factors and significant subfactors that apply to an acquisition and their relative importance are within the broad discretion of agency acquisition officials, subject to the following requirements:

(1) Price or cost to the Government shall be evaluated in every source selection (10 U.S.C. 2305(a)(3)(A)(i) and 41 U.S.C. 3306(c)(1)(B)) (also see [FAR] part 36 for architect-engineer contracts);

(2) The quality of the product or service shall be addressed in every source selection through consideration of one or more non-cost evaluation factors such as past performance, compliance with solicitation requirements, technical excellence, management capability, personnel qualifications, and prior experience (10 U.S.C. 2305(a)(3)(A)(ii) and 41 U.S.C. 3306(c)(1)(A)); and

(3)(i) Past performance, except as set forth in paragraph (c)(3)(iii) of this section, shall be evaluated in all source selections for negotiated competitive acquisitions expected to exceed the simplified acquisition threshold.

(ii) For solicitations that are not set aside for small business concerns, involving consolidation or bundling, that offer a significant opportunity for subcontracting, the contracting officer shall include a factor to evaluate past performance indicating the extent to which the offeror attained applicable goals for small business participation under contracts that required subcontracting plans (15 U.S.C. 637(d)(4)(G)(ii)).

(iii) Past performance need not be evaluated if the contracting officer documents the reason past performance is not an appropriate evaluation factor for the acquisition.

(4) For solicitations, that are not set aside for small business concerns, involving consolidation or bundling, that offer a significant opportunity for subcontracting, the contracting officer shall include proposed small business subcontracting participation in the subcontracting plan as an evaluation factor (15 U.S.C. 637(d)(4)(G)(i)).
If telecommuting is not prohibited, agencies shall not unfavorably evaluate an offer that includes telecommuting unless the contracting officer executes a written determination in accordance with FAR 7.108(b).

All factors and significant subfactors that will affect contract award and their relative importance shall be stated clearly in the solicitation (10 U.S.C. 2305(a)(2)(A)(i) and 41 U.S.C. 3306(b)(1)(A)) (see [FAR] 15.204-5(c)). The rating method need not be disclosed in the solicitation. The general approach for evaluating past performance information shall be described.

The solicitation shall also state, at a minimum, whether all evaluation factors other than cost or price, when combined, are—

1. Significantly more important than cost or price;
2. Approximately equal to cost or price; or
3. Significantly less important than cost or price (10 U.S.C. 2305(a)(3)(A)(iii) and 41 U.S.C. 3306(c)(1)(C)).

See also FAR 15.305, “Proposal evaluation”:

Proposal evaluation is an assessment of the proposal and the offeror’s ability to perform the prospective contract successfully. An agency shall evaluate competitive proposals and then assess their relative qualities solely on the factors and subfactors specified in the solicitation. Evaluations may be conducted using any rating method or combination of methods, including color or adjectival ratings, numerical weights, and ordinal rankings. The relative strengths, deficiencies, significant weaknesses, and risks supporting proposal evaluation shall be documented in the contract file.

Note that the choice of evaluation factors is within “the broad discretion” of agency officials. However, there are four categories of more or less mandatory factors: (1) price or cost to the Government, (2) product or service quality, (3) past performance, and (4) in acquisitions that are not set aside for small business and that involve contract bundling, proposed small business subcontracting goals.

As a general rule, an agency’s choices and descriptions of its evaluation factors determine the nature and amount of information it must request from offerors. The greater the number of evaluation factors an agency decides to consider, the greater the amount of information its evaluators will have to process in order to make and report their findings and the greater the amount of information the SSA must consider in order to make a decision. Thus, an agency’s choices of evaluation factors affect the difficulty of evaluation, the amount of time it will take, and the number of evaluators that will be needed. Agencies should think long and hard about their choices. Evaluation of trivial factors is wasted effort. A factor is trivial if significant differences among offerors is unlikely or if differences will have little effect on value.

Evaluation Factors: The Four Components

The FAR neither defines “evaluation factor” nor explains the term conceptually. However, source selection is essentially a matter of business decision analysis, and familiarity with the concepts and principles of decision science will be helpful to developing an understanding of the terms used in the statutes, regulations, and agency policy issuances.

Evaluation factors for award have four components:

1. a list and a set of descriptions of the things that are to be evaluated—the objects of evaluation;
2. a list and a set of descriptions of the attributes of each of the objects of evaluation that are to be considered—the qualities and characteristics that are the sources of value;
3. a scale of measurement or assessment for each of the attributes; and
4. a statement of the order of importance of the factors.

First Component: The Objects Of Evaluation

When planning a source selection the first thing an agency must decide is what to evaluate, i.e., what are to be the objects of its evaluation. In common parlance and according to the FAR, agencies evaluate proposals. But such parlance is based on a common error, because, as discussed above, proposals are not the things to be evaluated. The things to be evaluated are offerors and their offers.

Offerors and their offers are complex things and have many features. For that reason, they are usually evaluated on the basis of selected features. For example, an offeror has a history of experience; it has a record of past performance; it has financial status; it is organized in a certain way; it employs various kinds of executives and workers; it owns or leases real property and various kinds of capital and other equipment; it has various kinds of business systems, such as accounting, information, quality assurance, and security; it may have licenses and certifications; it may have several lines of products or services; and it may have trade secrets and patents. Each of those features is potentially a subordinate object of evaluation—a subfactor. Offers, too, have
many features—their subfactors are constituent promises about will be done or delivered and prices.

(a) Evaluation of offerors. An offeror is a business entity. The objective of offeror evaluation is to determine on the basis of its attributes whether an offeror is eligible for a Government contract and will be able and committed to keeping its promises. Source selection planners must understand the industry to which the competing firms belong and determine what features of those firms will be important to successful contract performance. It is in those features that offeror value is to be found, and they must be the objects on which the evaluators focus when evaluating offerors.

Should an agency conduct some kind of test in order to assess offerors’ knowledge and capabilities—a technical essay, an oral presentation, or a live performance demonstration? As discussed above, such tests have long been the prevailing method of source selection, but the effectiveness of such tests is questionable. An offeror’s submission may not reflect its actual capabilities. A strong offeror might fail because it does not have skilled writers or presenters. A weak offeror can hire consultants to assist its personnel with technical essays or coach them for oral presentations and live performance demonstrations. An agency cannot be sure that the persons who represented the offerors in such tests will be the persons who will actually do the work and will stay with the contract through completion. Such methods complicate the evaluation process, are often costly and time-consuming, and can be pitfalls for evaluators. Source selection planners should think long and hard before adopting such methods. If they do adopt them, then they should ensure that the evaluators and the SSA understand their limitations and the distinction between promises and the products of a test.

(b) Evaluation of offers. The content of offers depends in large measure on an agency’s RFP and RFP proposal preparation instructions. If the RFP is a complete expression of an agency’s requirements, then an offer need include only the offeror’s name and address, a clear expression of unequivocal assent to the terms of the RFP, a price or estimated cost and fee, and the signature of the offeror’s authorized representative. In such a case a proposal need be evaluated only for (a) acceptability, i.e., assent to all material terms of the RFP and (b) reasonableness of price or cost and fee and, if the contract is to be cost-reimbursement, cost realism. If, on the other hand, the RFP leaves blanks in certain terms for offerors to complete with specific promises—product specifications or statements of work, delivery terms, etc.—then the RFP must instruct offerors about what kinds of promises to make and in what the form they must be submitted. It is in those promises that prospective value is to be found. Each promise is a subordinate element of the offer as a whole—a subfactor.

When an offer includes promises about the products to be delivered or services to be performed, they must be the objects of “technical” evaluation, but they should also be subjected to an analysis to determine whether the statements in the offer constitute promises and to detect vagueness, ambiguity, and loopholes, intentional or otherwise. This requires legal analysis by someone competent to recognize the distinction between a promise and other kinds of statements. See the Restatement (Second) of Contracts § 2(1):

A promise is a manifestation of intention to act or refrain from acting in a specified way, so made as to justify a promise in understanding that a commitment has been made.

See also § 2, Comment e:

Illusory promises; mere statements of intention. Words of promise which by their terms make performance entirely optional with the “promisor” whatever may happen, or whatever course of conduct in other respects he may pursue, do not constitute a promise. Although such words are often referred to as forming an illusory promise, they do not fall within the present definition of promise. They may not even manifest any intention on the part of the promisor. Even if a present intention is manifested, the reservation of an option to change that intention means that there can be no promisee who is justified in an expectation of performance.

Thus, offerors and offers are evaluation factors and certain of their features are subfactors. The most common approach to factor evaluation is to consider each subfactor separately, at the lowest level of subdivision, and then aggregate (“roll up”) the results to develop summary “overall” evaluations of each offeror and offer. The evaluation technique most commonly used in source selection is some (usually informal) variation of the decision analysis technique called Simple Multiple Attribute Rating Technique (SMART) or Simple Additive Weighting (SAW). Source selection planners should make themselves familiar with the concepts, principles, and procedures of that technique.

(c) Factor and subfactor definitions. Source selection planners must define the things to be evaluated so that all participants in the process will share a common understanding of what they are. For instance, an offeror is a firm that submits an offer in response to the RFP and in accordance with its instructions. If one of the features of an offeror that
is to be evaluated is its experience, then the source selection planners must explain what they mean by experience. A simple definition might be as follows:

Experience means historical instances of performance of tasks similar in nature to those that will have to be performed under the prospective contract, through which an offeror has had the opportunity to learn about the nature of the work; successful methods, processes, and procedures; and problems and effective solutions.

If an agency decides to require submission of a test essay in which offerors must describe their “approach” to doing the work, then planners should define approach. For example:

Approach means the system of methods, processes, and step-by-step process procedures that the offeror will use to perform the service (or produce the product).

or

Approach means the system of engineering methods that the offeror will use to design and develop the product and the concepts, materials and technologies, and general product configuration on which the offeror will base its design.

Writing such definitions is hard work, and they are always imperfect, but the painful effort required to write clear definitions will focus and sharpen the planners’ and evaluators’ understanding about what is to be evaluated and what is to be considered during evaluation.

Second Component: Object Attributes

The value in the features of offerors and their offers comes from their attributes. Attributes are qualities and characteristics. After identifying and defining the things to be evaluated and breaking them down into subfactors, if appropriate, source selection planners must identify the attributes of each factor or subfactor that will be especially useful and thus potentially valuable. The attributes of interest are those that will prospectively and especially contribute to the fulfillment of an agency’s acquisition objectives. The planners must identify at least one attribute of interest for each factor or subfactor.

To illustrate, suppose that the source selection planners want to evaluate the offerors on the basis of their experience. Thus, offeror experience will be an offeror subfactor. Suppose that the planners define experience as follows:

Experience means historical instances of performance of tasks similar in nature to those that will have to be performed under the prospective contract, through which an offeror has had an opportunity to learn about the nature of the work; successful methods, processes, and procedures; and problems and effective solutions.

The question now is what attributes of experience do the source selection planners consider to be sources of value. Suppose that the planners decide that value will reside in the relevance, depth and breadth of experience. Relevance, depth, and breadth are the experience attributes of interest.

But it is not enough for the planners to name attributes. They must define them. They must state what they are, so that offerors and evaluators will proceed on the basis of common understandings. In the case of experience, the source selection planners might define relevance, depth, and breadth as follows:

Relevance means the extent to which work done in the past was similar in kind and scope to the work that to be performed under the prospective contract and confronted the offeror with the same kinds of technical and management challenges and difficulties. The greater the extent, the more relevant the experience.

Depth means the number of times an offeror has performed a particular contract function or task. The more times an offeror has performed a particular contract function or task, the deeper its experience with that function or task.

Breadth means the percentage of the contract functions or tasks with which an offeror has had at least one experience. The greater the percentage of the functions or tasks that the offeror has performed, the broader its experience with the work of the prospective contract.

Suppose that the source selection planners want to evaluate offers on the basis of acceptability. They might define acceptability as follows:

Acceptability means assent to all material terms of the request for proposals, a material term being one that affects price, quantity, quality, or delivery.

Like the work of defining the objects of evaluation, the work of defining object attributes of interest is hard, but will force planners to think things through, which will clarify their thinking and enhance common understanding.

Third Component: Attribute Measurement And Assessment Scales

The findings of an evaluation are determinations of how well each offeror and its offer perform in terms of each of the applicable factor and subfactor attributes. Those findings are the primary information to be reported to the SSA. If the evaluation of offerors is to be based on relevance, depth, and breadth of experience, then the evaluation find-
ings will be of how relevant, how deep, and how broad is each offeror’s experience. It is important that evaluators be reasonably consistent among themselves when determining whether and to what degree an offeror or its offer possesses an attribute of interest. So source selection planners should develop a scale of measurement or assessment for each object attribute. That will facilitate consistency among evaluators with regard to each offeror and consistency from one offeror to another. (These attribute scales should not be confused with rating scales, which are discussed below.) For the purposes of this discussion there are (a) standard and (b) custom scales, and scales are classified as nominal, ordinal, interval, or ratio.¹⁴

(The term measurement is used here to indicate a quantitative expression, such as the distance in number of miles from one place to another, the duration of time in numbers of seconds, minutes, hours, days, etc., product reliability in mean-time-between-failures, and experience in number of chances to learn. The term assessment is used to indicate a nonquantitative expression of the extent to which a quality, such as soundness or suitability, is found to be present. Numbers can be used to make nonquantitative expressions, as when assessing suitability on a scale of 0 to 10, 10 being best, in which case the numbers are expressions of opinion, not quantity.)

Standard scales are those that are widely accepted and used, such as the measurement of temperature on Celsius, Fahrenheit, and Kelvin scales. They are all well defined and widely used. Many professions have developed standard scales to measure phenomena of interest to their field, such as psychological and psychiatric scales for depression and post-traumatic stress.

If there is no standard scale for attributes such as relevance, soundness, completeness, or suitability, an agency should develop a custom scale for its own use. A custom scale need not be numerical for purposes of source selection. It may be verbal and may take the form of a checklist. Intervals on a custom scale can be marked by the use of words such as low, medium, and high, or insufficient, sufficient, abundant, and excessive, etc. Each such word must be defined so evaluators will know when to use it. As when defining objects and attributes, the hard work of developing scales forces planners to think things through.

Attribute scales should reflect the mode of attribute evaluation. There are two such modes: (1) pass or fail and (2) variable. When evaluating in a pass-or-fail mode an agency examines offerors or their offers to determine whether they satisfy one or more threshold requirements. All offerors and offers that meet the threshold pass and are equal in that regard, despite the possibility that some offerors and offers exceed the threshold. All offerors and offers that fail have no value with respect to the factor. When evaluating in a variable mode an agency examines offerors or their offers to determine how well they perform on a factor that may be present or absent to any extent within a range of measures. When evaluating in a variable mode an agency may specify limits—a “minimum” that an offeror or its offer must possess in order to qualify for further consideration, and a “maximum” beyond which there is no additional benefit.

Pass-or-fail evaluation is done on a nominal scale, the assessment being acceptable or unacceptable or some such similar terminology. Variable evaluation may use an ordinal, interval, or ratio scale of measure or assessment. An ordinal scale might be adjectival in the form of: Poor, Fair, Good, Better, Best, or Low, Medium, High. Such a scale indicates that Good is better than Fair, etc., but it does not indicate how much better. Two competing proposals might be Good with respect to a particular attribute, but one might be better than the other. An interval scale measures performance on a range of equal intervals from a minimum value to a maximum value. This scale is particularly suitable for source selection, because agencies typically have minimum requirements that are greater than zero. On an interval scale of 1 to 5, the degree of improvement from 1 to 2 is the same as the degree of improvement from 4 to 5. An interval scale permits statements such as more than by this amount or less than by this amount. But since an interval scale does not begin at zero it does not permit ratio comparisons of offerors or offers, such as twice as good or half as good. A ratio scale, such as 0 to 10, differs from an interval scale in that it begins at an absolute zero, which permits ratio comparisons among offerors and offers.

The development of object and attribute definitions and of appropriate measurement or assessment scales during source selection planning is very challenging, but has the singularly beneficial effect of forcing planners to think before proposals arrive. It facilitates consistency in evaluation. And it can help source selection planners determine what information they will want in proposals, which in turn facilitates the development of proposal preparation instructions.

Poorly defined evaluation factors can cause problems
once proposals arrive, because evaluators will have to think about what they are looking for under the pressure of time, which might result in poorly focused evaluations that are fertile ground for inconsistencies. Consider the following description of an evaluation factor that appeared in a Government RFP for a multiple-award task order contract for information technology support services. One of the objects of the evaluation was to be the offerors themselves—specifically, their comparative skill in performing certain tasks of software engineering. The agency planned to evaluate offerors based on a live coding exercise in which offerors were expected to demonstrate their skills while evaluators observed. One of several evaluation factors was Engineering:

For Sub-element 1, Engineering, the Government will evaluate the following:

a. The degree to which the Offeror utilizes automated testing best practices and uses tests to improve the quality of [software product].
b. The degree to which the Offeror’s coding practices impact the quality of the code.
c. The degree to which the [software product] is operational for use by users.
d. The degree to which the [continuous integration and deployment] pipeline eases deployment to multiple environments.

The RFP did not define “Engineering,” nor did it define “utilize,” “impact,” “operational,” or “eases.” Analysis of the RFP language suggests that the attributes of interest were (1) the extent (“degree”) to which an offeror used certain practices during the test (sub-sub-element a) and (2) the extent (“degree”) to which it used them skillfully (sub-sub-elements b, c, and d). But what acts would constitute “utilization” and what was to be considered a “best practice”? What effects would constitute “easing” of deployment? What would evaluators have to look for and what would they have to see during the tests in order to find some “degree” of utilization and easing? What did the agency mean by “degree”? The word indicates that use, impact, operational, and easing were variables, but there is no information about the mode of evaluation or the scale that was to be used to measure the “degree” of each. What was to be the scale for operationality and for easing of deployment? How were the evaluators’ findings to be explained? After the agency announced contract awards several unsuccessful offerors protested the decision to the GAO. The agency was forced to acknowledge that its evaluators had been inconsistent in their evaluations of the test results. It canceled the acquisition and asked the GAO to dismiss the protests as moot, which it did.15

Fourth Component: Statement Of Relative Importance

The fourth and final component of evaluation factors for award is the statement of the factors’ relative importance. FAR 15.304 requires that agencies “clearly” state “[a]ll factors and significant subfactors that will affect the source selection decision and their relative importance.”16 What does “relative importance” mean?17

“Relative importance” could refer to an agency’s priorities among its objectives or it could refer to the impact of each factor on the outcome of the competition. Presumably, the reason for requiring disclosure of the relative importance of evaluation factors is to inform offerors of the Government’s preferences and enable them to make tradeoffs during proposal preparation in order to optimize the value that they offer. An agency cannot say what impact each factor will have on the source selection decision when it issues its RFP, because that depends on the marginal differences among the offerors on each factor.

In addition to stating the relative importance of nonprice factors and price, agencies must state the relative importance among nonprice factors. Thus, for example, if the RFP indicates that a product to be offered should be highly durable but light in weight, it must state whether one of those attributes is more important than the other and, if so, how much more important it is. If an agency uses a numerical rating system, it can use percentage weights to express relative importance in order to develop weighted ratings. However, some agencies prohibit the use of numerical systems and percentage weights. If an agency does not use percentage weights, it must use verbal expressions of relative importance. Typical verbal expressions include “slightly more (or less) important,” “somewhat more (or less) important,” and significantly more (or less) important.” In the event that an agency does not state the relative importance of the factors, it must treat the factors as equally important.18 However, to say that the factors are equally important is tantamount to saying that the agency is indifferent in its preferences, which is possible, but seems unlikely.

Criteria For Factor Selection

When planning a source selection an agency should choose as its evaluation factors those features and attributes of offerors and their offers that will contribute to the fulfillment of its requirements. However, it is neither reasonable nor practical to try to evaluate every feature and attribute of
offerors and their offers that could have some slight effect. An agency must pick and choose carefully in order to avoid doing work that is not worthwhile. Source selection planners must keep in mind that the more evaluation factors to be evaluated the more information the agency will need from offerors; the more information the agency receives the more it must process; and the more information it must process the more people or time it will need to process it. As a general rule, it is better to focus on a few crucial factors than on a lot of marginally important ones. Planners should resist pleas and demands to evaluate everything that might be of interest to only a few members of the evaluation team.

The following are criteria for choosing evaluation factors:

- A factor should relate to the Government’s acquisition objectives. It should pertain to something that the Government will be entitled to receive under contract or to an offeror’s likelihood of keeping its promises.

- A factor should be such that differences among offerors or their offers will significantly affect the likelihood that the Government will achieve its acquisition objectives.

- A factor should be such that offerors are likely to differ significantly. If offerors are not likely differ significantly, if an attribute is one that almost all offerors in an industry are likely to have in common, then evaluation of it is likely to be a waste of effort.

- A factor must be susceptible of clear definition, explanation, and measurement or assessment.

- A factor must by nature be such that the extent of its presence or absence is verifiable and can be measured or assessed on the basis of obtainable statements in proposals.

**Evaluation Or Assessment of Risk**

In some agencies it is *de rigueur* to evaluate risk. See, for example, the DOD *Source Selection Procedures* at Paragraph 1.2, which requires the evaluation of risk whenever a “technical factor” is used. The publication explains risk as follows:

**Technical Risk.** Risk assesses the degree to which the offeror’s proposed technical approach for the requirements of the solicitation may cause disruption of schedule, increased costs, degradation of performance, the need for increased Government oversight, or increased likelihood of unsuccessful contract performance. All evaluations that include a technical evaluation factor shall also consider risk, separately or in conjunction with technical factors, with the exception of [lowest price technically acceptable] where the technical proposal is evaluated only for acceptability based on stated criteria. Risk can be evaluated in one of two ways:

- As a separate risk rating assigned at the technical factor or subfactor level (see paragraph 3.1.2.1).
- As one aspect of the technical evaluation, inherent in the technical evaluation factor or subfactor ratings (see paragraph 3.1.2.2).

The publication prescribes the following technical risk ratings:

<table>
<thead>
<tr>
<th>Adjectival Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Proposal may contain weakness(es) which have little potential to cause disruption of schedule, increased cost or degradation of performance. Normal contractor effort and normal Government monitoring will likely be able to overcome any difficulties.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Proposal contains a significant weakness or combination of weaknesses which may potentially cause disruption of schedule, increased cost or degradation of performance. Special contractor emphasis and close Government monitoring will likely be able to overcome difficulties.</td>
</tr>
<tr>
<td>High</td>
<td>Proposal contains a significant weakness or combination of weaknesses which is likely to cause significant disruption of schedule, increased cost or degradation of performance. Is unlikely to overcome any difficulties, even with special contractor emphasis and close Government monitoring.</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>Proposal contains a material failure or a combination of significant weaknesses that increases the risk of unsuccessful performance to an unacceptable level.</td>
</tr>
</tbody>
</table>

Those ratings do not square with the definition of risk in the 2017 DOD Glossary of Defense Acquisition Acronyms and Terms, which is:

Future event or condition that may have a negative effect on achieving program objectives for cost, schedule, and performance. Defined by 1) the probability (greater than 0, less than 1) of an undesired event or condition, and 2) the consequences, impact or severity of the undesired event, were it to occur.

It is difficult to understand what the prescribed technical “risk” ratings add to the information provided to an SSA by sound findings based on well-developed factor attribute definitions and scales. They do not describe risk in any
meaningful way. They are little more than vague conclusory expressions of doubt. The method is an example of the kinds of practices that are tolerated by the acquisition culture. There can be no objection to identifying and explaining to an SSA sources of uncertainty that arise from attributes of an offeror or its offer. But if such determinations are to be made they should be called what they are, expressions of doubt or skepticism, not a measure of risk.

For purposes of source selection, risk is the likelihood that an agency will be harmed to some extent as the result of an offeror’s inability or refusal to keep one or more of its promises with respect to quality, quantity, schedule, or cost to the Government. It is the product of the probability that the offeror will breach the contract or otherwise be unable to perform as promised and a measure of the injury to the agency that would result. Risk can arise from the nature of a promise, which might reflect excessive optimism or error, or from the nature of the offeror, which might be incompetent or incapable.

Every possible selection decision will entail some amount of risk, but risk, in the technical sense described above, may be difficult to measure in a meaningful way. It may be easier to express a degree of confidence or doubt about one or more of an offeror’s specific promises, with an explanation of the source of confidence or doubt, whether in the promise itself (based on realism or excessive optimism, or on accuracy or error) or in some perceived shortcoming in the offeror (ample or insufficient experience, or good or bad past performance). What is important in this regard is for the evaluators to provide the SSA with useful information about and explanations of their assessments instead of broad standard verbiage lacking in specifics.

Strengths, Weaknesses, And Deficiencies

The terms strength, weakness, and deficiency, which are deeply embedded in acquisition culture, typically refer to statements or descriptions in “technical” proposals that evaluators discover and especially like or dislike. They could just as easily have been termed pros and cons. FAR does not include a definition of strength, but FAR 15.001 defines deficiency, weakness, and significant weakness as follows:

“Deficiency” is a material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

***

“Weakness” means a flaw in the proposal that increases the risk of unsuccessful contract performance. A “significant weakness” in the proposal is a flaw that appreciably increases the risk of unsuccessful contract performance.

As with the risk ratings mandated by the DOD Source Selection Procedures, those terms add little to solid findings based on well-developed factor, subfactor, and attribute definitions and attribute measurement and assessment scales, other than perhaps to call certain findings to the SSA’s attention. They merely artifacts of the essay contest approach to source selection.

Rating And Rating Methods

FAR 15.304(d) states: “The rating method need not be disclosed in the solicitation.” FAR 15.305(a) says that agencies may use “any rating method or combination of rating methods.” What does FAR mean by “rating method”? What is “rating”? It is important to understand that there is a difference between factor evaluation and factor rating (scoring).21

Evaluation is a two-step process. In the first step agency personnel read the information in proposals and document their findings about how well each offeror and its offer performs on each of the evaluation factors. In the second step, the agency personnel compare each offeror and its offer to the others on the basis of the findings of the first step and rank them from best to worst, making tradeoffs when appropriate and necessary. The outcome of the second step is the basis for the source selection decision, and it is in that step that ratings should, in theory, be most useful.

Rating is the process of converting detailed measurements and assessments on diverse scales to shorthand or symbolic expressions on a single scale in order to summarize and communicate the findings of the first step of the evaluation process in a way that facilitates the second step. Rating simplify complex information and make it easier to assimilate. Think of a rating method as a way of assigning a common denominator. If there is any advice to be given with respect to rating systems, it is: Keep it simple.

Converting complex information to a simpler form results in the loss of some of the information. For that reason, ratings are not binding on decisionmakers22 and may not be cited as the sole basis for an award decision.23 Thus, an SSA cannot compare and rank offerors on the basis of rating/price tradeoffs. So why bother with ratings if SSAs cannot use them to make a decision? One answer is that an SSA can
use ratings to make initial comparisons and rankings of offerors in order to conditionally size up the results of the competition before starting a more thorough analysis of the detailed evaluation findings. Ratings are facilitative, but not conclusive.

Ratings should be assigned based on a value function for each subfactor. A value function converts an attribute measurement or assessment to an adjectival or numerical scale using if-then-else logic. If the measurement is x, then the rating is y. If the product weight is 15 pounds or less, then the rating to be assigned for the product weight factor is Outstanding or 100 points.

If an agency is considering only two or three nonprice factors, such as offer acceptability, experience and past performance, then it does not make much sense to bother with converting the “raw” evaluation findings to ratings. The evaluators can simply report their findings to the decision-maker, who should find it easy to make tradeoffs and decide which competitor offers the best value. But if there are four or more nonprice evaluation factors, then the SSA will face a more complex problem in tradeoff analysis. The greater the number of evaluation factors and the greater the number of offerors the more complex the problem. A preliminary and conditional ranking based on ratings should help an SSA get oriented and guide further inquiry. But if an agency is going to use ratings it should want to develop a rational scheme. In order to be valid and useful, the ratings must preserve the differences among competitors and make those differences discernible.

As noted, FAR 15.305(a) states that agency may use any rating method or combination of methods. If the purpose of a rating system is to condense and simplify voluminous and complex information, then numerical methods (e.g., a 0 to 100 point scale) provide for the greatest degree of simplification. But some agencies are highly averse to the use of numerical rating and prohibit or discourage its use. Adjectival and color-rating systems, which are of comparatively limited utility, are the preferred methods. This is undoubtedly due in part to the fact that some agencies have gotten into trouble by using inordinately complicated numerical schemes. Aversion to numerical rating has long been recognized among decision scientists, who routinely use numerical systems:

The fundamental principle might be called numerical subjectivity, the idea that subjective judgments are often most useful if expressed as numbers. For reasons we do not fully understand, numerical subjectivity can produce considerable discomfort and resistance among those not used to it. We suspect this is because people are taught in school that numbers are precise, know from experience that judgments are rarely precise, and so hesitate to express judgments in a way that carries an aura of spurious precision. Judgments indeed are seldom precise—but the precision of numbers is illusory. Almost all numbers that describe the physical world, as well as those that describe judgments, are imprecise to some degree. When it is important to do so, one can describe the extent of the imprecision by using more numbers. Very often, quite imprecise numbers can lead to firm and unequivocal conclusions. The advantage of numerical subjectivity is simply that expressing judgments in numerical form makes it easy to use arithmetical tools to aggregate them. The aggregation of various kinds of judgments is the essential step in every meaningful decision.

Adjectival rating systems are based on ordinal categories, such as “excellent,” “very good,” “acceptable,” “marginal,” and “unacceptable.” These ratings communicate the order of value, but not the magnitude or interval. In most such schemes, which generally use four to six adjectival rating categories, “excellent” is better than “very good,” which is better than “acceptable,” which is better than “marginal,” etc. Consider the following table from the DOD Source Selection Guide:

<table>
<thead>
<tr>
<th>Adjectival Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>Proposal indicates an exceptional approach and understanding of the requirements and contains multiple strengths.</td>
</tr>
<tr>
<td>Good</td>
<td>Proposal indicates a thorough approach and understanding of the requirements and contains at least one strength.</td>
</tr>
<tr>
<td>Acceptable</td>
<td>Proposal indicates an adequate approach and understanding of the requirements.</td>
</tr>
<tr>
<td>Marginal</td>
<td>Proposal has not demonstrated an adequate approach and understanding of the requirements.</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>Proposal does not meet the requirements of the solicitation and, thus, contains one or more deficiencies and is unawardable.</td>
</tr>
</tbody>
</table>

Since adjectival rating methods are usually ordinal scales, their usefulness is limited. The above scale indicates that Outstanding is better than Good, etc., but not how much better. Outstanding might be only slightly better than Good. Two proposals might be Good, but one might be better than the other. A minor revision might alter a rating from Unac-
ceptable to Good. An interval or ratio scale would communicate more information and allow for more refinement.

Conclusion

Comprehensive and detailed source selection planning is the key to successful source selection decisions, “successful” meaning a decision to select the capable firm that has promised and is likely to deliver best value. The most crucial decision in source selection is the choice of the evaluation factors for award. Good decisions in that regard require not only knowledge of the rules in statute, regulation, and policy, but also of the concepts, principles, and procedures of decision science. The key to making good source selection decisions is to evaluate offerors and their offers based on well-defined factors, subfactors, and their attributes instead of essay-type “technical” proposals.

Guidelines

These Guidelines are intended to assist you in understanding source selection. They are not, however, a substitute for professional representation in any specific situation.

1. Study the rules of source selection as stated in the Federal Acquisition Regulation, agency FAR supplements, and agency policy issuances. Learn the concepts, principles, and procedures of decision science, especially with respect to the Simple Multiple Attribute Rating Technique (SMART). Most source selection evaluation procedures are informal variations of SMART.

2. Remember that value comes from the attributes of offerors and their promises, not proposals per se. Proposals are merely packages of information about offerors and their offers.

3. Choose evaluation factors carefully. Focus on those that will contribute significantly to the achievement of acquisition objectives. Do not waste effort on factors that are trivial in their contribution.

4. Proper evaluation factors are not the proposals themselves, but the important attributes of features of offerors and their offers (promises) as described in proposals.

5. Offers are sets of promises and promises are commitments to act or refrain from acting in a specified way. Review all offer language for clear statements of prospectively binding commitment.

6. Define all evaluation factors, subfactors, and their attributes in order to ensure a common understanding of them among the evaluators and the offerors.

7. Plan to measure or assess how well each offeror and its offer perform on each attribute of interest based on a well-defined standard or custom measurement or assessment scale.

8. Evaluation findings are statements about how well each offeror and its offer perform on the evaluation factor attributes of interest.

9. It may be easier to assess and express confidence in or doubt about an offeror and its promises and to explain their sources than to assess risk, which is a more complex concept.

10. Evaluation is the measurement or assessment of how well each offeror and its offer perform on attributes of interest. Rating is the conversion of evaluation findings on diverse scales to a common scale. Use ratings in order to facilitate initial comparisons and rankings of offerors and their offers. But since rating results in the loss of detailed information, do not use ratings as the bases for tradeoff decisions or cite them as the reason for a source selection decision.

ENDNOTES:


3See Edwards, “Boeing Versus the Air Force—The KC-45 Tanker Protest and the Future of Major System Source Selections,” 50 GC ¶ 230, reporting that the Air Force used more than 150 evaluators.


6See FAR 2.101 definition of "offer": ‘‘Offer’ means a response to a solicitation that, if accepted, would bind the offeror to perform the resultant contract. Responses to invitations for bids (sealed bidding) are offers called ‘bids’ or ‘sealed bids’; responses to requests for proposals (negotiation) are offers called ‘proposals’; however, responses to
requests for quotations (simplified acquisition) are ‘quotations,’ not offers.”

7Restatement (Second) of Contracts § 2(1) and § 24, Comment a.


10Foundational texts in decision science include Keeney & Raiffa, Decisions With Multiple Objectives: Preferences and Value Tradeoffs (Wiley 1976) and von Winterfeldt & Edwards, Decision Analysis and Behavioral Research (Cambridge Univ. Press 1986). Recent texts include Goodwin & Wright, Decision Analysis for Management Judgment, 5th (Wiley 2014); and Clemen & Riley, Making Hard Decisions With Decision Tools, 3d (South-Western Cengage Learning 2014).


16See, e.g., the scheme used by the U.S. Forest Service in the evaluation of fire fighting aircraft, described in Croman Corp. v. U.S., 106 Fed. Cl. 198 (2012), in which ratings were carried out to multiple decimal points.”


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