

PREFACE

The purpose of this publication is to enhance the ability of small businesses to compete effectively in Small Business Innovation Research (SBIR) programs. In order to participate in these programs, firms submit SBIR proposals to federal agencies in direct response to specific solicitations. Accordingly, the primary emphasis of this publication is on proposal preparation. As proposal submission is the culmination of a planning process, prudent firms devote attention to planning their proposal prior to the actual writing. This publication contains three chapters corresponding to a process through which your firm determines the suitability of SBIR participation, selects projects, and finally prepares proposals.

Chapter I describes the SBIR program and how it can relate to other aspects of your business.

Chapter II presents suggestions for gathering information necessary to determine the suitability of any project for an SBIR program. Such information includes information on federal agencies (who solicit research and development efforts), technology, and commercial markets.

Chapter III discusses specific items you should consider in preparing your proposal. The content of this chapter is based on information provided by technical evaluators within various agencies who reviewed SBIR proposals and on a sample of written evaluator comments.

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I. USING THE SBIR PROGRAM TO FURTHER BUSINESS DEVELOPMENT

A. What Is SBIR

Small Business Innovation Research (SBIR) programs fund research and development efforts of a high risk nature that may have excellent commercial potential.

The Small Business Innovation Development Act of 1982 (P.L. 102-567), and 1992 (P.L. 102-564), presents an exceptional opportunity for any innovator who is capable of conducting high quality research and development (R&D). The purposes of the Act are to 1) stimulate technological innovation; 2) use small business to meet federal R&D needs; 3) encourage the participation by disadvantaged and minority persons in technological innovation; and 4) increase private sector commercialization derived from federal R&D.

Under the Small Business Innovation Development Act, each agency with an extramural R&D budget in excess of \$100 million must establish an SBIR program. The following agencies are currently participating in the SBIR Program:

- Department of Agriculture • Department of Commerce • Department of Defense • Department of Education • Department of Energy • Department of Health and Human Services (including the National Institutes of Health) • Department of Transportation • Environmental Protection Agency • National Aeronautics and Space Administration • National Science Foundation • Nuclear Regulatory Commission

Through its SBIR program, each agency will develop topics and release solicitations describing those topics. Proposals are submitted to the agency where they are reviewed and evaluated on a competitive basis. Each agency makes its own awards using contracts, grants, or cooperative agreements.

Under the law the SBIR program is a three-phase process.

Phase I is based on proposals solicited by participating agencies. These solicitations contain topics on which small firms are invited to submit proposals. The proposals describe the results the firm intends to attain, the approach the firm will take, and how it will prove the feasibility of its approach.

Phase I awards can be made up to \$100,000 for approximately a six-month effort. The purpose of Phase I is to show: 1) that the proposing firm can do high quality R&D; 2) that the proposed effort is technically feasible; and 3) that sufficient progress had been made to justify a much larger agency investment in Phase II. Phase I enables the agency to address these questions with relatively small agency investment, thereby increasing the efficiency with which federal R&D dollars in Phase II are utilized.

Those projects which complete Phase I can compete for Phase II funding to further develop the proposed idea. Phase II is the principal R&D effort, with a duration which normally does not exceed two years. Awards for Phase II are for \$750,000 or less.

Awards for Phase II are based upon the results of Phase I and the scientific and technical merit of the Phase II proposal. The object is to continue the R&D initiated under Phase I. However, the government is not obligated to fund any specific Phase II proposal. In order to fairly handle the problem of choosing between proposals of approximately equal merit, where the funds available to agencies do not permit funding all proposals, the Small Business Innovation Development Act mandates that commitments for follow-on funding from non-federal sources be given special consideration.

Formally, SBIR programs have a third phase. Where appropriate, Phase III is conducted by the small business (including joint ventures or R&D partnerships) to pursue commercial applications of the R&D conducted in Phases I and II. Non-federal funds, including those obtained through exercising the follow-on funding commitment, support Phase III. Phase III may also be supported by non-SBIR funded R&D or production contracts with a federal agency for products or processes intended for use by the United States Government.

Small U.S. businesses are eligible to participate in the SBIR program if they are for profit and have 500 or fewer employees. This includes sole proprietorships, partnerships, joint ventures, associations or cooperatives. Nonprofit organizations are not eligible.

The primary employment of the principal investigator must be with the small business. He or she must spend more than one-half of his or her time employed by the small business at the time of award and during the conduct of the effort.

During Phase I, a minimum of two-thirds of the research and/or analytical effort must be performed by the proposing firm. The rest may be used for consultants or subcontractors. During Phase II, at least one-half must be performed by the proposing firm.

B. Integrating SBIR-related Efforts Into Your Overall

Business Strategy

Good business strategy is guided by a simple maxim: Know your own business. Small firms may waste time and money chasing after federal R&D funds which are outside of their business plans and strategy or capability. Submitting an R&D proposal can be a costly exercise for a small firm. You must know what it is you want to accomplish. You must have the R&D staff and capabilities to do the work.

If you are willing to commit time and funds to R&D, and you know your market well enough to know what kinds of innovations will mean growth and profits, SBIR programs are an excellent way to get the seed money to do the advanced R&D often necessary to enter into new projects.

We recommend that firms interested in the SBIR program start by drawing up a business plan. Not only can such a plan help you decide what SBIR program you want to compete in, it also provides you with a document you can show venture capitalists and other potential investors. A good business plan can take a variety of forms, and should include at a minimum the following topics:

- summary of what your company's objectives are and what business you are in; •description of the specific products and/or services that you are or will be providing; •description of the markets you are in or plan to compete in; •description of your competition and your advantages vis-a-vis the competition; •biographical information on the principals and key personnel; •purpose(s) for which you are seeking funds and an estimate of the funds you will receive; •financial statement which includes both the past few years (if any) and projections for the next three to seven years;

There are numerous sources of information on business plans. For example, many large accounting firms publish free brochures or pamphlets on how to write a business plan. Many universities and associated Small Business Development Centers include business planning assistance as part of their efforts to assist small high-technology firms. Developing a business plan will enable you to clarify your business strategy and focus on your strengths. Within this context, you can decide if SBIR monies or other R&D or private sector monies for that matter - are worth pursuing.

C. Using SBIR To Establish Scientific/Technical Leadership

By viewing the SBIR program as one part of your overall business strategy, you can use the program to build scientific and technical leadership in your area. In an increasingly competitive marketplace, such leadership is a key to continual innovation and the sales that innovation brings to small firms.

Modern science and technology is frequently described as comprised of a series of specialties. Small firms can establish technical leadership in one of these specialties through a systematic sustained R&D effort. Success in winning SBIR awards provides vital funding and recognition for your company.

View the beginning stages of your SBIR proposal planning process as an opportunity to talk with various representatives from federal, state, and local government, from companies, from universities and non-profit institutions and with independent consultants. The people you meet and talk with in even the first stages of proposal preparation can prove to be valuable contacts in the future.

The SBIR proposal process provides an opportunity to establish ties with experts in your field. By approaching these experts in the context of your SBIR project, you are likely to find that they have valuable insights to offer your company. Working closely with eminent scientists and engineers provides opportunities for your staff to benefit from the knowledge and experiences of others, thereby shortening the learning curve in moving to the frontiers of your field.

Award and successful completion of Phases I and/or II provides a federal government stamp of approval for your experience. Don't be shy - let people know about your success. Your firm should actively promote any award that you receive. Publicity should be directed towards the professional, trade, business, and mass media; towards relevant trade and professional associations and their members; and towards downstream users of your products or services.

As SBIR awards give you or your scientists and/or engineers a substantive project to talk about, encourage them to publish in professional literature. As it makes you a member of the "user community" for federal programs, seek to participate on federal agency advisory boards and peer review committees.

D. SBIR As a Potential Source Of Funding

An SBIR award is a powerful leveraging tool to attract other possible sources of funding. Your SBIR award is a sign of your company's credibility and creativity.

SBIR brings you into direct contact with federal agency SBIR and R&D program managers. These people are experts in their fields and have extensive networks which can benefit your firm. For example, some SBIR program managers send abstracts of Phase I awardees to large companies and venture capitalists who have shown interest in funding Phase III endeavors or working with your company in other capacities.

Mention your SBIR award when competing for other federal R&D. It is a sign of your competence to other program managers. After all, a number of their colleagues thought well of your firm.

The US Small Business Administration has developed a computerized matching system which will bring together potential capitalization sources with SBIR winners. This system will match Phase I and II winners with capital sources in light of technical interests, dollar amounts, geographical locations and time frames. Additional information on this system maybe obtained from the Office of Technology, U.S. Small Business Administration, 409 Third St., SW, Washington, DC 20416.

II. GETTING STARTED

The key to project selection is to make the best use of your firm's resources. For most small firms, developing projects in areas where they are weak will only waste time and money. Some type of evaluation and comparison procedure is needed to prioritize projects so you will select only those with the greatest chance of success.

In selecting projects for SBIR participation, we recommend that you attempt to maximize the following criteria:

- Your ability to respond to agency needs, problems, or mission area.
- Your ability to conduct the quality technical effort required to make a significant impact.
- Your ability to market and sell a technological innovation resulting from the research and development effort.

In this chapter we will present considerations bearing on each of the above criteria and suggest actions you can take to enhance your capabilities. Then we will discuss a process for putting these and other criteria together for final project selection.

A. Understanding What The Federal Agencies Want

In the SBIR program, agencies solicit proposals to meet their own R&D needs. You can only submit a proposal in response to a topic presented in an agency SBIR solicitation. Your chances of obtaining federal R&D funding are greater if you submit your proposal to those agencies whose R&D needs are most compatible with your particular project and the expertise and experience of your R&D team.

1. Agency R&D Interests

SBIR solicitations involve a tremendous variety of technical areas. Many agencies also have an interest in the same technology.

Because SBIR programs cover such a large range of technologies, we recommend that companies look first to their own expertise and business plans (as described in Chapter 1). That is, first decide what type of technical effort will produce results which contribute to the growth of your business. Then find an agency solicitation topic which is consistent with the technology you want to develop.

Some agencies focus on solving specific, targeted problems (which may include product development) and their R&D is conducted with direct practical applications in mind. Other agencies focus on advancing generic scientific and engineering disciplines. As a rule of thumb, agencies with distinct missions (defense, transportation, education, etc.) will predominantly offer solutions to problems or ways of exploiting opportunities; agencies with missions to support generic science and technology (e.g. the National Science Foundation, National Institutes of Health, etc.) will predominately offer solicitation topics focused towards solving problems which will enhance knowledge in that area.

This distinction is important for understanding the way in which the agencies look for originality and innovativeness in SBIR proposals. The problem-solving R&D agencies tend to emphasize originality and innovativeness in the approach to solving a problem; the more research oriented agencies tend to emphasize originality and innovativeness in the contribution to the scientific/technical discipline.

Nearly all solicitation topics can be divided into one of the following three categories:

- produce a product with performance characteristics described in the topic statement; •solve or contribute to the solution of a particular problem important to the agency's mission; •perform research in a technical area, the advancement of which would have implications for the agency's future needs.

Note that in the latter two categories, it is up to the proposing firm to suggest what form the product of the R&D effort will take. There have been nearly an equal number of both topics and awards in each of these three categories.

Whatever the character of the solicitation topic, it is important to remember that agency R&D programs focus on agency needs. You should provide the agency with information on how your proposal will meet its needs as well as simultaneously lay the groundwork for a commercially viable innovation.

The important point is to learn as much as possible about agency expectations in your area of interest. The solicitation is the obvious starting point.

2. Obtaining Information

The most important document you will receive from an SBIR participating federal agency is the solicitation. It outlines the rules for submission in each agency. Among the features you should focus on are the topics on which proposals may be submitted, eligibility criteria for awards, information to be included in proposals, evaluation criteria, procedural criteria (such as length limits on proposals, schedules for submission, evaluation, awards), and budgetary guidelines (such as total funding, limits, number of proposals funded, and whether profit is allowed). These solicitations also contain general information about the agency's program. Generally, you obtain solicitations by contacting the SBIR program office at each agency.

The Small Business Administration updates quarterly the Pre-Solicitation Announcement (PSA) which provides summary information on solicitation topics by agency. The PSA is displayed on the SBA ONLINE Bulletin Board prior to the release date of agency solicitations and provide brief statements of each agency's research topics, opening and closing dates of agency solicitations, who to contact for a copy of specific solicitations, and estimates of the number of awards to be made under each solicitation. The Pre-Solicitation Announcement alleviates the need for small firms to track the specific activities of all agencies by presenting relevant summary information on all agencies in one concise location. After reading through the PSA, you will have an idea of which agencies are offering topics in your area. You can then review the solicitation announcements from the relevant agencies and pin-point the exact topics that most closely pertain to your dominant fields of expertise. The SBA SBIR Pre-Solicitation Announcement can only be accessed electronically. To access the SBA ONLINE Bulletin Board, dial: (800) 697-4636. To access this information via INTERNET, the INTERNET address is:

Telnet SBAONLINE.SBA.GOV

Once connected to the bulletin board, the SBIR/STTR program areas can be accessed from the main menu by selecting "(5) Quick Search". From the Quick Search menu, the user selects item "(1) Search by Topic Menu". The user then selects item "Government Contracting Opportunities", then select "SBIR" or "STTR". There are many other sources of information about federal R&D, the agencies, and the SBIR program:

The NSF Small Business Guide to Federal R&D Funding Opportunities is an excellent starting place for assessing agency R&D interests. In addition to SBIR programs, this catalogue includes information on all major federal R&D programs, including the names, addresses, and phone numbers of contact people. Copies of the Guide may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. (202) 402-9325.

Every participating federal agency has an Office of Small and Disadvantaged Business Utilization which has material and information available for distribution. These offices can also direct you to the appropriate R&D program manager. Promoting a substantive body of R&D is a primary objective of an R&D agency. Agency R&D program managers, generally scientists and engineers, are the best sources of information about an agency's interest in particular technical areas. Because of the competitive nature of the SBIR program, they cannot answer questions about how to respond to specific SBIR solicitation topics. They can, however, describe general R&D needs of the agency and perhaps suggest other funding programs where your expertise might be applicable. As discussed in Chapter 1, it is in your interest to identify these contacts within the agencies and make them a part of your information network.

Every participating federal agency has established an SBIR office which coordinates and oversees the SBIR program. The SBIR program managers are always willing to talk to firms about the program and will answer any general questions. SBIR program managers try to provide as much information as possible without telling you what to do or giving one firm more information than another. In general, it is

a good idea to read through the agency's solicitation carefully before contacting the SBIR program manager with questions; more often than not your answer will be found there. Some agency SBIR offices also publish SBIR winners lists and provide titles and abstracts for winning projects.

SBIR abstracts are also available through an on-line service of the National Technical Information Service: the federal Research in Progress (FEDRIP) Database. This database is accessible through DIALOG, a large, private information service. To obtain a free copy of the FEDRIP Search Guide, call (703) 487-4650 and request PR 847. For information on DIALOG, or to set up an account, call (800) 334-2564.

B. Determining Whether There Are Potential Markets

Receiving an SBIR award is a wonderful marketing opportunity for a small firm. SBIR funding provides legitimacy to both you and your company, gets your name circulating in both the public and private sectors, and can be a basis for the development of new products and processes.

1. SBIR as a Marketing Opportunity

The first step in determining your potential markets is to determine just what will result from your research downstream. This may seem like an odd problem at first; yet, it is useful to determine all the points at which you could end your participation in the project and sell or license the results you have obtained. Depending on the stage at which you end your participation, the results of your effort may be technical knowhow, patents, a prototype, production techniques, a fully produced commodity, or a joint venture or spin-off company.

One way to determine which of these types of products you should market is to write down the salient features of what you anticipate obtaining at each point. Include features people might find objectionable as well as those they might find beneficial. Examine the features to determine who would be the likely customer or "client type" for the product or service at each decision point. Would it be a manufacturer? A consumer? Or some other type? And are they domestic, foreign, or multinational?

Once you have linked your potential products with a customer type, examine the buying patterns common within that type. Among the questions you should be asking are:

- Do they use products or services like yours? •Do they buy them or produce them in-house? •From whom do they buy them - firms like yours or different types of profit or non-profit entities? •What do they pay for such products or services and how much do they buy? •Are substitutes for your products or services highly standardized, highly individual, or somewhere else on the continuum?

In doing market research always remember that your technology, your staff, and your firm's ability to work as a team are what you are selling. However, technology, personnel, and organization must translate into sales in product or service markets. If you cannot demonstrate that sales are likely, no-one will provide you with either debt or equity in capital markets.

2. Identifying Phase III Investors

A major objective of SBIR programs is to assist small firms in moving new scientific and technical ideas from concept to commercialization. Federally funded work frequently helps winning companies develop the underlying generic technology for commercial innovations.

We recommend identifying potential Phase III investors as early as possible. Your marketing strategy should enable you to better target your efforts in seeking Phase III commitments.

Two tactics will greatly facilitate your effort to identify potential investors:

- Start at the top, with the president of the company you are targeting. •Do not try to sell anything.

What you should seek, and what many companies are willing to provide, is information on what specific product, service, or technology traits would enhance their interest in your project if you are successful in Phases I and II.

During your initial phone contacts note that you are interested in soliciting input from potential users of the innovations you anticipate will result from your project. Point out that you are aware that commercially successful innovations are "user or market driven."

Do not ruin your contact by indicating you are primarily interested in a sale. Prior to submission of your Phase I proposal, few large companies or venture capitalists are likely to be interested in making legally binding commitments to provide Phase III funding. These companies are familiar with the fact that R&D is highly risky, and that the risk is exceptionally great prior to a demonstration of technical feasibility (which is, of course, precisely what Phase I is designed to do).

Ask if you can visit their technical people to discuss your project. There is a remarkable amount of expertise in most large firms. Their comments can help you refine your project in a manner which will increase its chances of winning a federal award as well as attracting down-stream funding from their company.

While you are with their technical people, explore possible relations. Would they be interested in serving as a subcontractor on Phases I and II? Do they think that if you hit specific performance targets in the government funded Phases I and II, their firm would be willing to provide Phase III money? Do they think their firm would sign a commitment to provide such funding contingent upon hitting those targets? Who has to sign off on such a commitment? In short, while you are seeking advice, also explore the dimensions of the relation you can establish.

Remember that the law requires that where Phase II proposals are judged to be of approximately equal technical merit, extra consideration in the evaluation process is to be given to those proposals accompanied by a non-federal follow-on funding commitment. This happens more often than you would think. Many agencies have many more proposals recommended for award than funds available, and it is difficult to judge whether one Phase II proposal is better than another when they are in different technical areas. Of course, follow-on funding commitments from recognized sources (or those otherwise judged to be credible) will carry more weight.

C. Gathering Technical Information and Identifying

Consultants

All aspects of the proposal must be of high scientific and technical merit. The plausibility of your technical assumptions and proposed methodology will be completely examined in the light of current scientific evidence and techniques. As we shall discuss in Chapter III, the primary reason that proposals are rejected is because reviewers disagree with technical claims, dispute the uniqueness of the effort

compared to others they are aware of, or downgrade the proposal for leaving out important technical considerations.

You must demonstrate in the proposal that you are knowledgeable of the state of research or R&D in the specific project area. If you are not certain that your company is at the forefront of awareness of technical developments in the area in which you intend to submit an SBIR proposal, you should seek additional information and/or advice. The purpose of this section is to identify sources of technical information and to provide guidance in obtaining advice.

♦ 1. Technical Information Sources

If you are not up-to-date on the literature relevant to your topic, there are numerous sources you can turn to for help. In addition to local re-search libraries, there are governmental research and information facilities and commercially operated data bases. Also, in the solicitation, most agencies identify technical information sources which are applicable to the research areas they support.

The National Technical Information Service (NTIS) is the central source for the public sale of U.S. government-sponsored research, development, and engineering reports, as well as foreign technical reports and other analyses prepared by national and local government agencies, their contractors, or grantees. It is also the source of federally generated machine-processible data files and software and licensing arrangements for government-owned patents.

The NTIS information collection consists of numerous subject titles. In addition to its centralized bibliographic data base, there is a variety of announcement and dissemination products and services. For more information, contact NTIS, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650.

The Department of Energy's (DOE's) Office of Scientific and Technical Information (OSTI) collects and disseminates DOE-originated and worldwide scientific and technical literature in subjects of interest to DOE researchers. For additional information, contact:

U.S. DOE, OSTI, P.O. Box 62, Oak Ridge, TN 37831, (615) 576-8401.

The National Aeronautics and Space Administration (NASA) acquires and organizes worldwide scientific and technical information on aerospace. Selected documents are available from public information sources including the NASA Industrial Applications Centers, NTIS, and in many instances university technical libraries and larger public libraries. NASA's Center for Aerospace Information (CASI) maintains RECON, an on-line bibliographic search system, which provides retrieval and current awareness products and services. For more information, contact CASI, P.O. Box 8757, Baltimore/Washington International Airport, MD 21240, (301) 621-0390.

The Defense Technical Center (DTIC) is the central source of scientific and technical information resulting from and describing R&D projects funded by the Department of Defense (DOD). DTIC searches this information for registered requesters. Reasonable quantities of paper or microfiche copies of requested documents are available for SBIR proposal preparation. DTIC also provides referrals to DOD sponsored Information Analysis Centers (IACS) where specialists in mission areas assigned to these IACs perform informational and consultive services. For more information, contact DTIC, Attn: DTIC-SBIR, Building 5, Cameron Station, Alexandria, VA 22304-6145, (800) 363-7247 (in Virginia, Alaska, and Hawaii (703) 274-6902).

Health science research literature is available at academic and health science libraries throughout the United States. Information retrieval services are available at these libraries and Regional Medical Libraries through a network supported by the National Library of Medicine (NLM). The latter is the world's largest medical library with over 4 million items. For additional information, contact Public Information Office, NLM, Bethesda, MD 20894, (301) 496-6308.

Commercial sources of technical information have developed significantly in the last decade. These include large information vendors which offer access to multiple data bases, provide direct on-line searching access, and offer rapid turn-around time on printouts of abstracts and data records. In addition, there is a growing number of small independent information consultants/ brokers. Many universities and states provide similar information and literature search services.

2. Technical Expertise and Consultants

The information that you need or desire may reside with consultants or subcontractors, i.e., other individuals and organizations. There are various levels at which such advice may be useful in your SBIR participation:

- Providing preliminary technical advice for planning the project; •Reviewing and critiquing the proposal before submittal; •Serving as an advisor or research performer after an award

Before you contact people or organizations in order to enhance your capacity, be clear in your own mind what you will want them to do and what you are willing to pay.

Three procedures are helpful for choosing consultants or subcontractors: literature searches, citation searches and expert panels.

Literature searches were discussed in the preceding section. Consider contacting the authors of publications closest to the research area in which you are planning to submit a proposal.

A citation search consists of consulting a data base in order to discover how many times particular authors are cited on a topic of interest to you. Those authors with the most cites are likely to be leading experts. To conduct a citation search contact your local university library, a major urban library, or a commercial data base service.

An expert panel is conducted by selecting leading individuals in a field and asking them who they believe to be the leading U.S. expert. To conduct an expert panel take the most frequently published authors in the area of your project and phone them. Another source of expert panels are the Advisory Committees used by federal R&D Agencies.

These committees commonly contain leading experts from the agency's user constituency. Sometimes it is possible to have experts review your proposal for free, with the understanding that they would be retained as a paid consultant or subcontractor if you win an award. You should emphasize your openness to constructive criticism.

If you are interested in working with a person or company, request that they send you a copy of their resume (or a company brochure and resumes of people who will be working on your project) and provide references of companies for whom they have conducted work similar to that you are requesting. Also ask them to sign a confidentiality agreement. Do not discuss proprietary details until you have received the signed confidentiality agreement. Prior to signing a contract, check the references.

You might also contact a relevant professional or trade association to determine the consultant's or subcontractor's reputation. You do not want any surprises downstream.

Hiring a consultant or subcontractor should be no different than any other business purchase. Using sound business judgment means you will be sure you are clear about what you are purchasing and what it will cost you. Make sure there is a legally binding contract, although such a contract can be very simple and avoid lawyer's jargon. The most important aspect of this contract is to tie payment to performance whenever possible. Also, any obligations you have under the contract should be contingent upon prior award of an SBIR Phase I grant, contract, or cooperative agreement.

D. Strategies for Project Selection

All potential SBIR projects should be evaluated along three dimensions: Agency Importance, Commercial Importance, and Technology Leadership.

Agency Importance provides a measure of your firm's ability to meet federal research and development needs through the project under consideration. The following factors should be considered:

- the extent to which a project can be considered responsive to an SBIR solicitation topic or subtopic;
- the degree to which your project contributes to the agency's mission and the national need that it serves;

Commercial Importance provides a measure of your firm's potential ability to transform R&D into projects on a specific project. In determining the Commercial Importance of a project you should consider the following factors:

- the extent to which your estimate of return-on-investment (ROI) for the project exceeds the ROI of the most preferable alternative investment; • your ability to specify the steps necessary to carry the project through R&D to full production; • the extent to which input from potential customers was part of the project design process.

Technology Leadership is a measure of the scientific and technical capacity of your firm in a particular technology base. It indicates your firm's ability to play a leading role in developing that base. Among the factors you should consider are:

- the qualifications of all R&D personnel (both in-house and consultants), including their education, expertise, and areas of major R&D interest; • your managers' experience in the particular technology base; • your ownership of, or access to, relevant lab, testing, and production equipment.

Projects should then be ranked on the basis of the evaluations of these three factors together. Various mathematical or heuristic techniques can be used to quantify the procedure. Such publications as *Research Management*, *IEEE Transactions on Engineering Management*, and *Spectrum* often feature articles directly relating to project selection as well as other R&D management concerns.

Once you have established a ranking, the next step is to think of reasons for dropping your preferred projects. Are the products or services derived from your first choice likely to stand up in operation as well as they do in tests? Can they be easily serviced or replaced if need be? Will they lead to an excessive risk of product liability suits? Is your technological leadership dependent upon retaining a single key employee or consultant?

If your present access to specific equipment ends, can you find substitute equipment in a reasonable period of time? In short: What can go wrong and how likely is it to go wrong?

Make an honest assessment. If the approach is poor, you can change it. If you do not have the capacity to conduct the project at present, it is always possible to hire staff, consultants, or paraprofessionals and technicians and to lease equipment or facilities. However, if you feel your project is not sufficiently attractive to win an SBIR award, it is a sign of sound business judgment to devote your resources to other efforts where your chances of success are better. It is preferable to address your weaknesses yourself prior

to the submission of the proposal and avoid the investment in a proposal where there is little chance of success. SBIR is highly competitive.

When done correctly, the SBIR planning process should be viewed as an important component in your business planning. If your proposed SBIR project will contribute to your business growth then it should be considered a valid endeavor for your company whether or not you actually receive an SBIR award. If you have followed the steps outlined in this chapter you should have developed an honest assessment of your technical capability to produce a worthwhile result and the likelihood of the product's or service's eventual marketability. You should have identified related interests both within federal agencies and private companies. In short, you should be well on track for finding alternative sources of funding.

It is now time to prepare the proposal.

III. PREPARING THE PROPOSAL

It cannot be overemphasized that SBIR is a competitive research or R&D program. Successful Phase I proposals describe technical efforts sufficient to establish the feasibility of a concept. Therefore, the most important content in the proposal is the scientific/technical expertise (including originality, innovativeness, scientific/technical merit) that you bring to bear on an agency problem, need, or mission area.

Like it or not, the burden is on you to convince reviewers that your proposal is worth funding. Further, while reviewers are technically qualified, you cannot expect that their expertise will be sufficiently close to your area that they will "recognize a good idea when they see one."

You will need to develop and present technical arguments to support the originality and expected benefits of your proposed efforts. The reviewers will have enough technical background to follow your arguments. But that doesn't mean they will agree with them. You must take great care to verify the accuracy or plausibility of all claims, assumptions, and approaches.

In the first section of this chapter we shall discuss three essential components of a proposal. We will also identify a fourth and even more important component: scientific and technical quality, which is communicated to the reviewer through its incorporation in the other components. We shall discuss the relative importance of each component and how they relate to formal proposal structure and to space allocation.

The second section presents details on what should be considered in preparing each component (and sub-component). Often the perspective taken is that of the reviewers. SBA has discussed the review of SBIR proposals with technical evaluators and has also reviewed written comments made by evaluators. We shall attempt to communicate what the technical reviewers look for in each proposal component and with regard to scientific/technical quality. In some instances verbatim reviewer comments on particular proposals are repeated to emphasize a point we are making.

Finally, in the third section, we will suggest tips on writing and presentation in order to enhance the readability, logic, and appearance of your project. This section will close with some general guidance.

A. Proposal Components

A quality proposal has three generic components each targeted towards addressing one of the following questions:

- 1) What is the significance of the problem? What problem are you going to solve (or what are you going to produce) and what difference will your efforts make?
- 2) How you are going to go about resolving the issue identified in component 1? What are your specific technical objectives and what are their roles in proving of feasibility? What are the details the work plan for accomplishing the objectives?

3) Why you are the right firm to perform the work? What evidence can you provide to establish your firm's credibility, including your awareness of the state-of-art, your firm's previous experience in the conduct of related R&D, and the qualifications of key personnel, of consultants, and of your facilities.

In evaluating SBIR proposals, agency reviewers assign points to criteria which generally parallel these components. In order to determine the precise weights of the criteria for a given agency, you should carefully read each agency solicitation for specific statements on the weighing of criteria. For most agencies, each of the above components accounts for about 20% of the total score.

What about the remaining 40%? It is assigned to a fourth criterion:

4) The scientific/technical quality, innovativeness, and originality of the proposed project. This criterion is not addressed in a distinct part of the proposal. Rather you must keep your attention on this criterion as you prepare the above three components, especially the first two.

Each of the above components plus the fourth criterion will be discussed in more detail in section III B. Although the discussion of scientific/technical quality comes last, do not underestimate its importance.

It is important to understand that each agency prescribes in its solicitation its own format for structuring the proposal. This format should be strictly adhered to. Agency reviewers who must compare and evaluate many proposals expect to find similar sections in all of the proposals they review. While the section headings may not correspond directly with the above three generic components, notice that the same flow of information is being sought.

SBIR proposals are presently restricted in length to 25 pages. Accordingly the judicious use of space is very important. For example, the sections which comprise component 3, credibility enhancers, only count for about 20% of the score (30% in one agency). Therefore do not give this component an excessive amount of attention in the proposal. Many losing proposals wasted valuable space by including detailed resumes of anyone related to the effort, long lists of the firm's clients, previous work and products, etc.

There is no formula for determining how to allocate space among the other sections of the proposal. The important thing is to ensure that your proposal is sensitive to the criteria that the reviewers are using to evaluate your proposal. Simultaneously, allocation of space to particular sections should reflect your own style and task. Tailor the precise number of pages devoted to components in your proposal in a manner which will make the most persuasive presentation.

B. Understanding What Counts

1. Significance of the Problem; What Difference

Your Effort Will Make

Problems or opportunities always exist in a context which enables us to identify them as problems or opportunities. In this section you should focus on demonstrating how your project addresses a vital problem or opportunity in light of two key contexts: scientific/technical and socioeconomic. This component must clarify why your project is significant in each of these contexts.

Essentially, you must answer four related questions:

1) What is the significance of the problem? (Why is it worth working on? What is the national need? Why is it important to the agency?)

Never forget your objective in discussing significance is primarily to demonstrate that there is in fact a widely recognized problem or opportunity. If you have been active in the appropriate scientific/technical specialty, this can be used to establish the fact that you have first hand awareness of the significance of the problem or opportunity. You must also demonstrate an awareness of how the problem or opportunity found in the solicitation ties in with the agency's and federal government's objectives.

The following comments, relating to the significance of the effort, were made about proposals which were recommended for funding:

"Existing data base management systems can effectively handle only formatted alphanumeric data. The aim of this research is to find ways to incorporate other types of information such as text, maps, diagrams, photographs, images, and signals in an advanced data base management system and to include facilities for declaring and manipulating general knowledge."

"There is a need for modular deck replacement units which can be rapidly put into place. Steel grid decks have been used in the past to accomplish this. A number of technical issues raised, regarding past failures of such decks, are accurate. If the investigators can overcome some of these problems at a reasonable expense, they may have a marketable item.

2) What is the technical challenge? (What barriers exist to its solution? Why is it important from a scientific or technical point of view?)

Scientific/technical significance is determined by the state of substantive and methodological/technique knowledge in the scientific discipline or technical field with which your proposal falls. You should clearly and concisely state the manner in which your project is based on a awareness of the larger scientific/technical problem or opportunity implicit in the agency's brief SBIR solicitation topic.

Use references where appropriate to support the claims you are making. If you or your key people have been active in the appropriate specialty, your response to this item should also describe how your activity provides firsthand awareness of significance. (Make sure to refer to any directly relevant publications you or key people may have.)

The above two questions reflect the distinction between the application and the scientific/technical barriers to developing the application. While both questions should be addressed, it is quite appropriate to emphasize one over the other. The particular emphasis should give depends on the nature of the agency and the solicitation topic. Basic research agencies tend to prefer emphasis on the second question.

3) What will you do to meet this challenge that has not been done before? (What specific part of the problem are you taking on? What makes your problem definition and/or approach unique? What makes it better than prior efforts? How can you build on previous research and knowledge?)

The primary objectives in answering this question are to establish the merit of your general approach to the project, and to show that this approach will lead to benefits commensurate with the significance of the problem.

Your discussion should consist of a summary statement. The details can be provided in the next component.

The same scientific/technical context which you presented in establishing significance of the problem or opportunity contains vital information on how best to approach the topic. Where appropriate, refer to relevant methodological discussions in the scientific/technical literature.

4) What difference will your efforts make? (What will be available that is not present now? What will the products of your efforts be? What are the social and economic benefits?)

- Indicate the types of benefits you anticipate will result if your project is funded. In discussing benefits, assume that the project will be carried through to Phase III. State clearly how Phase I work will lay the foundation for Phases II and III-
- with their corresponding costs and benefits. Be sure to include "spin-off" benefits for other federal agencies, for the private sector, and for the general quality of life of the American people if any exist.

Two proposals which failed to convince reviewers of potential benefits received the following comments:

"Proposal does not clearly demonstrate understanding of potential user requirements for proposed system. Discussion of advantages/benefits of the system are sketchy."

"The study presupposes that fleet operators should be receptive to incorporating data base management into their existing management process. There is no evidence in the proposal to indicate this.

It most likely will not be enough to merely state the answers to these four questions; rather, you may need to present an argument to convince a reviewer of the accuracy of your answers. While the reviewers may not be thoroughly versed in your particular specialty, they will have enough background to judge whether your argument is convincing or plausible.

The more obscure the problem, the more detail required. But do not overdo it. Reviewers are rarely interested in a tutorial of the subject matter.

References to the literature are only valuable where they support the argument you are making.

Note that the amount of space you devote to this component is not important. If the questions can be addressed in one or two pages, by all means do so.

2. Technical Approach; How You Will Do It.

Together the Technical Objectives and the Work Plan formulate your approach to solving the problem. They must be internally consistent and mutually supportive.

Technical Objectives

In the Technical Objectives you specify what it is you intend to accomplish. They should be regarded as a link between what you are ultimately trying to achieve (discussed in the significance part of the proposal) and the detailed technical work (work plan). It is preferable to state an objective as a result, not as a question that you intend to study. It is vital that your objectives be challenging but realistic.

The combination of Phase I objectives, if accomplished, should establish the scientific/technical feasibility of your basic approach to the problem or opportunity. Establishing feasibility should provide any substantive knowledge, methodological advances, or technical innovations necessary for successful Phase II work.

In preparing this section you should consider three types of objectives: substantive knowledge, methodological advancement, and technical innovation. Substantive knowledge refers to the information you intend to obtain about the underlying natural or social phenomenon involved in your project. Basic or advanced applied research proposals frequently focus on attaining such knowledge. Methodological advancement refers to the information you intend to obtain about how to better do science or engineering as a result of your project. All scientific and technological advancement refines our understanding of what methods or techniques are appropriate for studying problems or approaching opportunities. Technical innovation refers to product (hardware or software) innovations. Developmental projects focus on such advances.

Needless to say, not all type of objectives will be of equal importance. Still, it is helpful to look at your project from a variety of perspectives and to provide program managers and reviewers with information about those objectives which you reasonably expect to be able to attain. Each objective that you list should represent a significant technical contribution.

Here are some considerations to keep in mind when developing your objectives:

- Your objectives should flow logically from the discussion of the significance of the problem or opportunity. Reaching your objectives should mean you have proven the feasibility or solving the problem or realizing the opportunity.
- Your objectives should be plausible, both in terms of your available resources and your budget.
- Your objectives should be bounded by the resources your company can bring to bear on the problem both staff and facilities.
- In presenting your objectives, begin by specifying those objectives which are most clearly related to the solicitation topic and agency

concerns. Next proceed to objectives relating to "spinoff" benefits. Make sure that "spin-off" related objectives are clearly secondary to topic related objectives.

As always, keep it as short as possible and to the point. (Most winning proposals that we sampled used one or two pages for the technical objectives).

Work Plan

The Work Plan describes your approach to the problem in detail. For your own protection, as well as for effective marketing, the Phase I work plan must describe exactly what work you will conduct in order to accomplish your objectives. If you win an SBIR award, you will have to deliver (i.e., do) what you state in your work plan. You must not overpromise or you will lose in the competition, go broke in performing, or try to cut corners and ruin your firm's and your own reputations. Alternatively, if your plan is not challenging you will lose in the competition.

The Work Plan must demonstrate that you know what you are doing. Spell out your approach, methodology, options, reasons for choices, priorities and sequence of work in detail. You must clearly discuss both what you intend to do and how you will go about each task. For most proposals, this will be the longest section, probably 5-8 pages.

Elaborate on the techniques you will use to accomplish the objectives. Indicate why these techniques are appropriate. Demonstrate your expertise by highlighting any techniques which are stateoftheart or which you have developed yourself. Indicate any past experience that you have in using these techniques. Refer to other studies that support the appropriateness of your methodology to accomplish the objectives.

Include a discussion of possible problems which might emerge or extraneous factors which might affect the outcome of your effort and how you intend to overcome those problems. People active in R&D know that it is risky; that the unexpected is often encountered. Clear attention to contingency planning is a sign of your professionalism and ability to deliver what you promise.

The Work Plan should be highly detailed without becoming bogged down in minutiae. Striking this delicate balance is not always easy but it is essential. Scheduling and project staff activities charts may be useful in striking the appropriate balance. These charts depict who will do what work, when. The charts should guide the development of the supporting text.

Focusing on the project scheduling chart will ensure that your Work Plan starts at the beginning and proceeds chronologically to the end. The chart should include each task to be completed, how long it should take to complete the task, and on what date the task must be completed. Highlight any decisionpoints or targets which might exist along the way. Further, indicate which targets are key starting points for Phase II work. It does not hurt to indicate that you are aware that Phase I is the feasibility study aspect of a larger project. The Phase I end is merely an interim decisionpoint on a project which does not end until Phase III.

The project staff chart specifies who is responsible for each task on the project scheduling chart and what support personnel, equipment, etc. they can utilize in completing the task.

If you will use consultants or subcontractors, your SBIR Work Plan must contain a discussion of how you will manage them in order to ensure a timely, high quality product.

Technical reviewers made the following comments about the Work Plan of Phase I SBIR proposals. The first two are from proposals recommended for funding:

"The Phase I tasks are based on many proven methodologies and therefore have high promise in providing information regarding the feasibility of the concept."

"The budget, estimated manhours and the schedule reflect the extensive C3 knowledge of the key personnel. This enables the firm to complete a study of the complex systems in a timely manner."

The next two are from proposals not recommended:

"The program plan, tasks, and schedules are not clearly stated. Milestones and end products are inadequate."

"No indication of how the results will be obtained, no indication of prospects for success or risks: a 'trust me' proposal."

3. Credibility Enhancers

Your project will be specifically evaluated on the "qualifications of the principal investigator, other key staff, and consultants, if any, and the adequacy of available or obtainable instrumentation and facilities." Most of these categories are identified in the solicitation directions as specific sections in the proposal format. Other areas which contribute to your firm's credibility include your awareness of related R&D, previous related experience, and a budget justified by the scope of the work proposed.

We will briefly discuss all of these categories. However, this credibility enhancing information should not be reserved only for the designated sections in the proposal format. If this information contributes to your discussions of problem significance and technical approach, by all means put it up front in the earlier components of the proposal. This is especially true for references to publications or prior work that support assumptions or arguments you are making. Use these sections of the proposal format for summary and elaboration.

Awareness of Related R&D

You will need to establish beyond any doubt that you are aware of the state of the art in those scientific disciplines and technical fields directly relevant to your solicitation topic and your specific approach. This does not mean that you merely provide a list of references. Rather, references should be integrated within your discussions of significance and approach to support points you are making. After making this integration, a one-half to one page summary is appropriate. Be sure to include a discussion of relevant related R&D or publications by your firm or key project staff.

Most reviewers will be aware of some developments related to your proposed effort and will be looking to see if their view of the state-of-the-art squares with yours. The following are typical of remarks made by reviewers:

"proposers do not demonstrate an understanding of soil-structure interaction; they have no references of which there are a number of important ones."

"no substantial account is taken of the widespread research on knowledge bases and expert systems."

With few exceptions (where specifically required by the solicitation topic) it is particularly inappropriate to propose a Phase I effort to study the stateofheart. Of course, reviewers are not looking for a stateofheart tutorial in your proposal either. Use references to simultaneously demonstrate your awareness and support your arguments.

Previous Experience and Key Personnel

In your discussion of the background of the problem or opportunity, you should present your information in a manner which indicates your firm's knowledge of the problem and experience in the solicitation topic area. This expertise and experience may be a result of directly relevant work previously conducted by the firm or by key personnel involved in the project. Alternatively, it may be the result of related work in another area which has enable your firm and personnel to build expertise and experience which can be transferred to the solicitation topic area.

The most important member of your project team is the Principal Investigator or PI. Our survey of agency SBIR program managers indicates that the principal investigator should have good R&D experience and technical expertise in the area of your project. If possible, related work experience should indicate that the PI has successfully managed projects similar to the one you are proposing.

Few projects can be conducted by a single individual. Accordingly, your discussion in this section should emphasize the existence of a complete R&D project team. A good team includes adequate support staff to carry the Phase I project through to completion on time and within budget.

Present specific background information only for key R&D personnel. In presenting information about key personnel, be brief. Extensive resumes will rapidly push your proposal over the page limitation. Remember that what you are demonstrating is the ability of your key personnel to perform the work proposed. Therefore, summarize relevant related works, education, and publications.

Present the uniqueness of your expertise and experience so the program manager and reviewer will conclude that it is unlikely that anyone else is more qualified to conduct your project. If you feel that your firm cannot establish its unique capabilities, consultants and subcontractors can help you enhance your firm's expertise and experience. But remember, the primary competence must be in-house.

The following comments are used to demonstrate the reviewers point of view on experience and personnel:

"The relevant experience would come mostly from an academic consultant who is involved for just 21 days."

"while the PI has experience in formulating polymeric materials, there is no experience listed in formulating bridge coatings."

"the PI is not fully qualified to conduct this study. He has a good background in the proposed applications for the proposed system, but he lacks the electronics background for the system development in the video area."

Consultants and Subcontractors

It is important to keep the crucial work inhouse. Consultants and subcontractors should be used for clearly defined, support functions such as project review, product testing, and specific experimental operations or data collection. If you are farming everything out, why should the agency hire you in the first place?

Consultants are helpful if you or your key people are not among the leading U.S. experts in the area of your project. It is a sign of professionalism, not weakness, to be willing to enhance your capabilities through exceptionally qualified consultants. Use consultants where your strengths will be complemented, not duplicated. Take particular care that the major thrust of your proposal is not distorted by a reviewing consultant. For example, it may not be appropriate to have a university point of view imposed on an SBIR proposal which is being submitted to a problem-solving oriented agency.

Subcontractors are helpful if your project requires special expertise or facilities you do not possess in-house. The same considerations apply to subcontractors as apply to consultants.

See also the discussion in section 11 C.

Facilities/Equipment

Briefly describe the key relevant facilities and equipment you will utilize. Include specifics on all laboratory or clinical, computing, and office facilities and equipment crucial for the project. If these facilities and equipment are not in-house, provide information which will satisfy any concerns the project manager or reviewers might have with respect to access.

If you do not have adequate in-house facilities or equipment, you often can buy access to what you need from universities, private firms, and non-profit institutes, or federal laboratories. When-ever possible, outside facilities or equipment should be located close to your own firm.

- Future R&D, Potential Applications, and Follow-on *Funding Commitment

Agencies like to fund work with a future. In this section, you should carefully synthesize material presented earlier in your proposal. Begin by summarizing (from Component 1) the precise results you intend to accomplish. Indicate how each anticipated result will facilitate your ability to conduct Phase II and Phase III R&D.

Summarize the commercial applications your project may have. You should consider both direct and indirect applications. For example, a project on oil seeds may have direct applications in the commercial petroleum market and indirect applications in agricultural technology markets.

If you established ties with potential Phase III Investors, this is a good time to mention them. Indicate whether you intend to obtain a non-federal follow-up funding commitment. One caution: do not drop names unless you are sure you will not be embarrassed if the program manager phones your contact to see if there really is interest in your project!

Budget

There are two keys to preparing a good budget: be realistic, and follow the instructions.

The best way to prepare a realistic budget is to have your R&D team assist in preparing a draft budget at the time you prepare the outline for your proposal. You should show this draft budget to your accountant to ensure it is appropriate for your business. For example, you will want to have backup for your material and labor overhead rates should the agency demand these.

Unless expressly excluded by statute, agencies are directed by the SBA to provide for a reasonable fee or profit on SBIR work. Because the funds for Phase I work are limited, considerations of profit should be secondary in preparing your budget to complete cost-recovery. In preparing your budget, you do not have to offer to expend in-house funds on the proposed project. As a general policy, cost-sharing is not required in SBIR programs and is not a consideration factor in the evaluation of either Phase I or II proposals.

Most agencies provide budget sheets as part of their SBIR solicitations. Before filling in these sheets it is a good idea to make copies of them for use in preparing a draft budget.

4. Scientific/Technical Quality, Innovation,

Originality

Throughout your proposal you must seek ways to convince reviewers that you and your firm are competent to conduct the highest quality work. You must also convince them that your project is innovative and original. The agencies do not identify a distinct part of the proposal for making this kind of argument. Nonetheless, it counts more than any other criterion.

In reading your proposal, reviewers will compare your objectives and approach with the totality of their experience in the technical field and their understanding of the problem. How your proposed effort stands up against their background will be a judgement call, involving some measure of subjectivity. Do not be willing to leave this judgement exclusively to the reviewers' intuition. You must make the case for your project through all components of your proposal, especially in discussing the project's significance and approach.

There are several reasons why reviewers may give poor scores for this criterion. For example, the proposed approach may not be distinctly different from others tried in the past:

"The proposal lists 3 ways of obtaining profiling data. These are the most obvious approaches which have worked in the past. Therefore I mark them down for originality.

"Offeror appears to be proposing a new/improved signal controller...no concepts, innovations or unique characteristics have been identified which would allow such improvement."

"doesn't indicate how what is proposed varies from currently existing production, keyword, printing systems used in China which deal with the complexity of characters in that language."

Reviewers will also note technical claims and assumptions which they consider unfounded:

"serious question whether a restricted natural language is better than a well designed query language.

"proposer thinks the problem with central control is reliability, it's not. It's communications cost."

"tests will be limited to forces on a stationary vehicle. Forces on a moving vehicle are likely to be even higher and the guidelines are likely not to be conservative."

Failure to consider important factors also will work against you:

"it is rather puzzling to note that the carrier gas flow rate and its effect on particle size and dispersity has not been discussed at all."

"no discussion of the capacity of people to handle and associate three different code inputs and another different code output in very close approximation."

"the offeror presents no reasons why polymethylmethacrylate will be effective in forming a barrier coat."

The key to demonstrating originality and innovativeness is to demonstrate familiarity with past work and how your project goes beyond it. Certain methods or techniques are likely to have been used in the past with greater or lesser success. Some approaches will have clearly turned out to be dead-ends, while others appear promising. Merely chronicling the past is not enough.

Take the opportunity to convince the reviewers that your objectives and approach have merit. Where possible use references to previously published work to support your assertions.

C. Additional Guidelines

1. Writing Tips

A proposal is a written document. Accordingly, all the considerations which go into writing any persuasive piece apply to proposal writing. You must consider what your audience wants to hear, how they like to hear it, and what criteria they use in evaluating what they hear.

It is vital to remember that it is exceptionally difficult to produce a good proposal under time pressure. Leave yourself plenty of lead time.

We recommend writing your proposal in four major steps: 1) outline, 2) preliminary draft, 3) re-view, 4) and final draft. You should review the product at the end of each of these steps.

The outline should be extensive. A good outline contains the first sentence of each paragraph in the proposal. The primary considerations in evaluating your outline are the completeness of the information you will be presenting (have you addressed all format items in the solicitation) and the organization of your arguments (is the argument logical and persuasive). After you have reviewed and approved your outline, it should be considered "fixed" and unchangeable. There must be exceptionally good reasons for subsequent major modifications to the outline or you will not be able to stay on schedule.

The preliminary draft fleshes out the outline. At this time you should prepare all appropriate graphics (see discussion below). You should treat this draft as if it were a final draft - good spelling, good grammar, etc. are a must.

The preliminary draft should be presented to a review team. If you have competent and qualified people inhouse, use them. If not, seek help from outside. In doing so however, realize that highly qualified reviewers often expect, and deserve, remuneration. (See discussion in section 11 C.)

The next step is to prepare your final draft. You should consider all possibilities for improving it and integrate those that seem to have merit. It is at this time that you seek to catch any mistakes, errors, faulty arguments or logic which might have been missed at earlier stages - including mistakes your review team may have missed.

- Like any written piece, a proposal should have a beginning, middle, and end. The

beginning and end are where you highlight the most persuasive reasons for funding your proposal. The middle contains the back-up for those arguments, plus an analysis of why any of your firm's weaknesses will not adversely affect performance.

At the beginning of your proposal you must place a technical abstract of no more than two-hundred words highlighting what you propose to do and how you will do it. At the end you should state these same points in a very brief conclusion. The conclusion should also state why your firm is uniquely qualified for this project. Set yourself a one or two paragraph limit on the abstract and conclusion.

- The order of presentation in the middle of your proposal should carefully adhere to the order of items described in the proposal for that presented in the solicitation. Reviewers are expecting it this way. Even if you have covered the substance of an item early, you should devote a section to that item. The section can be brief "This item has been discussed under Subsection X."

Guide your reader by starting each major section or subsection with a heading. The heading should clearly identify the topic of the discussion to follow. Your headings should be distinguished from the text through underlining, doublestriking, or bold type.

Within each section, choose the placement of your arguments carefully in order to maximize persuasive presentation. In general, it is a good idea to present your strongest argument first, your next strongest argument immediately before your conclusion, and your weakest arguments in the middle. This structure enables you to create a good impression on the reader up front, while saving a good point for the end to overcome any concerns which might be raised by the weaker arguments.

It is also important to be honest with your reader. If your company is weak in one area, present the reader with your solution to that weakness. For example, if you lack in-house expertise for a specific part of your project, state the names of the consultants that you will hire to assist you with that part. In this manner your weaknesses are presented as strengths.

2. Presentation Tips

Careful formatting of the page assists the reader. Page after page of solid text with margins at the edge of the paper are difficult to read. Long paragraphs are difficult to read. White space on the page makes the proposal look less formidable.

Think about alternative ways of presenting information. If you are presenting a list of items, perhaps you should indent and number them. If you are making a minor point which is not central for the argument, but nonetheless important for demonstrating your familiarity with the scientific or technical area, perhaps you should put the point in a footnote.

In today's computerized world, you should consider using a word processor or computer with word processing software in preparing your proposal. A good word processor (or software) enables you to quickly make corrections and to easily explore alternative formats. You can underline doublestrike, or

bold passages or words, depending on the emphasis you want to place on items. However, you should not get carried away with the technological options. You are preparing a R&D proposal, not a newsletter.

Above all, be consistent. The same format should be used throughout. If you are bolding section headings and underlining subsection headings - do it everywhere. If you doublestrike for major emphasis and underline for minor emphasis - do it everywhere. If you skip two lines between paragraphs and three between text and headings - do it everywhere. Once you adopt a footnote or bibliographic format - use it everywhere. A consistent format enables your reader to easily grasp the significance you place on information.

Graphics and other proposal art can provide highly effective means for communicating complicated information in a minimal amount of space. Properly and sparingly used, they can give your proposal a polished, professional look.

A handy aid for determining where to use graphics is to ask yourself two questions:

- 1) "How would I best grasp this information - through graphics?"
- 2) "By using graphics will I cut down the length of my proposal?"

Some common types of graphics helpful in SBIR proposals are:

- Project Scheduling Charts

•(what tasks will be conducted when),

- Project Staff Activities Charts

•(who will spend what time on what tasks),

- Diagrams and Flow Charts, •Data Tables, Graphs, and Photographs

In order to ensure that your graphics strengthen your proposal, make sure that they are tightly integrated into the proposal. After you prepare your outline, examine it to decide what information can most efficaciously be presented through graphics. Then determine precisely what type of graphic should be used.

Graphics must appeal to the eye. If you attempt to present too much information in a chart, table, or graph, you are likely to find that your reader's eyes will glaze over and your effort is wasted.

It is vital that the final draft look professional. The type should be clear and readable. The graphics should be clean and professional looking. Check to make sure that all the pages are included in the proposal and that they are correctly numbered.

- 3. Final Considerations •In summary, there are two "tricks" to alleviating common mistakes and preparing a winning proposal: •1) Follow the Instructions! •2) Remember The Evaluation Criteria!

A great number of small businesses do not follow the detailed instructions included in the solicitation. It is extremely important to read and re-read the solicitation and follow the instructions exactly as they are presented. Proposers who do not do this have little chance of success.

The SBIR program does NOT accept unsolicited proposals. Each proposal must respond to a specific topic outlined in the solicitation or it will not be considered for award.

Note that you are allowed to send similar proposals to more than one agency. This is a viable strategy for increasing your chances of being funded. However, make it clear to each agency that the proposed effort is responsive to their needs. (Proposal submission forms require you to identify all other agencies. Don't overlook this requirement. It is not difficult for the agency to determine when sub-stancially similar work has been funded twice).

Your proposal should be either hand delivered and a receipt obtained or mailed "return receipt requested." It must be submitted on time.

If you do not win an award, it is worthwhile to write or visit the program manager for a debriefing.

In your communication, you should make it clear that your interest is in identifying how you might better compete in the future. Seek information on the strengths and weaknesses of your technical approach, on names of individuals or firms you might work with on subsequent proposals, and on appropriate budget levels for the kind of work proposed. You also should request a copy of the evaluations on your proposal, if these are not provided at the debriefing. Many agencies will provide you with these comments.

Do not be discouraged if you do not win. Instead, view the proposal preparation process as a learning experience and draw as many lessons from it as possible. Use the knowledge you gain in preparing your next proposal. Many successful SBIR winners have found that they had to go through the "learning curve" of proposal submission, debriefing, and submission of a new SBIR proposal.

If you are a small technology-based firm (including manufacturing, and service), SBIR is your R&D program. It provides your firm with an opportunity to obtain funds for high risk ideas that can result in new products and processes. In the process, you can serve our country and be paid for your contribution. By submitting only the highest quality proposals in areas you honestly believe you are competent, you will increase your chance of receiving an award.

APPENDIX 20

THE U.S. SMALL BUSINESS ADMINISTRATION**SUMMARY REPORT TO PRESIDENT CLINTON**

An Overview of Regulatory Reform and Performance Management

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• I. AGENCY OVERVIEW

The U.S. Small Business Administration (SBA) was created in 1953 as an independent agency of the federal government to aid, counsel, assist and protect the interests of small business concerns, to preserve free competitive enterprise, and to maintain and strengthen the overall economy of our Nation. Small business is critical to the health of our economy, to building America's future and to helping the United States compete in today's global marketplace.

The SBA delivers many of its programs through private sector partners, such as commercial lending institutions, certified development companies, small business investment companies, surety and insurance companies and their agents, small business development centers, private sector cosponsors, business concerns which act as 7(j) management and technical assistance program providers, and

volunteer organizations such as the Service Corps of Retired Executives (SCORE) and Active Corps of Executives (ACE).

Our vision for the SBA involves two principles: customer-driven outreach and quality-focused management. We are determined to reach out to small businesses in an unprecedented way, to listen to their needs, to report these needs to President Clinton and to suggest appropriate initiatives to assist small businesses. We also recognize the need to change our regulations, management culture, organizational structure and business practices to improve the quality of our work. Through these changes, we are creating a more entrepreneurial, customer-driven and efficient SBA.

The SBA has enthusiastically supported the Clinton Administration's renewed emphasis on revitalizing the American economy and creating jobs. There are approximately 21.5 million small businesses in the United States. The small business segment of the United States economy provided about 71 percent of the 1.9 million new jobs created in 1993, and accounts for 50 percent of the private gross domestic product. Small businesses provide most workers with their first jobs and initial on-the-job training in basic skills, produce twice as many innovations as large firms, employ 54 percent of the private work force, and contribute 52 percent of all sales in the country.

The SBA is reducing, consolidating and improving its regulations comprehensively for the first time since SBA's formation in 1953. SBA will revise all of its own regulations, with a focus on clarity and plain language. It plans to eliminate 355 pages of the 700 pages of text, or 51% of SBA's section of the Code of Federal Regulations. Two regulation parts involving grants and non-procurement debarment and suspension matters will remain unchanged for the moment, but only because they contain uniform rules governing all federal agencies. The regulations which remain will be reorganized and consolidated into a much more coherent and "user-friendly" format. At the completion of this initiative, SBA's customers will benefit from a much more understandable, streamlined regulatory scheme.

SBA has employed customer service during the past two years. Participating as a pilot agency under the Government Performance and Results Act of 1993 ("GPRA"), it has identified clear goals and objectives. The Administrator signed a Performance Agreement with the President in 1994; SBA's District Directors then signed Performance Agreements with the Administrator. All of SBA's management has been trained to develop performance goals focusing on quality service. New performance standards for all employees should be in place beginning October 1, 1995. SBA employees will focus on aid and assistance to small business, not process or punishment.

To establish SBA's Grassroots Regulatory Partnerships, we arranged outreach meetings this year in San Antonio, Philadelphia, New York, St. Louis, and San Francisco. At the meetings, SBA frontline employees, small business owners and SBA's partners (banks, development companies, business development center representatives, and others) came together to share ideas about regulatory reform. SBA has compiled the information and is incorporating the resulting ideas into its program-by-program review and its regulatory rewriting process. SBA is building on the partnership spirit created in these meetings by continuing to solicit and share ideas from its partners on the upcoming revisions to SBA's regulations, processes, and procedures.

SBA has not yet identified any areas where formal negotiated or consensual rulemaking would be helpful. It has made extensive efforts to work with the small business community to develop better, more reasonable regulations. Interested trade associations and their members have provided valuable insight into SBA's regulatory scheme and its resultant impact. SBA may decide to initiate a negotiated

rulemaking for the Small Business Investment Company Program; in the interim, it will continue to work with its small business partners to improve regulations across the board.

All of these efforts, and SBA's future plans, are more fully explained below and in a separate submission to the President and Vice President Gore entitled "The NEW SBA Reinventing SERVICE to the Small Business Community" dated June 12, 1995. The SBA has adopted an aggressive schedule to accomplish all of its streamlining objectives by December 31, 1995; it is already working at full speed to meet that timeline.

II. EXECUTIVE SUMMARY

As directed by President Clinton in his Memorandum of March 4, 1995, the Small Business Administration (SBA) has completed a page-by-page, line-by-line review of all of its existing regulations to determine which might be revised or eliminated. In total, 100% of the current SBA-specific regulations will be reinvented as part of SBA's regulatory reform initiative. SBA believes that it can significantly clarify and streamline its regulations, reducing their total number of pages by 51%, and that it can complete this effort by December 31, 1995. This regulatory reform will help SBA conserve resources, improve procedures, and serve its customers more effectively.

A. SBA Method of Review.

To implement President Clinton's March 4, 1995 directive, I asked John Spotila, SBA's

General Counsel and Regulatory Policy Officer, to lead a special task force of agency attorneys in evaluating all agency regulations for need, effectiveness, and clarity. Eighteen attorneys (14 from the field), were assigned to work on four simplification teams, each responsible for a broad subject area (government contracting, finance, administration, and other SBA programs). A list of the team members and their offices is enclosed. Under the direction of David Kohler and Mark Stephens of SBA's Office of General Counsel, the teams reviewed the 700 pages of SBA regulations in detail, identifying specific ways to streamline and simplify. The work of these teams and others throughout the agency who have helped, deserve special recognition.

We also held five "grassroots" partnership meetings with the regulated community- bankers, small business owners, government contractors, and SBA field personnel. These meetings were led by me or Jere Glover, our Chief Counsel for Advocacy. The meetings proved very successful, as the community participants welcomed SBA's efforts to reduce regulatory burdens, eliminate confusion, and minimize the time, effort and expense involved in complying with governmental requirements. While a number of participants indicated that they did not regard SBA as a major source of regulatory burdens, they welcomed the prospect of further streamlining and paperwork reduction.

The attorney teams first undertook a page-by-page and line-by-line review of each regulation, looking for duplication, outdated or outmoded requirements, and confusing language. During this examination, they asked program personnel with expertise and experience for suggestions and ideas. As part of the review, they focused on the agency's delivery of programs, seeking to ensure a less cumbersome and more efficient process, with an emphasis on enhanced customer service. After this line-by-line review, the attorneys summarized their findings, highlighting any regulation which imposes an unnecessary burden or which would be more appropriately covered in internal operating procedures or a statement of policy guidance. They also noted the effective date of each regulation to assist in determining whether it was outdated.

Whenever possible, the teams identified substantive changes which could lead to effective, concise, user-friendly regulations. The task force goal was to help the agency improve speed and efficiency, use resources more effectively, and make it easier for employees to do their job. If partnership was a theme, common sense was the guide.

These methods proved extremely successful, laying the foundation for an anticipated reduction of present SBA regulations by 51%, with significant improvements in clarity and simplicity for the remainder. SBA is committed to full implementation of the suggested changes and expects to complete them by calendar year end.

B. Anticipated Changes.

In reviewing the 1995 version of SBA regulations, which consists of 38 Parts totalling

700 pages, SBA has determined that it can entirely eliminate 14 Parts, thereby deleting 64 pages of regulation. Additionally, 22 Parts can be substantively reinvented or consolidated, resulting in the anticipated elimination of 291 more pages. SBA will no longer have a supplemental chapter to the Federal Acquisition Regulation. In total, we estimate that at least 355 pages of regulatory text can be eliminated, a 51% reduction in the total number of pages. The remaining two Parts, with 45 pages, will remain unchanged only because they are uniform rules among executive branch agencies. Therefore, in essence, SBA has undertaken to reinvent all of its agency-specific regulations.

C. Regulatory Change Highlights.

This initiative will reduce SBA's regulations by more than one-half, giving SBA's

customers, partners, and employees a more user-friendly, concise regulatory scheme. Following are specific highlights, all of which are already in process:

1. Development of a recommendation that we eliminate all government-wide regulations, such as non-procurement debarment and suspension regulations and drug free workplace restrictions, from 13 C.F.R. and consolidate them into one volume of the C.F.R. for all agencies. SBA believes a separate volume containing all government-wide regulations would eliminate hundreds of pages of regulations, and would provide a more user-friendly format for government and nongovernment users of the C.F.R. Currently, each executive agency or department has its own version of these regulations in its own C.F.R. volume, an unnecessary and sizable portion of the federal regulation system.

2. Consolidation of all agency discrimination regulations in one C.F.R. Part.

Currently, SBA has four separate Parts addressing various forms of discrimination such as race, national origin, age and sex. One new Part will address all forms of discrimination, while eliminating the duplicative procedural requirements now repeated in each separate Part.

3. Simplification of size regulations to clarify, correct, and consolidate definitions and procedures for filing and processing a small business size protest or size appeal. These changes will have a government-wide beneficial effect, and will assure that size protests are determined more expeditiously to the benefit of government contracting officers and contractors alike. The changes will also greatly reduce the time spent by SBA employees in processing size determinations and appeals of those

determinations. The size regulations define a "small business concern" for purposes of government programs benefitting small business, and establish procedures for SBA's determination of the size status of a particular firm in response to a protest or a request by a contracting officer or other interested party. While the size regulations are comprehensive, many of the provisions are complex and unduly burdensome. SBA's regulatory review will simplify greatly these provisions.

4. Simplification of the 8(a) program regulations to expedite eligibility reviews and contracting actions. The 8(a) program helps socially and economically disadvantaged individuals enter the economic mainstream, partly through access to federal contracts. The agency will eliminate an unnecessary and burdensome procedural step for admission and will develop more specific eligibility guidelines. We also will eliminate other regulations which serve as impediments to the receipt of 8(a) contractual support. These regulatory changes will reduce significantly the burden on SBA's program participants, SBA staff and non-SBA procurement officials around the country. SBA has already begun its regulatory reform reinvention of the 8(a) program, and published final regulations to streamline and clarify certain regulatory provisions the first week of June, 1995.

5. Reinvention and redrafting of SBA's business loan regulations into one Part to encompass all business loan programs. Section 7(a) of the Small Business Act authorizes the SBA to guarantee loans to small businesses that cannot obtain financing on reasonable terms through normal lending channels. This change will allow small businesses or SBA intermediaries to find the relevant loan program regulations in one section. This provides a real savings of time for all people involved with SBA loan programs, including employees and our small business partners.

6. Simplification and streamlining of SBA's 504 Program regulations, with commensurate savings of staff time. The 504 program uses public/private partnerships to make loans available for acquisition of land, buildings, machinery and equipment. The key to SBA's 504 loan program is a certified development company, a nonprofit organization sponsored by private interests or by state or local governments. Sweeping changes to this program, once implemented, will substantially reduce SBA staff time spent on some aspects of program delivery. Specifically, the average review time by SBA attorneys will be reduced from four hours to 20 minutes per loan package, resulting in quicker and more efficient service to small business borrowers and greater control over the delivery and timing of services for the CDC.

7. Elimination of forms published in the Small Business Investment Company ("SBIC") program regulations. In February of this year, SBA eliminated 71 of its then currently published 151 pages of SBIC regulations by adoption of this approach. The SBIC regulations are, by far, the largest of SBA's C.F.R. Parts. Ultimately, SBA expects to eliminate approximately 120 of that Part's original 151 pages.

SMALL BUSINESS ADMINISTRATION

SIMPLIFICATION AND REGULATORY REFORM

INITIATIVE STRUCTURE AND MEMBERSHIP

REGULATORY POLICY OFFICER John T. Spotila

General Counsel

INITIATIVE TEAM LEADER David R. Kohler

Associate General Counsel

DEPUTY TEAM LEADER Mark K. Stephens

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- Eric S. Benderson
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Leader Cheri Wolff, Central Office

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Member Rick Lukich, Cleveland

GROUP 2 -- FINANCIAL PROGRAMS

Leader Mark Stephens, Central Office

Member Frank Conley, Boston

Member Constance Kobayashi, San Francisco

Member Terry Ashker, San Diego

Member Nick Newbold, Salt Lake City

GROUP 3 -- PROCUREMENT PROGRAMS

Leader John Klein, Central Office

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Confidential Assistant to Cheryl M. Stauts

the General Counsel

SMALL BUSINESS ADMINISTRATION

ELIMINATING AND IMPROVING REGULATIONS

REGULATORY REVIEW OF 13 C.F.R. PARTS 101 - 146

1995 -- 13 C.F.R. □ 101-146 & 48 C.F.R. □ 2209

38 Parts Totalling 700 Pages

REINVENTED 1996 -- 13 C.F.R. PARTS 101-146

14 Parts Eliminated Entirely 64 Pages Eliminated (9%)

22 Parts Reinvented/Consolidated 291 Pages Eliminated (42%)

TOTAL:355 Pages Eliminated (51%)

SBA WILL ELIMINATE OR MODIFY 100% OF THE AGENCY-SPECIFIC REGULATIONS (655 OF THE CURRENT 655 PAGES)

In addition, SBA will eliminate its entire supplement to the Federal Acquisition Regulation, 48 C.F.R. Part 2209

2 Parts Unchanged 45 Pages Unchanged (6%)

NOTE: The page estimates are approximations until redrafting occurs. The final numbers may vary slightly due to several Parts sharing pages. Where only a portion of one Part appears on a page, the page is counted as a full page. No attempt was made to divide pages by percentage. The two parts unchanged contain uniform regulations among executive branch agencies (which SBA lacks discretion to change).

III. THE SMALL BUSINESS ADMINISTRATION'S PERFORMANCE

MANAGEMENT SYSTEM

A. Mission Statement and Agency-Wide Goals.

The mission of the Small Business Administration is to aid, counsel, assist and protect

small businesses. SBA is committed to providing quality customer service to the small business community. To that end, SBA is expanding its small business outreach, improving its overall management, and becoming more customer-driven. SBA knows that the efficient and effective delivery of program services is needed to meet growing demands with fewer resources.

These concepts are emphasized in the Performance Agreement submitted by the Agency and approved by President Clinton in March, 1994. They form the background for SBA's participation as a pilot agency under the Government Performance and Results Act of 1993 ("GPRA"). The President has given the SBA four goals: (1) free up capital for investment in small business and work to end the credit crunch and create jobs; (2) eliminate unnecessary paperwork and regulations that inhibit the growth and productivity of small business;

(3) reinvigorate the SBA to construct a lean, highly motivated organization focused on the needs of small business; and (4) be the "eyes and ears" of the President for small business. For each of these established goals, SBA has set Agency-wide strategic objectives which its personnel will strive to meet at all levels, from the policy-makers at headquarters to the frontline personnel in the field.

Goal Number One: Free up capital for investment in small business and work to end the credit crunch and create jobs.

SBA has worked to stimulate private investment, generate jobs and tax revenue, increase private

capital, expand credit for small businesses with the greatest potential in niche markets, and develop new and creative credit instruments. With SBA's assistance, the U.S. economy in 1994 created more than 3.5 million new jobs, 62% of them in industries dominated by small firms; at the same time business failures declined 17% during 1994. SBA's new participating security helped attract new Small Business Investment Company licensees with more private capital in FY 1994 than in the previous 10 years combined.

Goal Number Two: Eliminate unnecessary paperwork and regulations that inhibit the growth and productivity of small business.

SBA has re-engineered, streamlined, or eliminated forms, processes and procedures; monitored and enforced the Regulatory Flexibility Act and Paperwork Reduction Act; proposed a list of government regulations to be eliminated or reinvented; reduced credit documentation required for loans; and streamlined its procurement regulations to improve access to government contracting opportunities. SBA introduced new programs such as "LowDoc" which reduces the paperwork required for loans under \$100,000, and "Fa\$trak" which eliminates SBA paperwork entirely, allowing banks to rely on their own documentation.

Goal Number Three: Reinvigorate the SBA to construct a lean, highly motivated organization focused on the needs of small business.

SBA has become more effective, efficient and customer driven; has instituted performance measurement based upon results, not process; has improved communications and created a shared vision; has applied modern information technology; has improved financial management; has expanded employee training; and has created an empowered, "can-do" attitude among its workforce. In addition, SBA has shifted resources from headquarters to the field, and has downsized its regional offices.

Goal Number Four: Be the "eyes and ears" of the President for small business.

SBA has reported to the President on the town meetings it has held with its small

business customers across America. Working task forces, customer surveys and focus groups have all generated customer feedback, enabling SBA to make policy recommendations to the National Economic Council. It has supported the White House Conference on Small Business, whose policy recommendations were submitted to the Administrator on June 14, 1995.

B. Implementation of Agency-Wide Performance Measures and

Relationship to Customer Service Standards.

SBA has implemented its strategic objectives through customer service standards, seeking to serve the small business community through better outreach and to enhance employee performance.

1. Customer Service Standards:

In the last year, SBA published customer service standards to guide SBA employees in their daily interaction with the public. This publication was a part of SBA's response to Executive Order 12862 which mandated that the federal government be customer-driven and meet a standard for quality service that is equal to the "best in business." Our Agency is dedicated to establishing appropriate

benchmarks from the "best in business," applying these standards to our programs, monitoring our success, and eliciting feedback from our customers on our performance.

Specifically, SBA is committed to the following general customer service principles:

(a) to provide prompt, courteous and accurate responses to requests for information received by telephone, in writing or in person;

(b) to look for cost-effective and user-friendly ways to make information easily accessible to the small business community;

(c) to streamline and reinvent processes to make conducting business with SBA easier for both our resource partners and small business owners;

(d) to provide the small business owner with specialized technical assistance through a variety of programs in a variety of locations;

(e) to work to relieve the regulatory burden on small business; and

(f) to facilitate and strengthen working relationships between small contractors and federal procuring agencies.

To further these goals, SBA developed and implemented a customer service training program for all field management last fall. Customer service training was given in each of SBA's ten regions, to all District Directors and the Finance and Investment heads in each district. At these sessions, discussion centered around who our customers were and how to best motivate frontline staff to better serve customers. Monetary rewards and means of putting customer service standards into individual Performance Management Appraisal System ratings ("PMASs") were discussed.

Each program office in SBA headquarters also put together a customer service presentation for the Operations Board. In preparing for that presentation, managers met with their employees, discussed who their customers were, and set specific standards and goals for each office. Many managers are also in the process of putting these goals in individual PMASs to ensure that they are carried out at all levels of SBA. SBA expects that customer service goals can be implemented into the PMASs of most Agency employees by October 1, 1995.

2. Agency Level Results-Oriented Performance Appraisals:

SBA's 1994 Performance Agreement with President Clinton called for a more entrepreneurial, customer-driven and efficient SBA. To help implement this Agreement, cascading agreements were signed between the Administrator and all program and field office heads last summer. The end result has been to define clear goals for each office and to hold each manager accountable for achieving results. The individual performance agreements signed by District Directors with the Administrator bring Agency level performance standards to each field office and implement them in each District Director's PMAS criteria. The end result is to define clear goals for each office and to hold District Directors accountable at the end of the year for meeting the goals to which they have agreed.

Under the performance agreements, a performance plan for each District Director sets appropriate

goals. The performance plan has three elements (Program Responsibility, Management and Internal Controls). The District's business plan, the District Director's performance agreement with the Administrator, and the District's specific goals are included in each element. For example, goals are set for lending and other program areas such as minority enterprise development. Marketing and outreach (customer service) are a part of the management element. SBA's other Agency-wide goals are reflected in the performance plans, including portfolio quality, liquidation recovery, aggressive utilization of the 504, microloan and surety bond programs, and involvement in local economic development and external resource development. The Directors have agreed to manage their operations effectively and efficiently and to work diligently to achieve the Agency's four goals set forth above.

Each performance plan serves as a framework for a performance appraisal which measures results against customer service, partnership, education and program delivery goals, all set to the particular needs of the local populace and economy. The District Directors are also reviewed on their expansion of managerial, technical and financial assistance to those underserved small businesses most in need of SBA's support, including minority and women-owned enterprises, rural and inner city businesses, and high technology and export-oriented firms.

3. Work to Date on the Government Performance and Results Act of 1993:

Two years ago, SBA began a concerted effort to become more customer-driven,

quality focused and results-oriented. As mentioned above, these efforts led to SBA's appointment as a pilot performance agency under "GPRA." As such, last year, SBA was one of the first four agencies to sign the agency-wide Performance Agreement with the President and SBA was featured in the second round of major agency streamlining activities. As the President announced on March 27, 1995, SBA is continuing its efforts to streamline and to create an SBA that "works better and costs less." We are moving forward with our reinvention plan, which reflects the Agency's commitment to customer service and to public/private partnerships. Through a comprehensive program of cost reduction, consolidation, centralization, and relocation, SBA proposes to reduce its annual budget 29 percent below the 1996 budget request, and save taxpayers \$1.2 billion over the next five years.

Pursuant to GPRA, SBA set four key mission areas: capital access, education and training, advocacy and contract opportunities, and disaster assistance.

Programs in these key areas are structured to give small business specific benefits that are not provided adequately in the private market: access to capital to start and expand small businesses; quality education and training to develop, expand or maintain a business; effective advocacy to reduce paperwork and burdensome regulations; increased access to federal contract opportunities; and access to capital to rebuild after disasters. For each of these major mission areas, SBA is currently in the process of selecting key program objectives and identifying measures of success and progress.

Even though the process is ongoing, in the past 18 months SBA has made significant progress in each of these four areas. New programs such as LowDoc (reduced paperwork loans under \$100,000) and Fa\$trak (streamlined loan program which relies on bank documentation) have tapped new and underserved markets and have resulted in phenomenal growth of the 7(a) program from 27,000 loans (\$5.9 billion) in FY 1992 to 56,000 loans (\$7.8 billion) projected for FY 1995. Even with increased lending, the program will cost taxpayers less this year (\$215 million) because of reforms adopted to make the program more cost-effective. Our SBIC program attracted more private capital (\$700 million) in FY

1994 and FY 1995 than in the previous 10 years combined.

A comprehensive review of the Minority Enterprise Development Program was completed. The Agency's plans for the program will improve the assistance provided to minority-owned and women-owned small businesses by streamlining the application process, reducing burdensome reporting requirements, improving management and technical assistance, and providing greater contract opportunities.

The Administration's recent regulatory reform announcements—giving small business owners a right to cure first time violations, calling for changes in many EPA regulations, halving the frequency of many Government forms required from small businesses, and allowing fines to be used to correct new violations—reflected recommendations from the unprecedented interagency forum which SBA helped launch last year. Finally, SBA championed the Administration's efforts to strengthen and enforce the Regulatory Flexibility Act.

Obviously, SBA is proud that it has made great strides in achieving the four goals for SBA set out in the Agency's performance plan and looks forward to implementing further performance initiatives to reinvent the SBA.

C. Actions Taken to Evaluate Internal Personnel Performance

Measures, and Actions Taken to Eliminate Performance Measures Based on Process and Punishment.

In the last several years, there has been an aggressive Agency-wide effort to train managers and supervisors in drafting performance standards. First, there was a one day Train-the-Trainers Workshop in which the participants received instruction, guidance, and an index of materials to be used during their training sessions. At least one individual from the ten Regional Offices received this training, as well as three from Headquarters. After this initial workshop, a mandatory, intensive one-day training workshop was sponsored for all managers and supervisors, nationwide, until all were trained. During the training, each manager and supervisor received hands-on training and guidance on how to draft standards linking performance plans to their respective program office's strategic plan. They were asked to develop performance standards, where possible, that describe the results to be achieved and measure the quantity and quality of performance during the year based thereon.

D. Timetable for Implementation of New Personnel Performance

- Measures for All Employees.
- 1. Timetable and Number of Employees Affected.

As set forth above, managers and supervisors have been revising many of the Agency's performance measures for several years. An Office of Personnel notice will be issued within the next month, advising managers and supervisors that all measures utilizing punishment or processes must be eliminated from employees' performance plans prior to establishing their performance plans for FY 1996. Additionally, the Notice will address the inclusion of agency customer service standards into the performance plans for all employees presently lacking them. Including its Disaster Assistance program, SBA currently has 5,386 employees, of which 3,717 are permanent employees and 1,669 are temporary employees.

2. Front-line Regulators: Old and New Standards for Financial Analysts.

SBA has reviewed its performance standards and has found very few that measure

employee performance based upon either process or punishment. In fact, SBA located only one performance plan for one employee position, financial analyst in the SBIC program, which seemed to measure performance based upon the punishment the employee could mete out. Only 11 employees were affected by this plan, and the SBIC program has had a longstanding policy allowing concerns to cure most regulatory violations, without incurring any penalty. As of this date, SBA has rewritten its plan in this area to eliminate both process and punishment performance standards. Further elimination of process measures from this and other plans will continue throughout the year.

3. Catalogue of Changes Made to Existing Personnel Performance Evaluations.

In addition to the changes set forth above, SBA has made changes in the way its

non-Senior Executive Service ("non-SES") District Directors are rated. To ensure consistency and fairness in the District Director rating process, a Performance Review Board was established to review the performance ratings for all non-SES District Directors. The Board will also explore the feasibility of performance awards for these individuals, and will ensure that all legal and other requirements are observed. SBA received OPM approval for this change in standard operating procedures on April 27, 1995. The Board will be used for the first time at the end of this rating cycle (September 30, 1995).

IV. GRASSROOTS REGULATORY PARTNERSHIP MEETINGS

A. Overview.

By Memorandum dated March 4, 1995, the President directed that the heads of

Departments and Agencies promptly convene grassroots partnership meetings around the country to be attended by frontline regulators and those being regulated. SBA has used such meetings to foster a spirit of cooperation between government and those it serves, and to provide a ready forum through which regulators may learn and receive suggestions and recommendations from those affected by regulation.

In response to the President's directive, the Small Business Administration organized and conducted Grassroots Regulatory Partnership Meetings at five different locations throughout the United States: San Antonio, Texas; King of Prussia, Pennsylvania; St. Louis, Missouri; New York, New York; and San Francisco, California. These meetings were held from April 10 through April 27, 1995, and were attended, in total, by more than two hundred fifty (250) small business owners, contractors, lenders, loan recipients, 8(a) concerns, 7(j) program providers, large prime contractors, small business development centers, certified development companies, state agencies, SCORE volunteers, and SBA employees.

At each meeting, those in attendance were invited to participate in various break-out sessions concentrating on specific topics of particular interest to SBA partners: Financial and Business Development Programs, Government Contracting, and Small Business Regulatory Issues. In one instance, there also was a Speak-out session devoted to simplification of SBA's 504 Program. The Business Regulatory Issues breakout provided a forum for small businesses to tell SBA about any concerns they had with any agency's regulations. These sessions also provided an opportunity for

those affected by SBA's regulatory functions to voice their views concerning the performance of the Agency, and to offer suggestions as to how SBA programs can be made more efficient, less burdensome, and more "user friendly." Thereafter, upon the conclusion of the break-out sessions, all participants reconvened and the various ideas raised in the individual discussion groups were summarized for the consideration of all in attendance. At three locations, Administrator Philip Lader addressed the assembly, and shared his initial thoughts regarding many of the proffered ideas and recommendations. At two of the meetings, Jere Glover, Chief Counsel for Advocacy, chaired the events and shared with the participants information he had learned from the various White House Conferences on Small Business that he had attended around the country. At all of the meetings, the purpose was to listen and learn.

The specific suggestions raised at the grassroots meetings pertain to all aspects of the Agency's functions, and bear upon the various partnerships which SBA has forged with those it regulates. While a complete listing of all recommendations is now being prepared for distribution to participants and Agency officials, the following sample readily serves to demonstrate the insights offered by SBA's partners and the clear value of continuing to hold periodic partnership meetings in the future.

B. Specific Recommendations.

Among the many suggestions offered for consideration were the following:

- ↳ Place all regulations relating to business loans into one Part of the CFR
- ↳ Consolidate all certifications by borrowers into one document
- ↳ Increase SBDC involvement with new borrowers
- ↳ Require business counseling before a borrower receives a loan
- ↳ Institute a uniform certification system for all government programs designed to assist disadvantaged business concerns
- ↳ Coordinate the policies of SBA and the Office of the Comptroller of the Currency on small business loan issues
- ↳ Increase publicity regarding the benefits of the 8(a) program
- ↳ Create a government-wide telecommunications system on business issues to disseminate information to small businesses and SBA intermediaries
- ↳ Improve program marketing to the public
- ↳ Improve communications between SBA and lenders so that the latter will better understand Agency programs

- ¶ Permit lenders to use their own forms in connection with 7(a) loans applications
- ¶ Increase use of business development assistance
- ¶ Increase size standards for retail businesses
- ¶ Offer a line of credit program for small businesses
- ¶ Provide more technical assistance in the area of international trade
- ¶ Assist in export financing
- ¶ Standardize the 504 program to eliminate differences among the SBA district offices
- ¶ Make greater use of alternative dispute resolution
- ¶ Attempt each year to award some 8(a) contracts to firms in each region that have

not previously received them

¶ Place a cap on 8(a) contracts received by program participants

¶ Ensure that regulations do not try to account for every possible action

¶ Provide flexibility with respect to minor regulatory violations

¶ Establish a public and private sector advisory group

As noted, SBA plans to distribute a summary of the recommendations submitted at each of the Agency's five grassroots meetings to participants and Agency officials. It also intends to ask District Offices to confer and coordinate with partners on policy and programs. By these actions, it is anticipated that SBA can continue the process begun with the five meetings just completed, improve its delivery of services to the public, and strengthen its partnership with those it serves.

C. SBA Implementation Plans.

As an immediate response to several of the recommendations offered at the grassroots

meetings, and to further energize and reinforce the Agency's partnership with those it regulates and serves, SBA intends to implement the following measures:

1. SBA will meet with its partners, federal procurement agencies, and other federal, state and local agencies on a regular basis to create, develop, and improve programs and initiatives responsive to the specific needs of the Agency's customers and intermediaries;
2. SBA will work closely with lenders to educate and train them to the extent practicable prior to public dissemination of a new program or initiative;
3. SBA will initiate a joint effort by federal agencies and small businesses to increase small business participation in the area of international trade, with special emphasis on the creation of new opportunities for small business export financing;
4. SBA will implement the use of electronic technologies to process applications for assistance, to disseminate information relevant to small businesses, and to communicate with participating lenders;
5. SBA will work with government procurement agencies and small businesses to develop a more

streamlined process to identify and award government contracts;

6. SBA's District Office officials will visit more frequently with offices of lenders to observe firsthand this intermediary link between the agency and its customers, and increase the Agency's availability to discuss problems and develop solutions;

7. SBA will continue to send senior officials to trade association meetings, and will utilize these opportunities to recognize the accomplishments and contributions of intermediary partners;

8. SBA will implement additional formats, including letters from the Agency's Administrator, to recognize and reward particular small businesses that have contributed noteworthy ideas or achieved outstanding performance; and 9. SBA will meet with the office of the Comptroller of the Currency to examine regulatory issues affecting small business.

D. SBA's 504 Loan Program: A Partnership Success Story.

The SBA is engaged in an intensive ongoing partnership to streamline and simplify

SBA's 504 program. The 504 program uses public/private partnerships to make loans available for acquisition of land, buildings, machinery and equipment. The key to SBA's 504 loan program is a certified development company ("CDC"), a nonprofit organization sponsored by private interests or by state or local governments.

In 1994, SBA met with industry representatives to listen to their ideas. They focused on regulatory changes, form simplification and process and procedural review. Small business borrowers participated at SBA's San Francisco Grassroots Regulatory meeting and gave meaningful ideas on the loan process. Working groups, including SBA employees and industry representatives from around the country have been formed and are meeting for week-long sessions in Washington. Each working group is based on a function, such as the loan application process, credit analysis, loan servicing and loan closing. As a result of this process, the entire program, including regulations, standard operating procedures, forms and agreements, will be streamlined and simplified with input from the regulators and the regulated. The burden on the small business, SBA personnel, and the CDC will be reduced significantly. The entire program restructuring is scheduled to be completed by August 31, 1995.

SBA has instituted the first step in the streamlined procedure, an expedited loan closing process. SBA will rely upon the CDCs and their private sector attorneys designated to review the loan packages submitted. The average SBA attorney review time will be reduced from four hours to twenty minutes per loan package, and the small business borrower will have the benefits of reduced paperwork and simplified procedures.

V. NEGOTIATED RULEMAKING

SBA has no upcoming rulemaking actions suitable for negotiated rulemaking. SBA believes strongly that any rulemaking process should include substantial involvement by the regulated community and other members of the public. Very few of SBA's rulemakings regulate directly the conduct or activity of small business owners. SBA customarily works with the regulated community and its representatives to obtain comments and participation in the process. SBA presently is considering the feasibility of negotiated rulemaking in the Small Business Investment Company program.

VI. WAIVING PENALTIES AND CUTTING FREQUENCY OF REPORTING REQUIREMENTS

Pursuant to the President's Memorandum dated April 21, 1995, SBA has identified monetary penalties which may be imposed upon small businesses for correctable violations, as well as regularly scheduled reporting requirements established by statute, regulation, standard operating procedure, or contractual obligation. In each instance, careful consideration was given to determine whether the penalties could be modified or waived, and whether the frequency of the regularly scheduled reports could be reduced. The results of SBA's detailed review are set forth below.

A. Penalties.

SBA's rules and regulations contain few monetary penalties imposed on small businesses in connection with violations. Those which have been identified are as follows:

1. 13 C.F.R. \square 107.1001(d) provides that whenever the length of time required for the examination of an SBIC's books and records is excessive because of a lack of cooperation or the condition of such books and records, an additional examination fee of up to \$250 per day may be imposed;
2. 13 C.F.R. \square 120.104-2(b) provides that a participating lender (not SBA) may impose upon a borrower a penalty fee on late loan payments in an amount up to five percent (5%) of the monthly loan payment plus interest (the imposition of this monetary penalty is authorized by 15 U.S.C. \square 636(a)(22));
3. 13 C.F.R. \square 123.19(a) provides that one who wrongfully misapplies disaster loan proceeds shall be civilly liable to SBA in an amount equal to one-and-one-half times the original principal amount of the loan. This regulation is based upon statute, which also mandates the imposition of the penalty when this conduct occurs. See, 15 U.S.C. \square 636(b);
4. 15 U.S.C. \square 687g(a) provides that an SBIC which violates any regulation or written directive issued by SBA requiring the filing of a report pursuant to \square 687b(b) shall pay a penalty of up to \$100 for every day during which the failure to file continues, unless it is shown that such failure is due to reasonable cause and not due to willful neglect. 15 U.S.C. \square 687g(b) provides that, under certain circumstances, the Agency may exempt an SBIC from the provisions of subsection (a) for a period of time it deems necessary and appropriate; and 5. the Secondary Participation Guaranty Agreements (SBA Form 1086) permits the imposition of certain penalties upon the lender and the Fiscal and Transfer Agent.

Under appropriate circumstances, SBA waives the penalties set forth in 13 C.F.R.

\square 107.1001(d) and 15 U.S.C. \square 687g(a), and regularly waives all but one of the penalties allowed under Form 1086. Any penalties levied pursuant to 13 C.F.R. \square 120.104-2(b) are imposed by participating lenders, not by SBA, and the maximum late payment fee applied is in accordance with the standard commercial rate. Moreover, the civil penalty permitted by 13 C.F.R. \square 123.19(a) is imposed in connection with certain criminal wrongdoing, and is levied only after an exercise of discretion by SBA as to the propriety of imposing such a penalty. Finally, the single penalty set forth in Form 1086,

which is not routinely waived, is commercially reasonable, is consistent with a similar penalty imposed in the private sector, and is imposed only after the expiration of a two-day grace period.

Accordingly, SBA's present policy regarding monetary penalties is consistent with a flexible approach towards regulation, and SBA's plan is to ensure a continuation of this present policy.

B. Reporting Requirements.

Regularly scheduled reporting requirements relevant to SBA programs are set forth in

eight of the thirty-eight Parts of SBA's regulations, in a few of SBA's Standard Operating Procedures, and in the Program Announcement for the Agency's SBDC Program. A chart summarizing each of these regularly scheduled reporting requirements is annexed to this submission.

Pursuant to the President's Memorandum of April 21, 1995, SBA engaged in a thorough review of each of the Agency's regularly scheduled reporting requirements in order to determine if the frequency of such reporting obligations could be reduced by one-half. Such review has led the Agency to conclude that eleven of its regularly scheduled reporting requirements can be cut back because such reporting cutback would not impede the effective administration of SBA's programs or because the present reporting requirement is not statutorily mandated. Other reporting requirements should not be changed, however. SBA is a federal lending agency which is highly dependent upon the regular reporting of financial and other relevant data in order to ensure the integrity and effectiveness of its programs. A number of the regularly scheduled reports required by SBA are periodic financial statements which, in many instances, are already routinely prepared by small businesses for purposes unrelated to SBA requirements, are customary in the commercial world, and thus impose no additional burden on small businesses. We have concluded that SBA cannot accomplish the proper performance of its mandated activities without the timely financial data provided by such statements.

Accordingly, with the exception of the eleven reporting requirements discussed below, SBA has concluded, and I personally declare that the Agency's regularly scheduled reporting requirements should be maintained in order to promote the effective administration of SBA's programs, assist in reducing other regulatory burdens, and comply with governing statutory provisions.

As indicated, SBA has determined that it can reduce eleven of its reporting requirements.

In two instances the reduction has already occurred (numbers 4 and 5 below):

1. 13 C.F.R. □ 108.503-1(b)(3) currently requires certain certified development companies to submit contracts for professional services annually to the Agency for approval. SBA intends to modify this regulation so as to require that the certified development companies simply maintain copies of such contracts in their files for SBA review.
2. 13 C.F.R. □ 122.54-6(b) currently requires recipients of Export Revolving Line of Credit loans to furnish monthly progress reports to lenders. The Agency intends to modify this regulation so as to require only quarterly reporting in the absence of special circumstances.
3. 13 C.F.R. □ 122.55-1(b)(2)(v) currently requires certain annual reporting by trustees of a qualified employee trust. SBA intends to eliminate this reporting requirement.

4. The regulation formerly designated as 13 C.F.R. □ 124.312(b)(7) required 8(a) program participants to submit, among other things, quarterly financial statements. On June 7, 1995, SBA published a final rule in the Federal Register which redesignated this regulation as □ 124.312(b)(4), and eliminated the requirement of quarterly financial statements.
5. The regulation formerly designated as 13 C.F.R. □ 124.312(c)(10) required 8(a) program participants during the program transitional stage to submit, among other things, quarterly financial statements. On June 7, 1995, SBA published a final rule in the Federal Register which redesignated this regulation as □ 124.312(c)(7), and eliminated the requirement of quarterly financial statements.
6. 13 C.F.R. □□ 128.7-9(b)(5) and 128.7-9(g)(1) mandates certain reporting requirements from grant recipients. However, all of Part 128 will be removed from the Agency's regulations pursuant to its streamlining efforts, and, of course, these reporting requirements will be eliminated as a result. 7. Under the SBDC Program Announcement, recipients of SBDC awards are required to submit quarterly counseling and training reports. SBA intends to cut back this reporting requirement from quarterly to semi-annually. 8. Under the SBDC Program Announcement, recipients of SBDC awards are required to submit annual counseling reports. SBA intends to eliminate this reporting requirement.
9. Under the SBDC Program Announcement, recipients of SBDC awards are required to submit quarterly reports on certain specified SBA forms. SBA intends to cut back this reporting requirement from quarterly to semi-annually. 10. Under the SBDC Program Announcement, recipients of SBDC awards are required to submit quarterly performance reports for the first three years of participation in the program, and semi-annual performance reports thereafter. SBA intends to cut back this reporting requirement from quarterly to semi-annually for SBDCs participating in the program for under three years, and from semi-annually to annually for SBDCs participating in the program for over three years.
11. SOP 90-80, paragraph 17 requires that grant awardees in the Women's Business Ownership Demonstration Project Program must submit quarterly performance and financial reports. SBA is developing a paperless reporting system in connection with this program, and it is anticipated that once such system has been in operation for a year, such reporting can be cut back to a semi-annual, rather than a quarterly, basis.

As this Report was being finalized, first-time regulations were published which pertain

to the SBDC program, and which had gone through a lengthy preparation process. These regulations contain reporting requirements which the Agency will review and revise where appropriate so as to be consistent with this Report.

SBA expects to achieve all of these reporting reductions by December 31, 1995.

Some will require regulatory changes; others will be implemented through Policy Notices issued by the appropriate program heads within the next two weeks. Once these changes have been achieved, SBA will have modified approximately 20% of those provisions relevant to its programs which establish regularly scheduled reporting requirements. □

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U.S. Small Business Administration
Office of Advocacy

July 1999

E-Commerce: Small Business Ventures Online

A report examining the available data on small businesses' use of electronic commerce. E-commerce applications include "e-tailing" in virtual storefronts and electronic data interchange.

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Office of Advocacy

APPENDIX 22

June 2000

Small Business Expansions in Electronic Commerce

A look at how small firms are helping shape the fastest growing segments of e-commerce.