Logistics Management Institute

Evaluation of Government Financing Assistance Programs

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Introduction

By FY93, DoD budget outlays (in constant dollars) had declined by 17 percent from their FY89 peak. The current budget projects a further decline of 26 percent between FY93 and FY99. Defense contractors are experiencing commensurate losses in their defense business base. As a result, many companies involved in defense work are seeking to expand their business base by converting products, processes, and technologies developed for military applications to commercial applications.

Many companies will require additional financing to support development of their dual-use applications, those with both military and commercial uses. The activities that need financing are diverse; they include product development, handling inventory and receivables, providing plant and equipment, and marketing and sales. Companies that have heretofore focused on defense may need to build an entire commercial marketing organization from the ground up. They will probably need, at a minimum, to (1) hire personnel familiar with the problems of selling to commercial customers, (2) establish commercial channels of distribution, and (3) develop a customer service infrastructure.

Small businesses have particular difficulty in acquiring capital, because they do not have access to many sources available to large companies and they do not have the flexibility to choose among the available types of financing. Small defense-oriented businesses may suffer an additional penalty in the capital markets as a result of their ties to a declining part of the industrial base.

The DoD does not want to lose access to dual-use products, processes, or technologies simply because of the market's failure to recognize a project's true worth. This report discusses the role of government financing of defense conversion, examines a range of programs to provide financing assistance to small businesses, develops criteria for judging the programs, and evaluates the programs against the criteria.

Appropriate Role of Government in Financing Defense Conversion

There is substantial agreement that government should help finance projects intended to apply military technology to civilian use when the market fails to expeditiously provide financing for economically viable projects – those where the social rate of return exceeds the cost of capital. The social rate of return takes into account social benefits such as the long-term strategic advantages of a technical nature (for example those that accrue when a new technology enables a subsequent technology or application unrelated to the first) or those involving preservation of national security capabilities.

The private capital market underinvests in dual-use projects when social returns exceed private returns or when market failures leave private returns in excess of the cost of capital. Figure 1 illustrates these concepts. A perfect market would allocate an amount of investment equal to $\$I_3$ reflecting full accounting of social and private benefits. If private considerations alone were to operate without consideration of returns that accrue to society (especially those with long-term strategic benefits), a less-than-desirable amount, $\$I_2$, would result. The third situation, in which there is an even lower amount of investment ($\$I_1$), occurs not only because there are social returns that are not considered but also because the market does not recognize the potential return and does not reach equilibrium at the cost of capital. This may occur because of inadequate information flows, the high cost of information, a lack of mechanisms to spread risk, the sheer size of the undertaking, overestimation of risk, or other market imperfections.

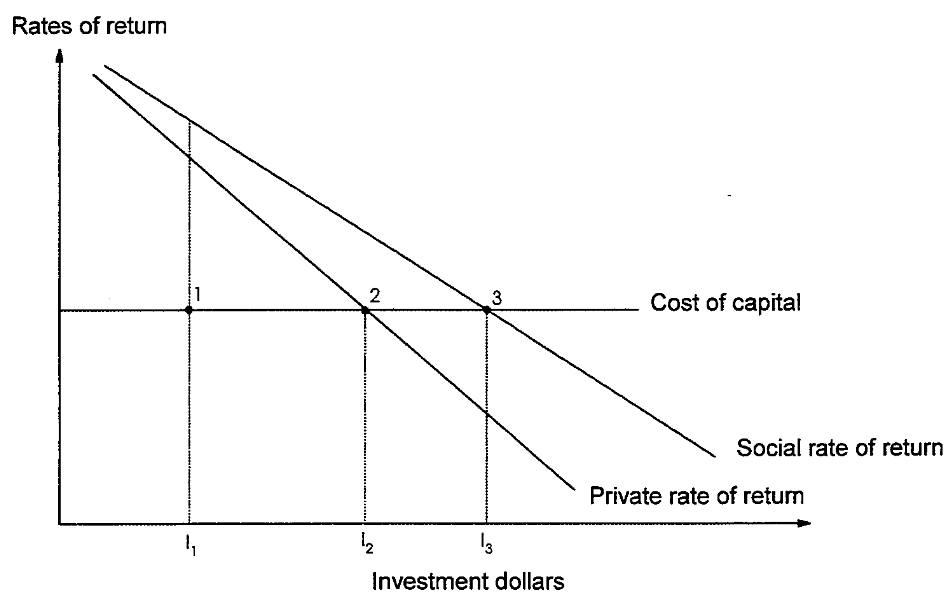

Figure 1.
Market Failures

The difference between I_2 and I_3 shows the amount of underinvestment in dual-use projects that is due to the existence of social returns that cannot be captured by private investors. (For instance, the market may fail to recognize the social benefits of products or capabilities that contribute to national security.) The amount of underinvestment between I_1 and I_2 represents beneficial investments that are not occurring because of imperfections in the private capital markets.

Evaluation Criteria

We developed a set of criteria to provide a structured approach for comparing the variety of programs to assist defense-oriented small businesses seeking to commercialize dual-use applications. The criteria are organized into three parts: "structural and programmatic" issues that deal with implementation and administration of the program from DoD's point of view; "economic" issues that assess the economic efficiency of the program; and "acceptability" issues that examine whether the program fulfills the objectives of the interested parties. For the most part, the criteria are qualitative and the ratings relating to each one are subjective. No attempt is made in the following discussion to rank the relative importance of these issues by assigning weights to them.

Table 1 displays the criteria; each is discussed in the following subsections. We believe that the more closely an assistance program conforms to these characteristics, the more likely it is to produce the desired benefits.

Table 1.
Evaluation Criteria

Structural and programmatic issues

- Suitable for temporary use and prompt implementation.
- Uses those best qualified for administrative, servicing, and oversight tasks.
- Minimizes the ongoing administrative burden on DoD.

Economic issues

- Apparent leverage potential.
- Amendable to fiscal predictability and responsibility.
- Responsive to regional, sectorial, and client-based peculiarities.
- Enhance the availability and/or lower the cost of capital to recipients.

Acceptability issues

- Avoid the appearance that the Federal government is picking winners.
- Avoid/minimize unfairness to existing markets.
- Likely to answer congressional concerns.
- Insulation from external influences.

Structural and Programmatic Issues

Suitable for temporary use and prompt implementation. Because defense conversion is not a permanent state, any government program to financially assist or support small businesses should be temporary. If a program cannot be made a one-time initiative, it should at least have a predefined and short-lived sunset provision. Because the problem to be addressed is a current one, it is essential that an assistance program can be implemented quickly. To the extent that a program would require special authorizing legislation or extensive rulemaking pursuant to the Administrative Procedures Act, implementation would be delayed.

Uses those best qualified for administrative, servicing, and oversight tasks. In order to make the program as effective and efficient as possible, the tasks associated with program administration, servicing, and oversight should be handled by personnel and organizations best qualified by training and experience for those tasks. Because DoD has few if any of the personnel or organizational units suited to applicant screening, financial analysis of commercial projects and markets, collateral oversight, etc. – the preferred program would be one that uses skills, procedures, and organizations that already exist, either elsewhere in the Federal government or in the private sector. DoD's direct involvement in the program should be limited to those areas in which it has expertise.

Minimizes the ongoing administrative burden on DoD. DoD will need to exercise some administrative control – no matter what form of program is adopted and no matter how it is implemented. If the eventual program is temporary, it will not be efficient or effective for DoD to take on a large administrative burden relating to it.

Economic Issues

Apparent leverage potential. The potential economic impact must be an important criterion for evaluating the desirability of a program. One aspect of economic impact is the amount of potential "leverage"[1] the program can generate. For example, it has been stated that the actuarially sound reserve requirement for the Small Business Administration's (SBA's) loan guarantee program is 2.14 percent of the guaranteed value of loans made. That translates into a leverage multiple of more than 45 to 1, saying, in effect, that for every dollar of reserve budgeted, a loan guarantee of $45 can be issued. In contrast, a direct subsidy program provides no leverage because the full amount of the subsidy must be funded and the recipients are not expected to pay it back.

Amenable to fiscal predictability and responsibility. Incorrect actuarial assumptions can have significant adverse budgetary impacts in future periods. If, for example, a loan guarantee program is established using a reserve requirement for loan failure of 2 percent but the actual default experience turns out to be 4 percent, the guarantor will be faced with an unplanned budgetary shortfall equal to the amount originally budgeted. The matter could be further complicated if DoD puts up the original loan guarantee reserve amount and SBA included converting small businesses in its ongoing guarantee program. When the actual experience turns out to be substantially different from the original assumptions and it comes time to address and cover the budget shortfall, the question arises: which agency would or should be responsible for the action and the

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[1] Leverage may be more apparent than real. Loan guarantees may merely displace loans that would be made to other borrowers and may actually cause a misallocation of resources.

financing? Perhaps the issue is best stated as one of both fiscal predictability and fiscal responsibility.

Responsive to regional, sectorial and client-based peculiarities. The distribution of defense small businesses within industry groupings and throughout the regions of the country is not uniform. Some regions and industry classifications will have a greater incidence of potential dual-use conversion candidates than will others. Any program should be able to recognize and reflect these differences, using an array of assistance offered to the target beneficiaries. A "one size fits all" program will have less positive economic impact upon the target population than will a program that consciously recognizes differences and tailors its offerings to best deliver the kind and amount of assistance needed in that particular industry or region. Because the resulting program will likely be temporary and may be addressing a unique topic, it is desirable that the program structure permit a high degree of flexibility and encourage innovation in the delivery of assistance. It should, for example, permit adaptation to take advantage of novel and/or demonstrably successful approaches that may emerge during the life of the program but that may not have been considered or included in the initial stages of program development. It may be that the primary benefit of the program will be that it affords an opportunity to simultaneously undertake a series of pilot programs and to find out which aspects best serve the initiative's overall goals.

Closely related to the previous point is the need to provide an array of assistance that effectively addresses the different kinds of uses for which financing is sought and that does so with the type of financing most appropriate to the task. For example, a revolving loan is more appropriate for working capital needs than is a term loan. Also, a firm that is already highly leveraged and that requires capital to finance product development may be better served by access to equity than to debt. In order for the program to have the most beneficial impact on its intended population, it should be flexible enough to match capital needs with the forms of financing and terms most appropriate for the circumstances.

Enhance availability and/or lower cost of capital to recipients. Recipients will expect a financing assistance program to increase the availability or decrease the cost of capital or both. Program alternatives that make contributions in the areas of both capital availability and cost would rate a higher level of consideration than those that may address only one of these issues.

Acceptability Issues

Avoid the appearance that the Federal government is "picking winners." It is very likely that any program will have more applicants for support than the funds available can satisfy. In order to allocate scarce program resources, a set of eligibility criteria must be developed, and a screening, evaluation, and selection process will have to be adopted. One aspect of acceptability is the perception that the program is fair in selecting recipients for assistance. The less DoD is involved in carrying out this process, the less likely it is to be accused of favoritism or bias in distributing the available funding.

Avoid/minimize unfairness to existing markets. Any program that subsidizes one portion of the firms in a market raises the question of equitableness. Firms not eligible for the funding offered under the program that are already in the targeted commercial markets will have a valid complaint that certain competitors are being given an unfair advantage. Because any program will be a substitution for unfettered market forces, any alternative will suffer from criticism on this basis. It must be recognized from inception that, in adopting actions to specifically assist and benefit a particular class of businesses, distortions will be created that would not have occurred without the intervention.[2]

Likely to answer congressional concerns. Congress' view of the problems faced by small businesses and of desirable solutions will be influenced by requests for assistance from constituents. Because different regions and industries will face different impacts from the drawdown, it is unlikely there will be consensus on problems or solutions. While the economic evaluation criteria judge whether the program provides economic benefits, the acceptability criteria are concerned with whether the parties involved judge the program to be helpful. This is most likely to be the case if the program is defined carefully so as to benefit the targeted population and to address its specific needs.

Insulation from external influences. A good program will be seen as fair and objective. Thus, it is essential that its operations be insulated from external influences. Decisions about participant eligibility, terms and conditions of participation, etc. can be subject to interference directed at gaining individual, regional, or sectoral advantages. The more insulated a program alternative is or can be made, the higher its level of acceptability. This does not mean that the program should not be open to evaluation or to legitimate oversight by those providing the resources. However, such matters should be built into the structure of the program from the beginning and not be used as a means of shifting its focus or unduly influencing its operation.

PROGRAMS AND PROGRAM EVALUATION

We discuss five generic classes of programs that could be implemented to address the financing needs of the small business with a dual-use application. This section describes each program – direct loans, loan guarantees, equity investments, direct financial subsidies, and a Technology Reinvestment Project (TRP)-style program – as well as variations within the class, depending upon

[2] Another aspect of this issue that must be appreciated is the potential reaction of the General Agreement on Tariffs and Trade (GATT) trading partners to a program that openly assists and perhaps subsidizes the entry of firms into commercial markets. In today's world economy, few successful commercial market entrants can or will focus solely on domestic markets for their products. Because successful dual-use conversion will result in new competitive products and producers in worldwide markets, the potential for adverse reactions by trading partner governments cannot be overlooked.

the identity of the agency or entity directly responsible for most of the administration and oversight of the program. Following the description of each alternative is a brief evaluation of its major positive and negative aspects in relation to the criteria discussed above.

All of the programs described afford some benefit by increasing the availability of capital and/or lowering the cost of that capital for the target population. However, all programs will adversely affect existing competitors as a result of providing selective assistance to potential entrants into the commercial market. Additionally, all the programs described – except perhaps equity investments – are likely to meet Congress' desire to assist small business conversion efforts. These criteria will not be discussed in the individual evaluations, but it should be noted that while all programs help the target population, they potentially hurt other businesses.

Direct Loans

A direct loan program is one in which recipients that meet pre-established eligibility criteria would qualify to receive loans either from DoD or from some other agency administering the program on behalf of DoD. A direct loan program may be administered by DoD or as a special addition to the existing direct loan programs of the SBA, the Economic Development Administration (EDA), the Farmers Home Administration (FmHA), or some other Federal entity. Terms and conditions of the loan could vary according to the definition of the target population and financial market conditions.

The evaluation of direct loans depends on who will administer the program. If DoD administers the program, the main benefit will be fiscal predictability. If another agency were to administer the program, DoD's administrative burden would be eased. If DoD attempts to implement such a program itself, rather than having it administered by some other agency that already operates a direct loan program, it would face potential difficulties on several fronts. DoD is ill-equipped to take on such specialized tasks as loan review, servicing, collateral evaluation, collections, etc. In addition, because the loan decisions would be made by DoD, the appearance of picking winners as a result of its individual and collective loan decisions would be virtually impossible to avoid. The ongoing administrative burden on DoD would be significant and would call for skills, organizations, and procedures that are not now available and that would be uneconomical to establish for a program that is temporary. Many of these shortcomings would be overcome or avoided entirely if the direct loan program were to be administered by another, better suited agency, with DoD's involvement limited largely to participating in the initial structuring of the program and providing the funds for the loans.

Certain regulatory activities will be required irrespective of who is to administer the program. If rapid implementation is viewed as essential to the program's effectiveness, even the lead-time for expedited rulemaking may be too much of a delay in program initiation. Whether such a program would have the flexibility necessary to respond to regional or industry-unique needs, or whether it would be amenable to a wide variety of uses of the proceeds by recipients, must be judged by the rules and regulations adopted for it. However, the more flexible and focused the program, the greater the amount of time and rulemaking required at the start.

Loan Guarantees

Loan guarantee programs normally use the private banking sector to select the recipients and to service the loans. However, loan guarantee programs can vary depending on whether DoD or another government agency administers them and whether they are fully insured. The traditional loan guarantee program is of the fully insured type. Under this form, the guarantor entity establishes a level of guarantee that it will offer, stated as a percentage of the amount of loan principal. While the amount that will eventually be needed to cover the actual default experience can only be estimated, the actual guarantee percentage (usually less than 100 percent) is fixed and known – hence the name fully insured. This type of program poses a potential future budget liability if actual performance differs greatly from the initial default estimates used to establish the size of the required reserve. Lenders participating in this type of loan guarantee program will have a known or at least highly predictable risk exposure – the difference between the loan principal amount and the guarantee percentage. Also, because most Federal loan guarantee programs have historically been of this type, one would expect the banking community to have a higher comfort level in deciding to participate in an insured program rather than a non-fully insured program.

A non-fully insured loan guarantee program establishes a specific amount of funding to support defaults under the loan guarantee program, and that is the total funding made available to lenders to cover defaulted loans. The specific guarantee level is set by the lending institution, depending upon the amount of risk it is willing to assume. No current Federal programs are non-fully insured programs; however, several state programs are.

Both fully insured and non-fully insured programs could be implemented by DoD or could become a special addition to the existing loan guarantee programs of another Federal agency or entity. Because no current Federal programs of loan guarantees operate on a non-fully insured basis, setting one up would require special arrangements and regulations, even if it were to be administered by an entity that has loan guarantee programs already in place.

All forms of loan guarantee programs receive high marks for offering potential leverage. A non-fully insured program would exhibit a high level of fiscal predictability and would be well suited to temporary duration. Because no Federal programs are of the non-fully insured type, establishing one would require a significant amount of rulemaking, and it may also take time to attract and to educate financial institutions willing to participate. Given that this would be a type of guarantee operation unfamiliar to banks, the additional potential risk to lenders might have an adverse impact upon the leverage achievable. To the extent that the actual loan activity is carried out by banks, the administrative burden on DoD is minimized, and the program places organizations and personnel best qualified for loan screening, servicing, and oversight in charge of those tasks. Fully insured loan guarantee programs have less fiscal predictability and, to the extent that they would be handled for DoD by other agencies on the basis of a loss reserve estimate made and agreed to in advance and without later recourse to DoD, the unpredictability is shifted to another agency. There are no net advantages, either to DoD or to potential recipients, in having the loan guarantee program run by DoD. Even though it would represent a new Federal loan guarantee approach, the non-fully insured program rates higher than the more conventional form of guarantee program when evaluated against the criteria in Table 1.

Equity Investment Programs

The DoD could develop a program to make (either directly or indirectly, through investment in a fund established for that specific purpose) equity investments in small businesses with dual-use applications. The investment fund could be limited to the amount put up by DoD, or it could have provisions for selling limited or general partnership interests to other public or private parties. The operations of the venture fund could be managed by a special office in DoD or some other agency, by a private party, or by a special government-sponsored enterprise (GSE) set up specifically for that purpose. Investments in the target enterprises could take any of the forms found in venture arrangements (e.g., common stock, preferred stock, convertible preferred, convertible debentures, etc.), and the life of the fund could be set to any reasonable period consistent with the fund's purpose. How the government's ownership interests, and how dividends on and sales of those interests would be handled, would have to be established when the program is implemented. The budgetary impact would be highly predictable as the worst-case scenario; the amount put into the fund would set the upper limit on the direct cost to the government. With any degree of success from the investments made, the initial cost of the investment would be reduced. The investment fund may provide leverage to the extent that the government's investment is not the only source of funds.

The primary negative aspect of an equity investment program is the very strong appearance that DoD is picking winners. It is also likely that private venture funds would react negatively to such an initiative, especially if the fund were structured to raise funds from the same sources from which the private funds are seeking capital. However, such a program does have certain advantages. It would permit great flexibility in structuring each investment to best suit the perceived need and risk profile, permit tailored responses to regional or sectoral needs, and accommodate a broad array of uses for the capital. Outside ownership could help ensure that plans, milestones, and performance goals are set and monitored. The program would have a high degree of worst-case fiscal predictability, with the potential to offset budget impacts through the infusion of gains made in investments that prove to be highly successful. Possible strong adverse reaction by those unable to participate; the potential for extended prior rulemaking and, perhaps, implementing legislation; and the specter of direct industrial policy make this form of the program at the Federal level likely to be politically infeasible.

Direct Financial Subsidies

The best-known forms of direct financial subsidies are interest rate subsidies, investment tax credits, and accelerated depreciation for tax purposes. A subsidy would not have to be repaid and could consist of a rebate of a portion of the interest paid on a loan procured from a private lender to finance conversion activities; reimbursement of all or part of the amount paid to third-party providers of conversion assistance; or some other form of grant tied to support of the firm's attempts to convert to commercial markets. Investment tax credits improve a company's cash flow by providing a tax benefit for investing in capital assets. Accelerated depreciation also improves cash flow, by allowing the company to recover capital costs in less than the normal tax life of the investment. Because the nature of such a subsidy is to encourage beneficial activities that would perhaps not have occurred or been possible without it, some minor amount of multiplied economic impact may be possible, but this type of program is primarily intended for direct impact on a particular kind of socially desirable activity and its true "leverage" is both tenuous and difficult to measure directly.

In relation to the evaluation criteria, a direct financial subsidy program focused upon dual-use conversion by small businesses has few positive features. While the interest rate subsidy would obviously reduce the cost of debt capital to recipients, it also would imply a preference for a particular form of capital and would reward participants that procured expensive debt more than it would those able to make better arrangements. Investment tax credits and accelerated depreciation express a preference for investment in tangible assets, a preference that benefits only those companies that need new plant and equipment. Direct subsidies offer little or no leverage, hold the potential for high administrative cost and complicated rulemaking, and tend to lack flexibility to respond to regional, sectoral, or differing needs for capital.

Technology Reinvestment Project Style Program for Financial Aid

An alternative to more conventional programs of assistance for small businesses would be a competitive program similar to the TRP except for the fact that the proposals solicited would be for financial aid. A TRP-like process would be used to announce the program, evaluate applications, and make final selections. The TRP-style program could involve both public and private entities in the design, delivery, and oversight of the actual forms of assistance rendered. The amount set aside for the conversion assistance initiative would be distributed among competitively selected proposals from state, regional, and public/private consortia applicants. DoD could specify the amount of additional public and private funding required to be committed to the proposal. The array of types of assistance to be provided to the targeted population, along with the degree of innovation in the design of the programs to be undertaken, would be among the key selection criteria.

Initiating the program by devising the solicitation documents, reviewing proposals, and selecting the winning proposals would require significant effort, but once that phase is completed, the ongoing workload associated with the actual delivery of services to the target population would become the responsibility of the successful bidders. The Federal government would not disburse funds directly to the targeted population but rather to the successful bidders. Disbursements could stretch out beyond one fiscal year, depending upon the criteria adopted for the payment of the DoD portion of the program's cost. If, for example, one of the successful applicants made a commitment to raise some amount of matching funds from state, local, or private sources, it could best be held to that commitment by a process that distributes the DoD portion only after the other funding has been raised or irrevocably committed in a legally binding manner.

Applicants would be relatively free to devise innovative programs as long as the funds (both those from DoD and those to be supplied from other public and private sources) are directed to small defense-oriented entities seeking to convert to commercial work. The primary focus of such an alternative would be on providing the types and amounts of support or assistance needed to improve the chances for success by small firms with dual-use applications. Although this alternative can and should include financial support for the target population, it does not proceed on the assumption that capital alone will solve the problem. A valid proposal from a bidder could include several of the financing alternatives discussed above, along with plans to provide business development services to the participants. In many cases, states and localities already have programs that could be incorporated into the new initiative.

This alternative rates high when judged by the evaluation criteria. Its main benefit is its adaptability to regional or industry needs. The TRP-style program could generate proposals that combine features of other programs for delivery of financing to the target population. It could also include an array of other support and assistance features – features that may be more important or more directly useful than merely increased access to financing. Its potential for significant leverage and for the involvement of those best qualified and organized to develop, implement, and oversee the array of program elements; its fiscal predictability at the Federal level; and its suitability as a temporary or one-time measure undertaken by DoD are also advantages of this program alternative. It could also be adopted reasonably quickly, because it would not necessarily require extensive new rulemaking or implementing legislation. Many of the lessons learned from the TRP could be used effectively to shield the program from undue influence and to make its implementation as smooth as possible.

Rankings Based on Evaluation Criteria

Table 2 shows the overall rankings, based on the greatest net number of positive marks received when the evaluation criteria are applied to the programs discussed. The rankings have been determined on the basis of an equal weighting of each evaluation criterion. Details are given in the appendix to this report.

Table 2.
Composite Ranking of Alternatives

Rank	Alternative	Score
1	TRP-style program	+7
2	Non-fully insured loan guarantee	+5
3	Fully insured loan guarantee by other Federal agency	+5
4	Equity investments	+2
5	Fully insured loan guarantee by DoD	+1
6	Direct loans by other Federal agency	0
7	Direct loans by DoD	−4
8	Direct subsidies by DoD	−6

It is reasonable to expect that some evaluation criteria may, in certain circumstances, have greater weight than others, or at least, that some of the evaluation categories would carry more weight than others. The final choices will have to be made by the policymakers themselves. Nevertheless, it may be useful to show how each alternative performed within the three evaluation criteria groupings, in order to help the final decision-maker focus upon the most desirable alternatives, given other than equal weighting of criteria or criteria groupings. Table 3 shows the relative ranking of the alternatives within the evaluation criteria groupings. Rank is determined by the highest "net" number received in the grouping (minuses are subtracted from pluses to arrive at a net number which can be either positive or negative). Ties are resolved first by giving precedence to the alternative with the fewest minuses within the grouping and then by giving preference to the alternative most like an existing program.

Conclusions

The final choice of a program for small businesses with dual-use applications will be a function of the policymakers' judgment of the severity of the problem. Judged by the evaluation criteria presented in this report, certain programs are more likely to be effective than others. On the basis of our analysis, the highest rated assistance programs are the TRP-style program, a non-fully insured load guarantee program, or a loan guarantee program administered by another

Table 3.
Alternative Rankings Within Evaluation Criteria Groups

Criteria group	Rank	Alternative	Score
Structural and Programmatic Issues	1	FI loan guarantee by other agency	+3
	2	TRP-style program	+2
	3	NFI loan guarantee	+1
	4	Direct loans by other agency	+1
	5	Equity investments	+1
	6	FI loan guarantee by DoD	–1
	7	Direct loans by DoD	–3
	8	Direct subsidies by DoD	–3
Economic Issues	1	TRP-style program	+4
	2	Equity investments	+4
	3	NFI loan guarantee	+2
	4	Direct loans by other agency	+1
	5	Direct loans by DoD	+1
	6	FI loan guarantee by other agency	0
	7	FI loan guarantee by DoD	0
	8	Direct subsidies by DoD	–2
Acceptablity Issues	1	FI loan guarantee by other agency	+2
	2	NFI loan guarantee	+2
	3	FI loan guarantee by DoD	+2
	4	TRP-style program	+1
	5	Direct subsidies by DoD	–1
	6	Direct loans by other agency	–2
	7	Direct loans by DoD	–2
	8	Equity investments	–3

Note: FI = fully insured; NFI = non-fully insured.

Federal agency. A program involving equity investments by the Federal government, while strong in economic and some programmatic areas, has too many potentially negative aspects to warrant serious consideration for this situation. Any alternative that involves direct loans by DoD or another Federal agency must be considered marginal and avoided if possible.

Initially, any program will require a clear and unambiguous definition of eligibility. Decisions must be made about the level of the firm's defense dependence required for participation, whether restrictions will be placed on use of the financing, whether dual-use conversion potential must be demonstrated and how, whether the firm must show an inability to get financing elsewhere, and the maximum amount of assistance for an individual firm. While none of these questions has a single, correct answer, they must all be resolved before a program is initiated.

If a TRP-style program is authorized, DoD should immediately identify both the internal organization that and personnel who will be charged with developing the solicitation plan, schedule, and selection criteria and the external organizations and personnel who will support and assist this project office. Given the Advanced Research Projects Agency's (ARPA's) experience with the TRP program and its familiarity with advanced technologies, ARPA is a logical candidate to provide assistance in implementing a financial assistance TRP. The National Institute of Standards and Technology can and should play a significant role in this process.

Conversion is a transitional period for a defense-oriented firm, and assistance programs should be constituted as temporary. Firms that do not make a fairly prompt commitment to dual-use conversion should not be able to use a conversion assistance program as a permanent way to gain access to a source of low-cost capital free from the rigors of the existing capital markets. Consideration should be given to developing "graduation" criteria and timetables to preclude the creation of a class of perpetual converters who never seem capable of weaning themselves from the special programs intended for the truly diligent participant.

Putting DoD into the business of financing raises significant prospective problems. DoD has neither personnel nor relevant experience for providing financial assistance. Therefore, it should actively seek to minimize continuing administrative involvement in any program, other than oversight responsibility.

Loan guarantee programs can be structured to mitigate some of their negative qualities. Their most significant impact comes from their unpredictable default rates that can generate future liabilities in an agency's budget. Commercial banks maintain default rates of about 1 percent. Various Federal loan guarantee programs have reported defaults as high as 30 percent in the short term. While Federal programs are implemented to help companies unable to obtain capital elsewhere, the higher the stated guarantee level, the less carefully participating banks will screen applicants; a fact that will be directly reflected in actual loss or default experience. A DoD loan guarantee program could shift some of the risk of default to the financing institutions by setting the guarantee level lower. A non-fully insured program shifts all the default risk to the financing institution and eliminates unpredictable future DoD liabilities.

It is clear that money, by itself, will not provide solutions or answers to all of the issues facing a converting firm. In fact, it is highly likely that even small firms equipped with a source of low-cost, patient capital will still face significant problems in making the transition from defense to commercial markets. Our survey of defense-oriented small businesses revealed substantial concern among converting firms about how to deal with commercial customers.[3] A truly helpful

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[3] LMI Report EC404R1, *Capital Availability for Small Businesses with Dual-Use Applications*, Donna J. S. Peterson et. al., June 1994.

program would provide the target population not just with information on access to capital but also with assistance in gathering marketing intelligence on commercial market opportunities and knowledge of how to provide service to commercial customers. This could be done, for example, by subsidizing market research services or strategic alliance development activities performed by professionals already doing such work.

Promoting strategic alliances with larger, more commercially oriented firms may be the most efficient means of dual-use conversion for many small businesses. Finding potential partners for such endeavors is a not a trivial task for the target population. In many cases, the firm's lack of familiarity with commercial markets and business practices may best be overcome not with financing, but with carefully structured and negotiated arrangements allowing the small firm to concentrate its scarce personnel and financial resources on product development and research while having a "partner" perform other critical functions such as marketing, sales, customer service, and working capital financing. Obviously, setting up, facilitating, and encouraging such relationships is an undertaking considerably different from and more complex than, simply making a new or expanded funding source available.

A final observation is that any of these programs may provoke complaints from GATT partners that DoD is unfairly subsidizing commercial activities. It may therefore be advisable to coordinate with the Office of the U. S. Trade Representative before formally announcing any program.

APPENDIX

Program Evaluation Matrix

Table A-1.
Program Evaluations

Issues	Evaluation criteria	Direct loans by DoD	Direct loans by other Federal agency	Non fully sured lo guarant
Structural and programmatic	Suitable for temporary use and prompt implementation.	–	0	–
	Uses those best qualified for administrative, servicing, and oversight tasks.	–	0	+
	Minimizes the ongoing administrative burden on DoD.	–	+	+
Economic	Apparent leverage potential.	–	–	+
	Amenable to fiscal predictability and responsibility.	+	+	+
	Responsive to regional, sectorial, and client-based peculiarities.	0	0	–
	Enhance the availability and/or lower the cost of capital to recipients.	+	+	+
Acceptability	Avoid the appearance that the Federal government is picking winners.	–	–	+
	Avoid/minimize unfairness to existing markets.	–	–	–
	Likely to answer congressional concerns.	+	+	+
	Insulation from external influences.	–	–	+

ans er l y	Non fully insured loan guarantee	Loan guarantee — fully insured by DOD	Loan guarantee — fully insured by other Federal agency	Equity investments	Direct subsidies by DoD	TRP-style program
	–	–	+	–	–	+
	+	+	+	+	–	0
	+	–	+	+	–	+
	+	+	+	+	–	+
	+	–	–	+	–	+
	–	–	–	+	–	+
	+	+	+	+	+	+
	+	+	+	–	–	0
	–	–	–	–	–	–
	+	+	+	0	+	+
	+	+	+	–	0	+

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General Observations

A score of plus (+), minus (-), or zero (0) in the matrix at the end of this appendix is given to reflect the degree to which the program alternative satisfies or addresses the particular evaluation criterion under consideration. A "+" entry means that the alternative satisfies the criterion, a "-" entry means that the alternative does not satisfy the criterion, and a "0" entry indicates that the alternative has a neutral effect with regard to the criterion.

All the program alternatives receive a "+" score for the economic evaluation criterion, "enhance the availability and/or lower the cost of capital to recipients," because any initiative that focuses some form of financing or subsidy on the target population will, either increase the availability or reduce the cost of capital to the recipients. Similarly, all alternatives received "-" a for the acceptability criterion, "avoid/minimize unfairness to existing markets," because any program available only to certain competitors in a market will be unfair to the excluded firms.

In general, those program alternatives that require direct DoD involvement receive negative scores for the criteria "uses those best qualified for administrative, servicing, and oversight tasks," "minimizes the ongoing administrative burden on DoD," "avoids the appearance that the Federal government is picking winners," and "insulation from external influences," because DoD is neither organized nor experienced in operating financing programs. On the other hand, when a program alternative would involve either financial institutions or other Federal or state agencies that have similar programs in existence, it would receive a positive score for those same evaluation criteria.

The only program alternatives that receive positive scores for their "suitability for temporary use" and "prompt implementation" are the fully insured loan guarantee by another Federal agency and the TRP-style programs. The former receives a positive score because it already possesses a legislative authority and would require little or no additional rulemaking prior to implementation. The positive score for the latter arises from the fact that it is well suited to one-time or temporary use and, given sufficient flexibility in the authorizing legislation, could be implemented without any administrative rulemaking.

The only alternatives that receive negative scores for the amount of leverage possible are those that involve either direct loans or direct financial subsidies. The relative degree of leverage among the loan guarantee, equity investment, and TRP-style programs is not easily forecasted, because it will depend upon the structures of the particular programs. Nevertheless, it is only these programs that have the potential for leverage.

Analysis of Alternatives by Criteria Group

Structural and Programmatic

"Suitable for temporary use and prompt implementation."

All program alternatives except direct loans by another Federal agency, fully insured loan guarantees by another Federal agency, and the TRP-style program received negative ratings on this criterion, because they would require new legislation and administrative rulemaking which would make them difficult to promptly implement and less likely to be temporary. Implementation delays could be minimized for fully insured loan guarantee programs, because they already exist at a few Federal agencies, where the new program could be added to the existing programs. The TRP-style program could be readily implemented without new administrative rulemaking and is well suited to temporary use. A few direct loan programs are already in existence, but because they would require either legislative action and/or administrative rulemaking in order to respond to dual-use conversion efforts, they are given a neutral score.

"Uses those best qualified for administrative, servicing, and oversight tasks."

Program alternatives that rely upon either financial institutions or upon other Federal agency programs and personnel receive positive scores, while alternatives that involve DoD directly in their execution receive negative ones. Existing direct loan programs and the TRP-style program are neutral, because they could, depending upon the final structure, be handled by organizations properly staffed and organized for the work. But, they do represent a somewhat novel approach to the provision of financial assistance.

"Minimizes the ongoing administrative burden on DoD."

Program alternatives that require DoD involvement in other than modest roles of funding and evaluation of program performance receive negative scores. All other alternatives receive positive scores.

Economic

"Apparent leverage potential."

Program alternatives that are direct in nature have no potential for concomitant involvement of financial resources from other public or private sources and therefore, receive negative scores. All other alternatives receive positive scores.

"Amenable to fiscal predictability and responsibility."

Only those program alternatives for which the worst-case total fiscal commitment is or can be known with precision at the start receive positive scores.

Because their final cost to the government cannot be known in advance and the Federal government has not demonstrated an ability to accurately forecast and budget for losses and defaults in any similar type of program, fully insured loan guarantee programs receive negative scores.

"Responsive to regional, sectorial and client-based peculiarities."

Loan guarantee programs are, by definition, "one size fits all" programs and therefore receive negative scores for lacking the flexibility needed to properly address the underlying range of needs and to structure the financial assistance in a way that reflects the differing uses for funds and the differing situations of the potential recipients. Direct loan programs receive a neutral score. This is because it may be possible to alter individual transactions to reflect situational and/or recipient-based conditions, but this tailoring would require a rather unique view and treatment of the practices of loan origination. The TRP-style and equity investment alternatives receive positive scores, because they can structure each transaction to reflect the particular circumstances giving rise to the financial assistance.

"Enhance the availability and/or lower the cost of capital to recipients."

All program alternatives receive positive scores, as discussed above.

Acceptability

"Avoid the appearance that the Federal government is picking winners."

Only the program alternatives run by financial institutions (i.e., the loan guarantee programs) receive positive scores, because they are (arguably) structured so that individual decisions are made by financial professionals on sound and established lending grounds. The TRP-style program receives a neutral score, because, although the Federal government will not be involved in any of the individual financing assistance decisions, it will select the intermediaries. This selection process could be attacked on grounds of favoritism.

"Avoid/minimize unfairness to existing markets."

All program alternatives receive negative scores, as discussed above.

"Likely to answer congressional concerns."

All programs except the equity investment alternative receive positive scores. Equity investments receive a neutral score, because the concept has not been directly proposed as a potential solution by Congress.

"Insulation from external influences."

Only those program alternatives run through financial institutions or, in the case of the TRP-style program, by non-Federal entities receive positive scores. Direct financial subsidies receive a neutral score, because, while it would be quite difficult to externally influence an individual subsidization transaction, it would be possible to influence the types of subsidies available, or to favor one region or sector over another.

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13. ABSTRACT *(Maximum 200 words)*

By FY93, DoD budget outlays (in constant dollars) had declined by 17 percent from their FY89 peak. The current budget projects a further decline of 26 percent between FY93 and FY99. As a result, many companies involved in defense work are seeking to expand their business base by converting products, processes, and technologies developed for military applications to commercial applications. Many of those companies will require additional financing to support development of their dual-use applications, those with both military and commercial uses. The activities that need financing are diverse; they include product development, handling inventory and receivables, providing plants and equipment, and marketing and sales. Companies that have heretofore focused on defense may need to build an entire commercial marketing organization from the ground up. Small businesses have particular difficulty in acquiring capital, because they do not have access to many sources available to large companies and they do not have the flexibility to choose among the available types of financing. Small defense-oriented businesses may suffer an additional penalty in the capital markets as a result of their ties to a declining part of the industrial base.

This report provides a qualitative method for evaluating the effectiveness of a variety of government programs for providing financial assistance to businesses. We developed a set of criteria organized into three parts: "structural and programmatic" issues that deal with implementation and administration of the program from DoD's point of view; "economic" issues that assess the economic efficiency of the program; and "acceptability" issues that examine whether the program fulfills the objectives of the interested parties. We describe eight financing assistance programs and evaluate them based on the criteria.

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