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AEA

Selected Excerpts from House Committee Reports on H.R.4326 the "Small Business Innovation Development Act"

I. The Small Business Committee's Report
Report 97-349, Part I, November 20, 1981

A. Short summary of the Bill included in the Congressional Budget Office cost estimate:

Bill purpose: H.R. 4326 would require several major federal departments and agencies to establish Small Business Innovation Research Programs (SBIR) beginning in fiscal year 1982 by targetting specified amounts of research and development (R&D) funds to small businesses. Each federal agency whose R&D budget exceeds $100 million annually would be required to allocate a percentage of its R&D budget for the SBIR program. The set-aside would be phased in over a four-year period, with a 0.5 percent allocation required in fiscal year 1982, 1.0 percent in fiscal year 1983, 2.0 percent in fiscal year 1984, and 3.0 percent in fiscal year 1985 and in each year thereafter. In addition, each federal agency with an R&D budget exceeding $20 million would be required to set goals for allocation of funding agreements to small businesses.

As provided in H.R. 4326, the Small Business Administration (SBA) would have responsibility for publicizing and coordinating a release schedule for SBIR solicitations, for preparing an annual report to the Congress on the status of the SBIR programs, and for monitoring the SBIR programs. The Office of Federal Procurement Policy (OFPP), in conjunction with other agencies, would be required to issue regulations affecting various SBIR activities, while the Office of Science and Technology Policy would be responsible for monitoring and oversight.

B. Reference to the American Electronics Association and AEA's Witness, Edwin V.W. Zschau in the Committees' case for the bill:

A study of 269 firms by the American Electronic Association found new high-technology companies to be the greatest generator of new jobs. Dr. Edwin V. Zschau of the AEA-presented the results of that study to the Senate Committee on Small Business in February 1978. The report showed the following growth of employment for newly established firms as contrasted to the more mature companies:

Years since founding	State of development	1976 rates employment growth (percent)
20-plus	Mature	0.5
10 to 20	Teenage	17.4
5 to 10	Developing	27.4
1 to 5	Startup	57.7

The MIT-Birch study also emphasizes the tax-generating benefits of innovative companies—nearly three times the level of tax revenues as a percentage of sales as compared with mature firms. The large and powerful flow of benefits which include new jobs, exports, and tax revenues realized for each dollar of capital investment starts soon after the investment is made and is substantially greater in small innovative firms than in large corporations.

Similarly, the AEA study reported that annual benefits to the economy realized in the year studied for each $100 of equity capital that had been invested in start-up companies founded between 1971 and 1975 were:

	Per year
Foreign sales	$70
Personal income taxes	15
Federal corporate taxes	15
State and local taxes	5
Total taxes	35

AEA is cited, despite the Committees' knowledge that the Association strongly opposed the bill. The correct number of companies included in the 1978 study was 325, not 269.

C. Assertions that small companies are discriminated against in agency R&D procurement:

Despite these impressive figures, capable small technological businesses are consistently overlooked and underutilized by R&D procuring agencies of the federal government. And despite frequent assurances by these same agencies over the past few years that they will voluntarily improve their performance in making R&D awards to small business, the percentage of the R&D budget going to small firms remains virtually unchanged at less than 4 percent.

This pattern is distressing yet not surprising. Small businesses are adventuresome and willing to take risks. In fact, their rewards come from the risks they take. However, their willingness to engage in risk makes them anathema to bureaucracies such as the federal government because of the possibility of failure and the penalties incurred in those bureaucracies for failure. Thus, there is an overwhelming bias in the federal government against dealing with small businesses.

Official government figures dispute this. The National Science Foundation's 1981 survey, (NSF 81-311) reports that 5.5% of the full time private sector R&D scientists and engineers in the U.S. are employed by small companies. Yet the Federal Procurement Data System indicates that in fiscal year 1980 small businesses received 24% of all federal R&D contracts over $10,000--6.8% of total federal contract expenditures. The SBA estimates that small companies already receive approximately 60% of federal R&D contracts under $10,000.

D. Assertions that small companies are hindered by a decline in availability of risk capital:

The need to provide capital to encourage risk-taking for new ideas has been identified by numerous sources. The Report of the Commerce Technical Advisory Board to the U.S. Secretary of Commerce a few years ago stated that the most important change in the environment for starting and developing new high-technology companies in the recent past has been the decline in the supply of risk capital for small companies. Furthermore, the report identified the major weakness in our national support of the innovative process as a lack of financing during the period of verification of theory through field trail, or feasibility testing.

This data is badly out of date. The report cited was published during the Ford Administration in January 1976! Since that time two reductions in the maximum tax on capital gains have generated an explosion of new risk capital for small companies. (See the Science & Technology Committee's report below.)

E. Assertions that the bill will not increase federal R&D costs:

None of the provisions of H.R. 4326 appropriates funds and thus, in your committee's opinion, the bill does not provide new budget authority. Accordingly, no comparison of budget authority, outlays or tax expenditures or 5-year projections have been made.

Yet the Congressional Budget Office disputes this on page 27 of the same report:

5. Cost estimate: Although H.R. 4326 does not authorize the appropriation of funds for the activities required in this bill, nonetheless certain costs, which are shown in the following table, will be incurred by federal agencies in order to implement the bill.

	Millions
Estimated authorization level:	
Fiscal year:	
1982	$17
1983	27
1984	39
1985	63
1986	67
Estimated outlays:	
Fiscal year:	
1982	8
1983	25
1984	38
1985	56
1986	66

Total Outlays.....$193 Million

If there is no additional appropriation to cover the cost of this bill, these manditory administrative costs must be absorbed by the agencys' existing R&D budget. In effect, H.R.4326 is a $193M tax on research.

F. Requirement that the manditory SBIR spending be in addition to any funding already received by small businesses now or in the future:

(f) Each Federal agency which has a research or research and development budget in excess of $100,000,000 for fiscal year 1982, or any fiscal year thereafter, shall expend not less than 0.5 per centum of such budget in fiscal year 1982 or in such subsequent fiscal year as the agency has such budget, not less that 1 per centum of such budget in the second fiscal year thereafter, not less than 2 per centum of such budget in the third fiscal year thereafter, and not less than 3 per centum of such budget in all subsequent fiscal years with small business concerns specifically in connection with a small business innovation research program which meets the requirements of the Small Business Innovation Development Act of 1981 and regulations issued thereunder. Funding agreements with small business concerns for research or research and development which result from competitive or single source selections other than under a small business innovation research program shall not be counted as meeting any portion of the percentage requirements of this section.

G. The responsibility of the Office of Science & Technology Policy is not to audit the agencies' SBIR programs but to assure that the funds are spent.

B. Role of OSTP

The primary responsibility of the Office of Science and Technology Policy is to ensure that the quality of federal R&D is protected. The Committee does not intend that OSTP actually audit agencies conducting SBIR programs but rather that it review the reports on the SBIR programs submitted by the agencies.

(k) The Director of the Office of Science and Technology Policy, in consultation with the Federal Coordinating Council for Science, Engineering and Research, shall, in addition to such other responsibilities imposed upon him by the Small Business Innovation Development Act of 1981—

(1) independently survey and monitor all phases of the implementation and operation of SBIR programs within agencies required to establish an SBIR program, including compliance with the expenditure of funds according to the requirements of subsection (f) of this section;

II. The Armed Services Committee's Report
Report 97-349, Part 6, March 16, 1982

A. The Committee's Recommended Amendment.

The amendments proposed by the Committee on Armed Services:
(1) would exclude the Department of Defense (DOD) from the term "federal agency" for the purposes of H.R. 4326, and
(2) would exclude the funds appropriated for atomic energy defense programs of the Department of Energy (DOE) from the research and R&D budget of that department for the purposes of the SBIR program defined in H.R. 4326.

B. The Committee's Concerns and Reasons:

IMPACT ON H.R. 4326 ON DOD

If passed, H.R. 4326 would require that three percent of the total R&D budget of the DOD be set aside each year for small business participation in the department's innovative research programs.

To understand fully the potential impact H.R. 4326 would have on the Defense Department's R&D program, the committee believes that it is imperative to draw a distinction between "research" and "development, test and evaluation." The department's R&D program is divided into the six categories shown below. The department's fiscal year 1983 R&D request of $24.2 billion is broken down by category to illustrate the distribution of funding over these categories.

Fiscal year 1983 request

R. & D. categories:	*Billions*
Research	$0.8
Exploratory development	2.5
Advanced development	4.7
Engineering development	8.9
Management and support	2.2
Operational system development	5.1
Total	24.2

Virtually all of the Defense Department's "research" is carried out within the department's Science and Technology program. The Science and Technology program is composed of the Research, Exploratory Development and a portion of the advanced development categories shown above. For fiscal year 1983, this amounts to $4.3 billion, or roughly 18 percent of the department's total R&D program.

The remaining $19.9 billion is primarily used by the department to support the "development, test and evaluation" activities associated with preparing the department's major weapons system for production. As an example, the fiscal year 1983 request includes $113.3 million for development and testing of the Army's Pershing II missile, $366.7 million for development and testing of the Navy's Trident II missile, and $2.76 billion for development and testing of the Air Force's MX missile. These activities are not innovative in nature. Rather, they represent the final engineering and testing a system must go through in preparation for production.

The impact H.R. 4326 would have on the Defense Department's R&D program can best be illustrated by example. The fiscal year 1983 R&D request will be used as the basis for this example. A three-percent set aside applied to the department's $24.2 billion R&D program would result in $726 million being set aside and earmarked only for small business innovative research efforts. The practical effect of this set-aside would be that the $726 million would have to be taken from the department's $4.3 billion science and technology program, the only portion of the budget where "innovative" activities are funded. The effect is further compounded by the fact that only 66 percent of the $4.3 billion ($2.8 billion) is available for contracting out. The remaining 34 percent ($1.5 billion) is retained in-house for the operation and maintenance of the government's own research facilities, including the 73 government in-house laboratories. Therefore, H.R. 4326 would require that, out of the $2.8 billion available for contracting out, $726 million, or 26 percent, would have to be set aside for small business participation only.

The point the committee wishes to make in assessing the impact of H.R. 4326 on the Defense Department's innovative research programs is that it would not be a three-percent impact, but an impact in the order of 26 percent. The committee finds this to be unacceptable. The diversity and balance of the Department's science and technology program has historically been one of its main strengths; diversity and balance not only in its pursuit of a multitude of technologies, but diversity and balance in carrying out the Science and

Technology program by using a combination of Defense Department research laboratories, 175–200 universities and a wide segment of industry. The small business set-aside program mandated by H.R. 4326 would destroy this diversity and balance by shifting large sums of money from the government in-house labs, the universities, and industry, in general, to small business. The committee finds no basis for supporting such a shift and, therefore, strongly objects to the provisions of H.R. 4326 as they relate to the Department of Defense.

CURRENT DEPARTMENT OF DEFENSE SMALL BUSINESS PROGRAMS

The committee believes that the current small business program in the Defense Department has been very effective in stimulating and supporting small business participation in the department's activities. As evidence of this, Mr. William A. Long, Deputy Under Secretary of Defense for Research and Engineering (Acquisition Management), in his testimony before the subcommittee presented the following data that shows a continuous increase in the amount of work the department has awarded to small business:

DOD R. & D. AWARDS TO ALL BUSINESS FIRMS

[Dollars in millions]

Fiscal year	Total awards	SB awards	Percent
1972	$5,168	$256	4.9
1973	5,656	272	4.8
1974	5,148	300	5.8
1975	5,601	316	5.6
1976+TQ	7,543	396	5.3
1977	7,120	389	5.5
1978	7,829	474	6.1
1979	7,508	502	6.7
1980	8,234	584	7.1
1981	9,164	679	7.4

The Department's Small Business Program, established in the mid-50s, is an organization of approximately 700 full- and part-time specialists. These specialists establish a yearly goal structure for the Defense Department's small business contract awards, direct the Defense Small Business Advanced Technology Program and the small business outreach program, interface with agencies and contracting activities, and generally participate in any activity where the interests of small business are concerned.

IMPACT OF H.R. 4326 ON DOE

DOE's atomic energy defense program budget submission for fiscal year 1983 is approximately $2 billion in Research, Development and Testing. Essentially all of that funding must be provided directly to the federally funded government-owned contractor-operated (GOCO) facilities that include seven fabricating facilities and three weapons laboratories. Research, development, design, and testing of nuclear weapons prototypes and the manufacture of nuclear weapons for the DOE atomic energy defense program take place at the GOCOs. Small business is not equipped to handle the highly classified equipment and radioactive materials necessary in the design, development, and testing of nuclear weapons. In addition, small business lacks the background to administer multi-million dollar operations with thousands of employees. Thus, the committee believes a mandated small business set-aside program is inappropriate for the DOE atomic energy defense program. The committee, therefore, recommends that the defense-related programs of DOE be excluded from the provisions of H.R. 4326.

DEPARTMENTAL COST ESTIMATE

The Department of Defense believes that enactment of this legislation, as reported by the SBC, would result in the following administrative costs to the department. Put another way, with the committee amendments, the savings to DOD would be:

Year:	*Millions*
1982	$4.0
1983	9.3
1984	20.7
1985	34.4

The Department of Energy did not provide cost estimates for this legislation.

III. The Select Committee on Intelligence Committee's Report Report 97-349, Part 7, March 16, 1982

A. The Committee's Recommended Amendment

The amendment (stated in terms of the page and line numbers of the bill as reported by the Committee on Small Business) is as follows:

On page 11, line 10, strike the semicolon and insert thereafter the following:

> ", except that it does not include any agency within the Intelligence Community (as the term is defined in Section 3.4(f) of Executive Order 12333 or its successor orders):"

B. The Committee's Concerns and Reasons:

The Permanent Select Committee on Intelligence requested referral of H.R. 4326 because of its concern that the bill, which requires certain federal agencies to establish set aside programs for small business participation in their research and development activities, would impose requirements on intelligence agencies inimical to the security of intelligence research and development. In the course of its consideration of the bill, the Committee has also become convinced that the bill cannot be implemented satisfactorily within the intelligence community.

The Committee's concerns are several. First and foremost, intelligence research and development activities are often highly sensitive, not only for the technology they produce, but because the indication their very existence would convey of the direction U.S. intelligence planning is taking and the intelligence opportunities being pursued.

The Small Business Administration has no expertise or jurisdiction in such matters nor the necessary security apparatus to oversee intelligence community implementation of the bill.

Although, to take the Central Intelligence Agency as an example, small business' share of intelligence research and development is good—16.5 percent for the CIA in fiscal year 1981—the Committee is concerned that a fixed set-aside program could become inflexible in the future. It is the view of the Committee that this could result in underutilization or failure to use funds in the set-aside program because many small businesses would not have the capability to respond to the intelligence agencies' requirements. This is particularly important since the bill's set-aside programs must fund small business contracts in excess of those already awarded by the agencies which must comply with the bill's provisions. Fundamentally, there is room for doubt that the structure of H.R. 4326, which is based on a model program at the National Science Foundation, is compatible with the kind of problem-specific research and development conducted by CIA and other parts of the intelligence community.

Although the Committee has had only a short period of time to consider H.R. 4326, some things are clear:

The amount of intelligence research and development funds that would be affected by the bill is large. The sums involved are classified and involve all the major intelligence agencies, including Central Intelligence Agency, Defense Intelligence Agency and National Security Agency.

Unlike the basic or general research conducted by National Security Foundation, most intelligence research and development is very result oriented, and aimed at rapid development of hardware to fulfill a specific, and often very narrow function.

Security requirements for intelligence research and development contracts are stringent and such contracts most often are not the product of any public solicitation.

The many small businesses which do participate in intelligence research and development often do so as subcontractors and because they have become known to large contractors. Frequently, their contribution is unique and essential, but of narrow application. Sometimes they are not even aware their contribution is to an intelligence program.

Definitions applied by the bill—for "research" and "research and development," and for "small business"—result, respectively, (1) in a great range of activities being included in research and development for purposes of calculations about an agency's total research and development and the size of the set-aside, and (2) in small numbers of firms qualifying for the set-asides.

The Committee believes that security concerns it has identified should be addressed. In the course of its inquiry, however, the Committee came to the conclusion that the bill's approach is simply incompatible with the structure of intelligence research and development activities.

To begin with, the set aside programs established by the bill will be unconnected to small business contracts that are presently let by intelligence agencies. H.R. 4326, as indicated by the report of the Committee on Small Business, "specifies that funding agreements with small businesses resulting from competitive or single source selections other than under an SBIR program shall not be counted as meeting any portion of the percentage requirements set forth in the bill for overall agency research and development funding awards to small business." (H. Rept. 97–349, Part I, p. 21.)

This approach may work for many agencies which, like the National Science Foundation, are interested in a broad range of research activities and which fund research for the sake of such research, as opposed to any specific end goal. It does not work, however, for the intelligence community. There are a number of highly classified programs within the National Foreign Intelligence Program whose very existence is not acknowledged, or as to which no public description can be made, least of all in terms of their specific research and development needs. The result of this is that many of the agencies who would be drawn within the requirements of the bill could not effectively participate in SBIR programs. They could not submit public bids. They could not discuss their needs in unclassified solicitations. Therefore, many small businesses would be unable to determine whether their capabilities would match intelligence community needs. They would have to be cleared in advance. Such a process involves a dissemination of very sensitive material without any guarantee that the potential subcontractors in question could effectively participate in any intelligence research and development work.

The Committee's understanding is that the purpose of an SBIR program is to generate a statement of needs narrow enough to be useful to potential subcontractors to meet security concerns. Such a statement must be broad enough not to be classified. A statement of needs must then be considered by the community of potential small businesses who might wish to bid. The intelligence agency in question will then be forced to deal with any interested applicants on a classified basis before going further. Development of such a relationship would require the clearing of appropriate employees, the ensuring that the company in question had appropriate storage and other security procedures. Then, a classified solicitation of more specificity could be provided to such applicants. All of this takes time. The problem is that the initial solicitation, being public, would necessarily be very broad. A company might be encouraged to believe that it has something to offer in an area to the intelligence community. After the time and expense of clearance and establishing necessary security standards, such an applicant may find that the detailed solicitation to which the company must actually respond is beyond its capabilities or, in any event, not at all what the applicant had contemplated.

In the meantime, such a company will have been exposed to potentially sensitive classified information. In such an example, neither the intelligence community nor the small business benefits from the SBIR process. The Committee believes that such examples could well be typical of the application of the SBIR concept even within a context designed to protect security.

Another point to be made about intelligence research and development is that little of such work can be described as discretionary, i.e., the early stages of technology development which H.R. 4326 seeks to target with SBIRs. The large majority of research and development funds in the intelligence community are, in effect, parts of large acquisition programs which utilize, in their earlier stages, significant amounts of research and development funds, but little new technology. These funds are directed at the developments of systems for which there are specific and very demanding requirements. All such funds would be included within the base for determination of the 3 percent set aside programs under the bill. Yet, none of this work is logically eligible for set aside to small businesses other than through the normal process of subcontracting through prime contractors for such systems. In light of the structure of such intelligence research and development activities, it becomes clear that the result of an inflexible set aside program under H.R. 4326 would be to hold hostage nearly the entire discretionary area of intelligence research and development to such SBIRs.

Despite the inapplicability of the SBIR concept to intelligence research and development work, it should not be thought that small businesses do not participate in such work. On the contrary, there are numerous contracts and subcontracts to small businesses involved in intelligence research and development work. In fact, a number of small businesses play dominant roles in intelligence research and development work as a result of their ability to provide high quality component parts of systems. An anomaly of this relationship between small business and intelligence is that because such small businesses are supreme in their fields, they do not qualify as small businesses under the Small Business Act nor in the percentage of intelligence contracts to small businesses that counts towards a set aside.

Because the Committee finds the Small Business Innovation Research concept incompatible with intelligence research and development work, it is the Committee's conclusion that intelligence agencies ought to be excluded completely from the requirements of H.R. 4326.

IV. The Science & Technology Committee's Report
Report 97-349, Part 4, March 16, 1982

A. The Committee's Proposed Amendment:

The committee amendment strikes all after the enacting clause and inserts new text for the bill. The amendment preserves the intent of H.R. 4326, making few substantive changes to the bill as reported by the Small Business Committee.

1. The bill preserves the threshold requirement concerning agencies required to establish an SBIR program, but clarifies that the qualification be based on an agency's appropriation for research and development.
2. The amendment reduces the set-aside provision from 3 percent to 1 percent.
3. Agencies will be required to reserve for funding the SBIR program 1 percent, phased in over 3 years, of the agency's appropriation for R&D. Amounts reserved will be authorized through the normal budget process.
4. No more than 1 percent of an agency's basic research funds will be available for the support of agency SBIR programs.
5. Agencies with R&D appropriations over $20 million will establish goals for funding agreements for R&D to small business concerns, but the requirement for escalating goals is eliminated.
6. Agencies will operate SBIR programs independently, subject to specific guidelines in the bill. Procedures for peer review will be utilized, as appropriate.
7. The Small Business Administration will disseminate information to small business concerns regarding the agency SBIR programs. No policy role is assigned to the SBA.
8. The Office of Science and Technology Policy has responsibility for lead agency oversight.
9. The GAO will survey and report to Congress on agency SBIR programs and their effect on federal R&D programs.

B. The Committee's Concerns and Reasons:

Concerning the state of small business participation in Federal research and development

The committee is concerned about apparent gaps in the data concerning the small business share of federal R&D and recommends that a policy decision concerning the necessity of a mandatory set-aside be reserved pending the analysis of more complete data. In this regard, the committee is requesting the General Accounting Office to undertake a review of the small business share of federal research and development funding. For the present time, the committee believes that small business participation in federal research and development will be facilitated to a significant degree by the establishment of small business innovation research programs. The committee amendment provides that 13 agencies will establish small business innovation research programs. Funding for agency SBIR programs will be provided through the normal budget process, although the legislation provides specific goals (1 percent of agency R&D funds) for the funding of agency SBIR programs, which is to be taken from existing agency funds.

The committee believes, however, that the state of small business participation in federal R&D does not warrant, at this time, the use of what amounts to a new entitlement program, a set-aside of agency R&D funds as envisioned in H.R. 4326, as amended by the Small Business Committee.

Concerning the barriers to small business participation in Federal R&D

The federal-wide expansion of the small business innovation research program should significantly enhance the opportunities for small business to participate in federal research and development. However, the committee is concerned about the potential risks involved in expanding the NSF program, which is funded at a level of $5 million annually, to a federal-wide program funded through a mandatory set-aside of (1 percent to 3 percent) agency R&D funds. Such a proposal contains the appropriations for the new untried program in addition to the new authorization establishing it. The committee feels any potential financial risks will be alleviated by subjecting agency funds for SBIR programs to the normal Congressional review of authorizations and appropriations. Through this process the authorizing committees of Congress can ensure the most desirable and realistic level of funding for agency SBIR programs and their consistency with the priorities determined by the Congress through the normal budget process.

Concerning the use of a set-aside for small business innovation research programs

The committee believes that the Congress should seriously consider the policy implications which are raised by the proposed set-aside mechanism. Primarily, the committee is concerned that the effect of the set-aside is to establish actual appropriations for a new program by skirting the normal budget process, potentially altering spending priorities and funding for programs and projects which are determined by Congress in authorizations and appropriations.

The committee is not convinced that a mandatory set-aside of agency R&D funds is necessary for start-up of a federal-wide program. Nor is the set-aside the optimum approach to the funding of agency small business innovation research programs, for several reasons. The first concerns the experimental nature of the National Science Foundation's Small Business Innovation Research program. The second concerns the lack of evidence that there are enough small high technology firms capable of performing the high quality research to absorb the amount of funds which would be made available under the set-aside requirement.

The committee's amendment specifically addresses these concerns, by requiring regular Congressional review of programmatic and funding requirements of a federal-wide SBIR program. The committee believes that this regular review which will be provided through the normal authorization and appropriations process is essential to ensure the success of a federal-wide program.

The committee strongly recommends against a mandatory set-aside of the federal R&D budget. Not only is the set-aside unwise public policy; it is neither a desirable nor a necessary mechanism to implement a federal-wide SBIR program.

Concerning basic research

The committee concludes that any benefits to be realized through the federal-wide expansion of the small business innovation research program would be short-lived if achieved at the expense of the nation's basic research. The committee is concerned, however, that agency basic research funds may be vulnerable to disproportionate reductions to provide funds necessary to support agency small business innovation research (SBIR) programs. To ensure that this does not occur, the committee recommends that special precautions be taken to protect agency basic research funds. The commmittee amendment provides for this protection in two ways. First, the committee recommends the placement of a limitation of 1 percent on the portion of an agency's basic research funds which can be utilized for the support of an agency's SBIR program. The committee recognizes that the protection afforded to agency basic research funds through this mechanism will be limited. Consequently, the committee amendment provides that funds reserved for agency SBIR programs be authorized under the normal budget process. Through this process, the Congress can ensure that funding of agency SBIR programs is achieved consistent with Congressional intent and without detrimental impact on the nation's basic research effort.

Concerning peer review

The committee feels that decisions concerning the utilization of the peer review process for evaluation of agency SBIR proposals be made by the agency required to have an SBIR program. There appears to be little rationale for requiring agencies to depart from the methods and procedures which have evolved in various agencies consistent with their research purposes and organizational structures. Thus, whether to use peer review is best determined by the agency in structuring its SBIR program.

B. COMMITTEE ACTIVITIES ON H.R. 4326

On December 7, 1981, the Full Committee held a briefing on the two small business innovation research (SBIR) programs currently in operation within federal agencies. The committee was briefed on the National Science Foundation's Small Business Innovation Research Program by Mr. Roland Tibbetts, Program Manager of the National Science Foundation's SBIR program. Mr. Hal Felsher, Consultant to the Department of Defense, briefed the Committee on the Department of Defense's Small Business Advanced Technology Program.

On January 26, 27, and 28, 1982, the Full Committee held three days of hearings on H.R. 4326, the Small Business Innovation Development Act. Testimony was also invited on the Senate counterpart measure, S. 881, which passed the Senate on December 8, 1981. The Committee received testimony from the following witnesses:

Honorable Edward M. Kennedy (D); U.S. Senator from Massachusetts.

Honorable Warren Rudman (R); U.S. Senator from New Hampshire.

Denis Prager, Associate Director; Office of Science and Technology Policy.

Donald Templeman, Deputy Administrator; Small Business Administration.

Donald N. Langenberg, Deputy Director; National Science Foundation.

Stuart J. Evans, Director of Procurement; National Aeronautics and Space Administration.

Hilary Rauch, Director of Procurement and Assistance Management; U.S. Department of Energy.

Henry Kirschenmann, Deputy Assistant Secretary for Grants and Procurement; U.S. Department of Health and Human Services.

Morton Myers, Director, Program Analysis Division; General Accounting Office.

Honorable John J. LaFalce (D-NY), Chairman, Subcommittee on General Oversight; Committee on Small Business.

Honorable Berkeley Bedell (D-IA); Member of Congress.

Myron Tribus, Director, Center for Advanced Engineering Study; Massachusetts Institute of Technology.

Kenneth W. Chilton, Associate Director, Center for the Study of American Business; Washington University.

Donald Kennedy, President; Stanford University (Representing the Association of American Universities).

Robert Q. Marston, President; University of Florida (Representing the National Association of State Universities and Land Grant Colleges).

Thomas K. Oliver, Jr., Professor and Chairman, Department of Pediatrics; University of Pittsburgh (Representing the Association of American Medical Colleges).

Honorable Paul N. McCloskey, Jr., (R-CA); Member of Congress.

Edwin V. W. Zschau, President; System Industries.

Ann Eskesen, Director, Small Business Resource Development Center, Bentley College; and Chair, Innovations Committee, Smaller Business Association of New England (also representing Small Business United).

Stanley Mason, President, Simco, Inc.; and Chairman, Emergency Committee to Enact the Small Business Innovation Research Act of 1981.

Arthur S. Obermayer, Vice President, American Association of Small Research Companies; President, Moleculon Research Corporation; and Member, NSF Advisory Council.

Randy Knapp, President, Chief Executive Officer and Chairman of the Board, WesperCorp (Representing the American Electronics Association).

A quorum being present, on March 9, 1982 the Full Committee on Science and Technology considered and ordered reported H.R. 4326 with amendments by unanimous voice vote.

B. STATE OF SMALL BUSINESS PARTICIPATION IN FEDERAL R&D

Data concerning the small business share of Federal R&D

A purpose of the bill is to increase the utilization of small business in federal research and development. Some have argued that a set-aside of federal R&D funds for small business is justified on the basis that small firms have been demonstrably innovative, and yet receive a small share of the federal R&D budget. During debate on the legislation, frequent references have been made to the small business share of federal R&D as 3.5 percent-4 percent (of a $40 billion federal R&D budget, fiscal year 1982).

Numerous doubts have been raised about the accuracy of the data. During the Committee's hearings, the GAO representative indicated that it is unclear whether the 3.5-4 percent figure is correct. Data made available from the Federal Procurement Data System (FPDS) indicate that in Fiscal Year 1980, small businesses received 24 percent of all federal R&D contracts over $10,000, comprising 6.8 percent of total federal R&D contract expenditures. These figures do not include grant or subcontract data, or contracts under $10,000, although the Small Business Administration estimates that small businesses receive approximately 60 percent of federal R&D contracts under $10,000.

One witness at the hearings, Dr. Edwin Zschau, suggested that the distribution of 6.8 percent of federal R&D contract funds to small firms may be commensurate with their capabilities. Zschau cited NSF data [3] which indicate that of the 643,000 R&D scientists and engineers (in full-time equivalents) in the U.S., 5.5 percent are employed in small companies.

Agencies defended their records of small business participation. Admiral Stuart Evans, Director of Procurement, NASA, described the space effort as a cooperative effort with industry, especially small business, and academia. Some 7,000 small businesses worked to make the Space Shuttle and its recent flight a reality.[4] In fiscal

year 1981, small business participation in NASA's total procurements aggregated some $409 million or 9.6 percent of all prime contracts and some $475 million in subcontracts for a total of $884 million. This constitutes approximately 20 percent of total contract/subcontract awards to business firms. Of the 100 companies in fiscal year 1981 receiving the largest dollar value prime contracts, 24 were small business firms.

The absence of uniform data concerning the small business share of federal R&D precludes, for the current time, an accurate assessment of the level of small business participation in federal R&D. At the same time, however, the commonly cited figure of 3.5–4 percent appears to understate the amount of federal R&D dollars going to the small business sector.

D. SMALL BUSINESS INNOVATION AND CAPITAL AVAILABILITY

The legislation is also intended to provide seed capital to small, high technology firms at the early, high risk stage of initial concept development. Funds provided under H.R. 4326 would compensate for what has been described as a lack of investment capital for small businesses. Ann Eskesen, Director of the Small Business Resource Development Center, Bentley College, estimated that a small firm must raise more than twice the capital from outside sources to support the same level of R&D effort as the larger corporation. The situation is currently compounded by high interest rates and tight credit. In his testimony Senator Rudman maintained that the "... decrease during the past two decades in equity capital availability to small, high risk companies for initial concept development has threatened the nation's technological preeminence." Funds provided under the SBIR program would be used, according to Congressman LaFalce, to cover early development costs for small firms, providing early risk capital which is necessary for the procurement of follow-up support from the private sector.

These assertions have been challenged. Dr. Kennedy noted in his testimony that in determining the availability of venture capital, current data must be utilized in light of recent tax law changes which have had significant impact on the situation. Dr. Zschau, who four years ago presented data to the Congress to document the shortage of risk capital for small firms and to urge a reduction in the capital gains tax on the grounds that it would rekindle incentive to invest in young companies and new technologies, outlined recent changes in tax law and their "extraordinary" impact on funds available for small business. The Steiger amendment to the 1978 Tax Act which lowered the maximum capital gains tax rate from 49 percent to 28 percent has resulted in the current availability of about $5.8 billion for investment by private venture capital firms, SBICs and corporate investment subsidaries. The Economic Recovery Tax Act of 1981 also contains additional incentives to small, innovative firms, including a further reduction in the maximum capital gains tax rate to 20 percent.

Dr. Zschau presented data[6] to the Committee to display the changes in the financial conditions facing small young firms during the last decade. Table I illustrates the financial situation before and after the tax changes.

Numerous Members have been concerned about the willingness of the venture capital industry to invest seed capital at the early high-risk stage of start-up ventures. Dr. Zschau estimated that investments in start-ups have doubled since 1978. In 1978, 20 percent of investments of venture capital were start-ups, whereas in 1981, 40 percent, or 400 venture investments, were in brand new companies.

While not all small companies will be financed by the $5.8 billion in risk capital, many will be. However, these decisions will be made in the private sector, not by the Federal Government. Small businesses may prefer federal dollars because, as conceived under H.R. 4326, the award of funds would not require the payment of interest or the granting of equity in the company. Zschau warned, however, of the possibility of an overabundance of federal funds crowding out private capital. "That is, the private capital sources would not be able to make the investments because the investments would be made or the funding would come from federal sources. Private capital . . . wouldn't be able to make the investment because of the competition."

Zschau concluded:

> When you make these fundings of young companies and point to their successes, we relate that to the efficacy of the federal funding program. The fundamental question is whether or not it was necessary to spend taxpayers' money to make (a company's) success or whether it could have come from the private sector.

TABLE I.—ESTIMATED VENTURE CAPITAL FUNDING AND YOUNG COMPANY INVESTMENTS

[Millions of dollars]

	New private capital committed to venture capital firms	Investments made by venture capital firms in young companies	Funds raised by small companies [1] from public market
1969	171	450	1,367
1970	97	350	375
1971	95	410	551
1972	62	425	896
1973	56	450	160
1974	57	350	16
1975	10	250	16
1976	50	300	145
1977	39	400	43
1978	570	550	89
1979	[2] 319	1,000	183
1980	900	1,000	820
1981	1,250	1,200	1,760

[1] "Small Companies" defined to be those with a net worth of $5 million or less.
[2] The slowdown in funding in 1979 was caused by the Labor Department's Planned Asset Rule which discouraged pension funds from making venture capital investments. This was changed in 1980.

Committee recommendation

The committee intends that funds provided through agency SBIR programs supplement, but not supplant, private capital. The committee recognizes that recent changes in tax law have had a substantial impact on the availability of venture capital. In particular, the committee is interested in monitoring these effects and their influence on the availability of risk capital for early stage, high risk ventures. Consequently, the committee believes that a careful approach to federal-wide expansion and funding of agency SBIR programs is desirable. The committee amendment provides for this through regular authorization of agency SBIR programs, which will enable the Congress to respond effectively to future capital fluctuations and trends, and their effect on a federal-wide SBIR program.

2. Impact on basic research

Another issue explored at the hearings involved the potential impact of the set-aside on the basic research efforts of the Federal Government. Dr. Tribus pointed out that H.R. 4326, as reported by the House Small Business Committee, treats research and development the same, although they are characterized by different activities. The purpose of this legislation is not to promote new and better research, but rather to develop and apply new products and processes and to create new jobs. Similarly, Dr. Kennedy articulated the differences between basic research—70 percent of which is performed at universities—and the applied and developmental aspects of commercialization which small businesses generally undertake. He testified that there is ". . . almost no overlap between research of the kind generally supported by federal funds and innovation as it characteristically takes place in the most creative and productive small business environments." It is thus doubtful that the small business sector could perform, in lieu of the universities, this basic research, for, according to Dr. Kennedy, ". . . the vast majority of the work now supported by the funds of the various research agencies of government is not duplicated in the small business sector."

Concern over the impact of a set-aside on basic research funds appears to be justified. About 70 percent of the funds for basic research are provided by the Federal Government, which has assumed responsibility for supporting basic science as a means of producing the knowledge base for future technological and economic growth and assuring that fundamental research is conducted in areas related to its own as well as to national needs. Through federal support, the nation can continue to maintain strong capabilities in critical areas such as national defense and health. Strong federal involvement also occurs because the economic gains from pure science are frequently long term and do not necessarily benefit the sponsor of the research for many years, if ever. Consequently, because the industrial sector primarily stresses relatively short-term returns on its investments, it tends to place less emphasis on basic research and allocates most of its resources in more applied areas and in development. Universities cannot place large amounts of their own funds in basic research because of limited financial resources.[9]

V. The Energy & Commerce Committee's Report
Report 97-349, Part 2, March 10, 1982

A. The Committee's Proposed Amendment:

The amendment (stated in terms of the page and line numbers of the bill as reported by the Committee on Small Business) is as follows:

Page 13, insert before the period at the end of line 5 a semicolon and the following:

> but such term does not include (A) research or research and development conducted with funds appropriated to carry out the Public Health Service Act, the Comprehensive Alcoholism and Alcohol Abuse Prevention, Treatment, and Rehabilitation Act of 1970, the Drug Abuse Prevention, Treatment and Rehabilitation Act, or titles V, XI, XVIII, and XIX of the Social Security Act, or (B) any other health-related research or research and development conducted by or through the Department of Health and Human Services or any of its entities.

B. The Committee's Concerns and Reasons:

PURPOSE AND SUMMARY

See House Report 97-349, Part I, page 4.

The purpose of the Committee amendment is to maintain the long-standing policy of the National Institutes of Health (NIH) of awarding Federal biomedical research grants strictly on the merit of the proposed research. Recent revisions to NIH policies now make it possible for scientists from for-profit firms to apply for research grants. The Committee believes that since these new policies will increase the participation of scientists from small businesses in the NIH program, it is not necessary or advisable to establish a quota of up to $110 million for researchers associated with small businesses at this time.

The Committee amendment continues the practice of awarding NIH funds based on scientific excellence by exempting NIH from the requirements of H.R. 4326. The Committee plans to continue its review of policies regarding participation of small business in NIH research activities as a part of its consideration of the reauthorization of NIH programs in 1982.

The Committee notes that its jurisdiction on H.R. 4326 is limited to those provisions which fall within the Committee's jurisdiction as specified by the rules of the House. For this reason, the Committee must act favorably on the bill as a whole to enable the Committee's amendment to be presented to the House as a Committee amendment. Although the Committee formally recommends that the bill as amended "do pass," the Committee has not, in fact, taken a position on the merits of the bill as a whole.

GENERAL POLICIES

The NIH has a long standing policy of awarding funds to researchers on the basis of the merit of the proposed research. An elaborate, exhaustive two part review process involving scientific peer review committees and broadly representative advisory councils servers to insure that the principle of scientific merit is carefully maintained. This policy has served the nation well by assuring the public that its money has always been invested in the highest quality science possible.

The Committee believes that 1982 is not the time to abandon this policy of excellence in science. The Administration's proposed fiscal year 1983 budget would reduce Federal support for biomedical research, in real dollars, by 15 percent from the fiscal year 1980 level. First year research awards are projected to fall from 5,100 to fewer than 4,100. The $120 million proposed by H.R. 4326 to be set-aside for the SBIR program is almost 25 percent of the total funds committed to new research project grants in any year. If these funds are diverted from the traditional grants process, hundreds of promising, highly rated biomedical research projects will not be conducted.

VI. The Foreign Affairs Committee's Report
Report 97-349, Part 5, March 16, 1982

COMMITTEE COMMENT

The committee noted that while the objectives of H.R. 4326, as amended by the Committee on Small Business, are worthy, the committee has serious concern over the impact the bill may have on the foreign assistance programs of IDCA and, in particular, those of AID. These concerns, as noted by the committee are:

(1) A mandatory set-aside of R. & D. funds would bypass the normal authorization process and could potentially alter spending for programs and projects approved by Congress through the normal authorization process.

AID officials estimate that that Agency spent an estimated $136 million on R. & D. in fiscal year 1981. Most of the funds were not set aside specifically for R. & D. Approximately $70 million was programed by the Agency's Science and Technology (S. & T.) Bureau. AID provided funds to various agricultural research centers, health research centers, universities, and private consulting firms. However, the funding reflected the indicated needs with respect to programs and projects concerned without the additional requirement of meeting rigid percentage formula (and attendant bureaucratic controls in a funding process already criticized as too inflexible and time consuming) which would be imposed by H.R. 4326.

(2) Approximately $46 million of funds programed for research by AID's Science and Technology Bureau is solely for general institutional support of international research centers. These funds by their nature are not amenable to a small business set-aside.

(3) In some cases, AID funds are spent on R. & D. through host country contracts pursuant to a grant to the recipient country. These contracts are controlled by the recipient government and therefore are not amenable to U.S. Government set-aside requirements.

The committee also noted that AID has an Office of Small and Disadvantaged Business Utilization which is responsible for working with all Agency bureaus and offices to fulfill the Agency's obligations regarding small business, including counseling and set-asides. AID Procurement Regulations sets forth the small business screening procedure for AID. All proposed contract actions are screened to determine whether the contract should be set aside for small businesses. The requirements of the contract are compared manually to an index of small businesses. The screening process is normally completed within 5 working days. At the end of each year, data on the number of small businesses utilized by AID is retrieved through an automated system and reviewed. The Small Business Administration monitors the entire process.

During fiscal year 1981, AID officials estimate that the Agency spent in excess of $153 million in procurement and contracting with small businesses. In fiscal year 1981, approximately 23.9 percent of all contract awards of $10,000 or more went to small business concerns.

In response to the above concerns, Hon. Clement J. Zablocki, chairman of the committee considered offering an amendment to exclude IDCA and its component agencies from the bill. However, because several members of the committee felt the impact of excluding IDCA needed further study, such amendment was not offered. This action does not preclude the possibility that such amendment may be offered when the bill comes before the House for consideration.

VII. The Veterans' Affairs Committee's Report
Report 97-349, Part 3, March 16, 1982

A. The Committee's Proposed Amendment

The amendments (stated in terms of the page and line numbers of the bill as reported by the Committee on Small Business) are as follows:

Page 13, line 6, insert "(1)" after "(f)".

Page 13, after line 24, add the following new paragraph:

> (2) In determining the amount of a Federal agency's research or research and development budget for any fiscal year for the purposes of paragraph (1), expenditures by the agency for research or research and development activities conducted by employees of the agency in or through Goverment-owned, Government-operated facilities shall be excluded.

B. The Committee's Concerns and Reasons:

EXPLANATION OF PROPOSED AMENDMENT

H.R. 4326 as reported by the Committee on Small Business would require agencies having a research and development (R&D) budget in excess of $100 million a year to establish a Small Business Innovation Research Program (SBIR).

The proposed amendment would exclude all in-house research from an agency's R&D budget prior to determining eligibility for a SBIR program. As a result, the Veterans' Administration (VA) would not be required to establish such a program, since virtually all of its R&D work is conducted in-house, and not provided by outside contractors.