Statement of

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Madam Chairman, Ranking Member, and distinguished members of the committee, thank you for inviting me here today to discuss the Small Business Innovation Research (SBIR) program. I am Edsel M. Brown Jr., the Assistant Director, Office of Technology, at the U.S. Small Business Administration (SBA). My office has responsibility for innovation policy and programs at SBA and for the oversight of the SBIR program.

The SBIR program, established in 1982, was designed to strengthen the role of innovative small business concerns in federally-funded research/research and development, and to utilize federal research and development (R&D) as a base for technological innovation to meet agency needs and to contribute to the growth and strength of the Nation's economy. This competitive award program attempts to promote innovation and commercialization from small companies by restricting a portion of 11 Federal agencies' external R&D spending to small businesses. A National Academies of Science (NAS) review of SBIR concluded that the program is "sound in concept and effective in practice", meets its major Congressional objectives, and is a driver of innovation and commercialization for small businesses. Since its inception, the program has awarded more than $24 billion to small firms.

Program Structure

Federal agencies with an extramural research or R&D budget in excess of $100 million are required to set aside 2.5% of that budget for the SBIR Program. The 11 participating agencies are: the Departments of Agriculture, Commerce, Defense, Education, Health and Human Services (including the National Institute of Health), Transportation, Energy, Homeland Security, Environmental Protection Agency, the National Aeronautics and Space Administration, and the National Science Foundation.

The Program is structured in three phases: Phase I awards provide up to $100,000 to evaluate the feasibility and the scientific and technical merit of an idea. Phase II awards are funded up to $750,000 for 2 years for the further development of the ideas proposed in Phase I.

In Phase III, the awardee firm secures additional private sector or government funding, either as sales or investment.

SBA's Role

SBA helps ensure that the program fulfills its mission of stimulating innovation from small businesses that meet a private sector or government need. SBA coordinates the policy development for the program among the participating agencies, provides oversight of the policy implementation, and reports on various aspects of the program.

SBA's policy role is enshrined in its Policy Directive, which was last updated in 2006. The Directive contains rules and guidelines that agencies follow as they manage their SBIR programs. The Directive contains detailed descriptions of procedures to be followed and guidance on all aspects of the Program and is available on SBA's website. We revise the Policy Directive as needed to clarify Program issues or incorporate new elements into the Program.

SBA's oversight activities include monitoring the calculation of agency extramural budgets, overseeing agencies' solicitation schedules and award timelines, and ensuring that policies, rules, or interpretations promulgated by an agency are consistent with the SBIR Policy Directive. SBA also hosts quarterly meetings with SBIR Program Managers. These quarterly meetings provide the opportunity to keep Program Managers informed of interpretations of the Policy Directive, issues impacting individual agencies and the program, and provides a forum to communicate directly with the Program Managers about any concerns or difficulties they may be having.

In reporting program information, SBA maintains the TechNet database and reports annually to Congress on each agency's SBIR Program award activity and other achievements.

Agencies' Role

Each of the 11 participating agencies is responsible for the administration and management of its SBIR program. Agencies provide all of the project funding (collectively, about $2 billion per year), post SBIR solicitations, receive and evaluate proposals, select awardees, monitor projects, conduct reviews, require a commercialization plan with each proposal submitted for Phase II award, collect and maintain awardee information, administer SBIR funding agreements, ensure intellectual property developed with SBIR awards are properly protected, and submit annual reports to the SBA containing complete records of their awards. Each agency has its own technology needs, consistent with its mission, as well as its own set of regulations and protocols. As a result, the SBIR Program as a whole encompasses 11 very different types of SBIR programs. One important distinction is between agencies such as DOD and NASA, with clear technology needs, and agencies such as NSF or NIH, that do not procure technology themselves but rather have broader public interest missions.. The SBIR program allows flexibility to adapt to each agency's mission, while conforming to the rules and framework we established in the Policy Directive. For example, several of the agencies with larger budgets have developed agency-specific programs to support the commercialization phase of their projects. DOD has implemented Phase II enhancements and the Commercialization Pilot Program, and the NSF

administers its Phase IIb program. We also permit and encourage agencies to develop outreach programs that are consistent with their agencies

The number of awards given annually has grown over time in proportion to the extramural R&D budgets of the participating agencies. More than 100,000 awards have been made over the life of the program, totaling about $24 billion. Awards have been made to firms in all 50 states, Puerto Rico and the District of Columbia. Today, agencies evaluate over 25,000 proposals each year and make about 6,000 awards to about 3,000 small high-tech companies each year.

Assessing the impact of the program

The Small Business Administration and SBIR's partner departments and agencies recognize the importance of assessing the SBIR program's outcomes and achievements. The recent NAS study provided a first step for assessing the program. In part, NAS found that SBIR "is increasing innovation, encouraging participation by small companies in federal R&D, providing support for small firms owned by minorities and women, and resolving research questions for mission agencies in a cost-effective manner". The study's findings highlight the SBIR program's contributions to:

- ***Job and Revenue Growth:*** SBIR awardees generate 26 more jobs and $4 million in additional revenue after SBIR funding (vs. 6 additional jobs and $1 million in additional revenue for comparable, non-SBIR firms).
- ***Commercialization:*** Nearly 50% of SBIR Phase II awardees bring their innovations to the market place
- ***Small Business Reach:*** From 1992 to 2005, nearly 15,000 small businesses received SBIR awards .

While NAS study provides an interesting initial view of program performance, SBA believes that further quantitative measures of the program's success and impact are essential. SBA is currently updating its TechNet data system, which will provide a comprehensive and real-time searchable database on all SBIR awards, as well as implementing an online system to increase the reliability of data.

SBA is also developing program-wide performance information to measure commercialization and innovation success rates for all SBIR awards. SBA will include this information in its annual reports to Congress, as it is developed. The NAS Study found that just under half (47%) of respondents to its Phase II survey had generated sales. By assessing performance more regularly, we hope to gain a better understanding of the program's ability to meet its mission and ensure that R&D funding is optimized.

Along with quantitative measures, case studies can often inform decision makers about program performance. Each of the agencies participating in the SBIR Program has experienced success, and I encourage each of you to go to the agency SBIR websites to view these successes. For illustrative purposes, I am going to describe one of these successes with you this afternoon.

The success story is ArmorWorks, LLC. ArmorWorks has developed a high performance, low cost composite armor for the U. S. Marine Corps' (USMC) new Expeditionary Fighting Vehicle (EFV).

ArmorWorks developed the composite armor system in response to a Navy requirement for a lightweight armor component that can be affordably produced and assembled. The system is made from low cost composite ballistic materials, providing the EFV with maximum ballistic protection while adding as little weight as possible. The ballistic protection suite, using state of the art composite materials was evaluated, tested and presented to the Navy and USMC.

In early 2004, ArmorWorks won a contract from the Army for procurement of armor kits for the High Mobility Multipurpose Wheeled Vehicles (HMMWV). In 2005, the company received a contract from the USMC to replace the existing steel armor on its fleet of CH46 helicopters, and an additional contract in 2006, from the USMC for Enhanced Small Arms Protective Inserts (ESAP). The technology is presently being used to provide extra armor for protective vests worn by marines and soldiers serving in Iraq and Afghanistan.

Again, this story is just one of many. The story clearly illustrates the SBIR Program at its best – assisting small companies leverage their resources and providing the country with cutting edge innovation and technology.

The commercial success of SBIR projects is often determined not just by actions taken in Washington, but by the resources and infrastructure available to the small business in its home state. Because of this, SBA works with organizations at the state level to encourage the development of innovation infrastructures to help SBIR firms after Phase II. Many states have programs to provide small firms, including SBIR awardees, a range of business assistance services including business mentoring, matching the firms with venture capital companies or angel investors, providing basic business training, and integrating the projects with resources and expertise at universities and other research institutions.

A measure of success of the SBIR program is that it is being replicated elsewhere. Countries from across Europe, Asia, and Latin America are establishing innovation programs based on the successful SBIR model.

Thank you for the opportunity to appear before you today. I will be happy to answer any questions you may have.