The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Assessing SBIR and STTR

Washington DC
December 21, 2016

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Indiana University at Bloomington
NASEM Committee on Capitalizing on Science, Technology, and Innovation

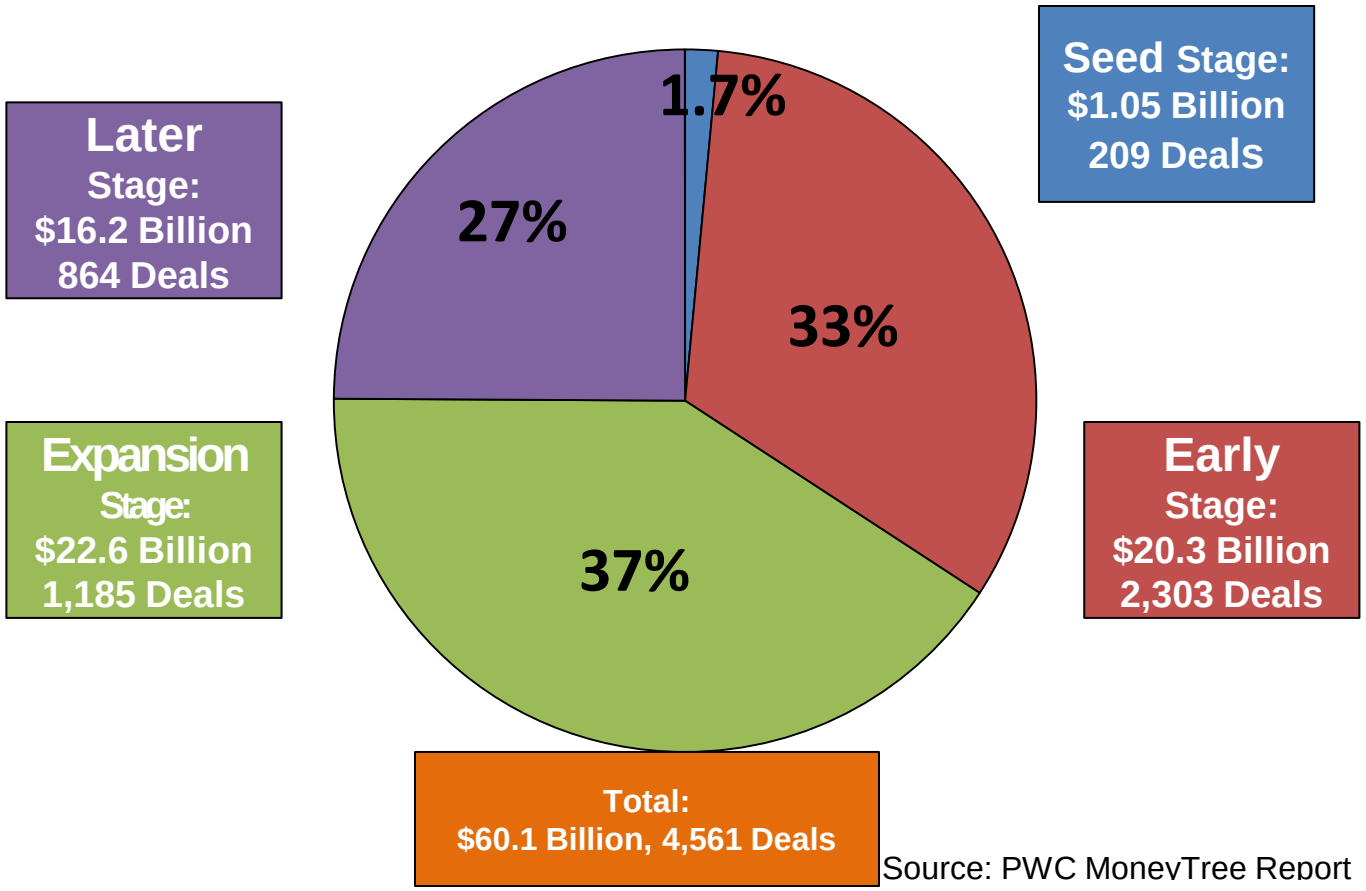
Innovation is Key to Future Technological Leadership and Growth in the United States

We need to innovate to create new products and new jobs and to ensure our technological leadership

Small Companies Drive High-Technology Innovation

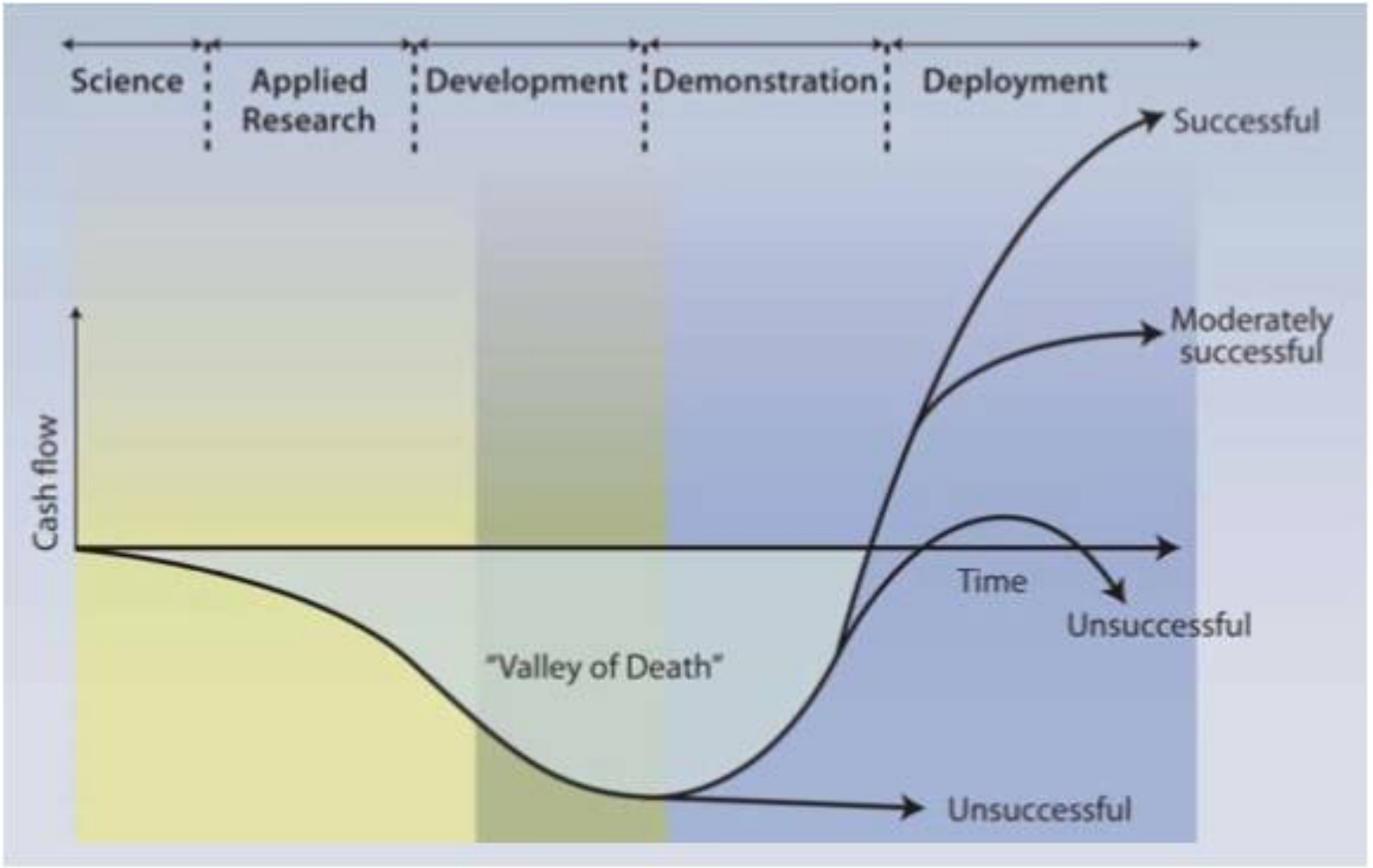
- Small Companies are Key Players in Bringing New Technologies to Market (Audretsch & Acs)
  - Large returns to national economic and strategic capabilities can result from relatively small national investments
  - Innovations—with the right policy support—can become new products and services for the market and provide support for government missions
- But small companies don't have the capital needed to transform ideas into innovations

U.S. Venture Capital Investments by Stage (2015)



Source: PWC MoneyTree Report

The Valley of Death: A Major Challenge for Innovators



SBIR: A Path Across the Valley of Death

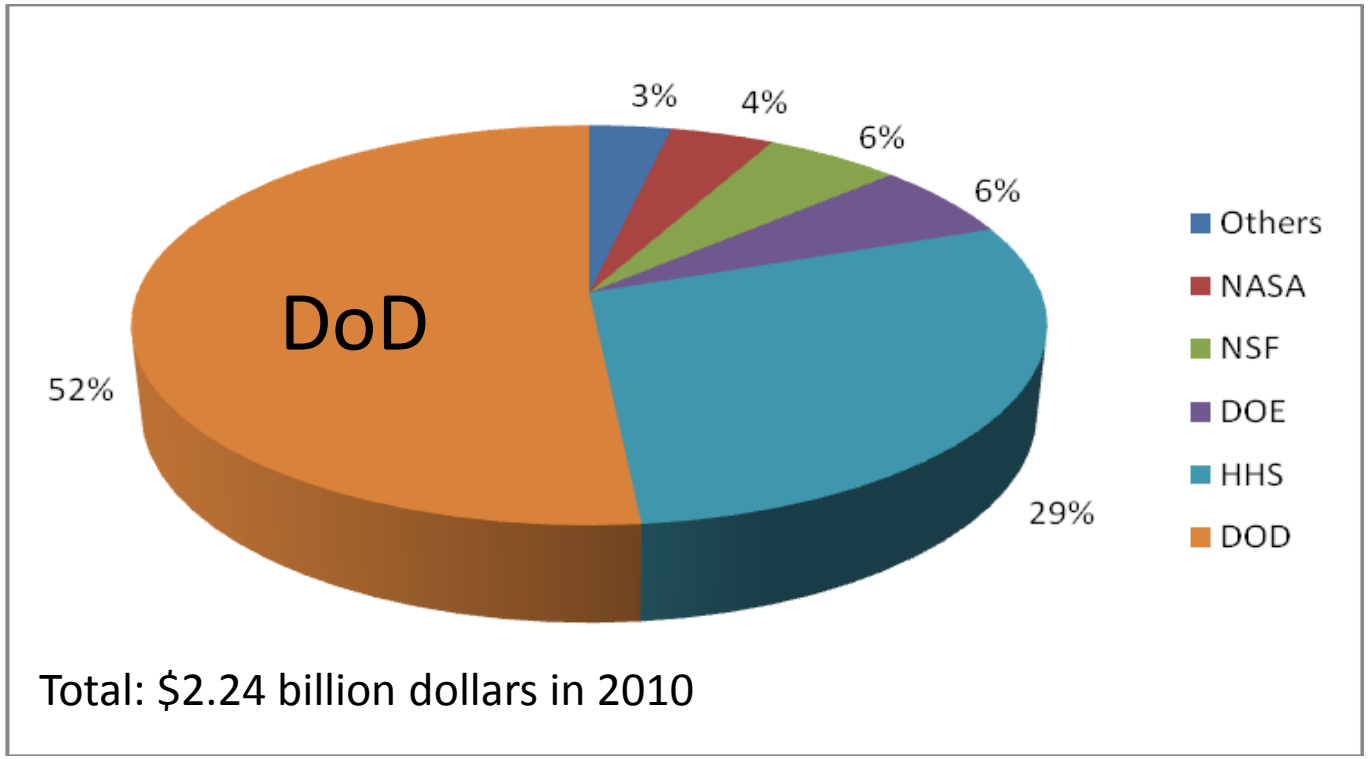
"SBIR provides funding for some of the best early-stage innovation ideas -- ideas that, however promising, are still too high risk for private investors, including venture capital firms."

Roland Tibbetts

SBIR Legislative Objectives

- Four Congressional Objectives of the Program:
  - Stimulate technological innovation
  - Use small businesses to meet federal R&D needs
  - Foster participation by women-owned and minority-owned small businesses
  - Increase private sector commercialization of innovation derived from federal R&D

SBIR remains the single largest innovation program for small businesses.



SBIR/STTR funding, FY2010.
SOURCE: http://www.sbir.gov,

2000: After nearly 20 years of operation, The Congress asked the National Academies:

How well is SBIR Working Overall?

The National Academies Round One Assessment of SBIR

- Improved the public's understanding of the challenges of Early Stage Finance
- Documented the diversity and flexibility of the SBIR programs
- Assessed effectiveness of agency SBIR programs
- Highlighted benefits of SBIR to agency missions and to the US innovation system
- Key Finding: "SBIR is sound in concept and effective in practice"

Study Widened Public Understanding of the Role of SBIR

- Focus on Valley of Death: Funds Proof of Concept and Prototype: "The first money is the hardest"
- Decentralized & Flexible Management: Each Government Department or Agency uses its funds to support research by small companies to meet its unique mission needs
- Competitive: 15 to 20% success rate for Phase I, 40 to 50 % for Phase II.
- No Program Capture: One-third of participants are new to the program every year

Study Raised SBIR's Global Profile

- Now Recognized as Best Practice Around the World
  - Finland has adopted a 3-Phase SBIR program
  - Sweden has created a small but successful SBIR type program
  - Russia has a successful SBIR type program
  - UK SIRI program is similar in concept; now being upgraded
  - The Netherlands government recently adopted SBIR, following a pilot program
  - Japan, Korea, & Taiwan have adopted the SBIR concept
  - India has launched an SBIR Initiative for the biotechnology sector
  - Singapore is implementing a program
  - Slovakia and the Czech Republic are planning to adopt an SBIR type program
  - The European Union has adopted an SBIR program as a part of its Horizon 2020 Strategy
  - Australia is exploring adoption of SBIR. Queensland already has an SBIR type program.
  - Romania is now considering SBIR

The Study had a Major Impact on the 2011 SBIR Reauthorization

- Extension of the program: until 2017
- Increase in award size: $150,000 for Phase I and $1 million for Phase II.
- Increase in set-aside: From 2.5% to 3.2%
- Enhanced Agency Flexibility: Can use Phase I from another agency for Phase II award
- Expanded Management Resources: Up to 3% of program funds
- Commercialization: Incentives to use SBIR technologies in agency acquisition programs
- Evaluation: Congress requested further NAS assessments

Focus of the Second Round Assessment:

- How can the SBIR program work better to address the four Congressional Objectives of the Program:
  - Stimulate technological innovation
  - Use small businesses to meet federal R&D needs
  - Foster participation by women-owned and minority-owned small businesses
  - Increase private sector commercialization of innovation derived from federal R&D
- Assessment of the STTR Program

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  - David Dierksheide—Program Officer
- Consultants
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  - Rosalie Ruegg
  - Survey: Grunwald Associates

Workshops Highlight Key Issues

- Participation of women and minorities (February 2013)
- The evolving role of university participation (February 2014),
- The relationship between state innovation programs and the SBIR program (October 2014),
- Perspectives on the STTR program (May 2015),
- The economics of entrepreneurship in relation to the SBIR program (June 2015).
- SBIR-STTR and the Challenge of Commercialization (April 2016).

Overall Findings

- SBIR is achieving 3 of its 4 legislative goals at DOD, NIH, NSF, NASA, and DOE
  - Stimulating technological innovation
  - Using small businesses to meet federal R&D needs
  - Increasing private sector commercialization of innovation derived from federal R&D
- For DoD, NIH, NSF, NASA and DOE: SBIR is not meeting its legislative objectives in fostering the participation of women and minority owned firms.

Today's Event

- Discuss the findings and recommendations of the committee report on the SBIR and STTR programs at the Department of Energy
- Mark the conclusion of the second round to assessments by this committee.
- Look ahead to the future of SBIR and STTR and the role of assessments.

Thank You

Dr. David Audretsch
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NASEM Committee on Capitalizing on Science, Technology, and Innovation

It is now my pleasure to introduce Mr. Mark Walsh

Associate Administrator

Office of Investment and Innovation

The Small Business Administration