Federal Capital for Commercialization

Dr. Brian D. Curry, MBA

Agenda

- Federal dollars for commercialization
  - Procurement
  - Loans
  - Federal Accelerators
  - Federal Grants
- Hot funding areas
- Closing thoughts

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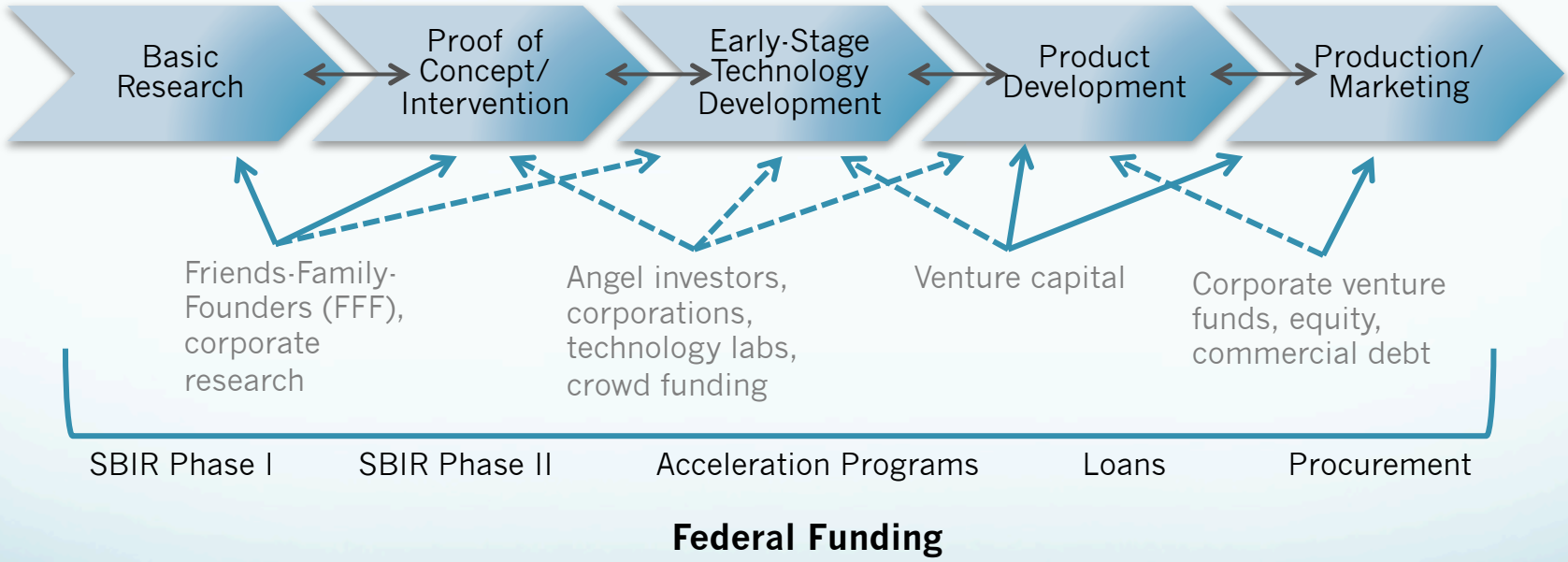
Federal Capital for Commercialization

Sequential Model of Development and Funding



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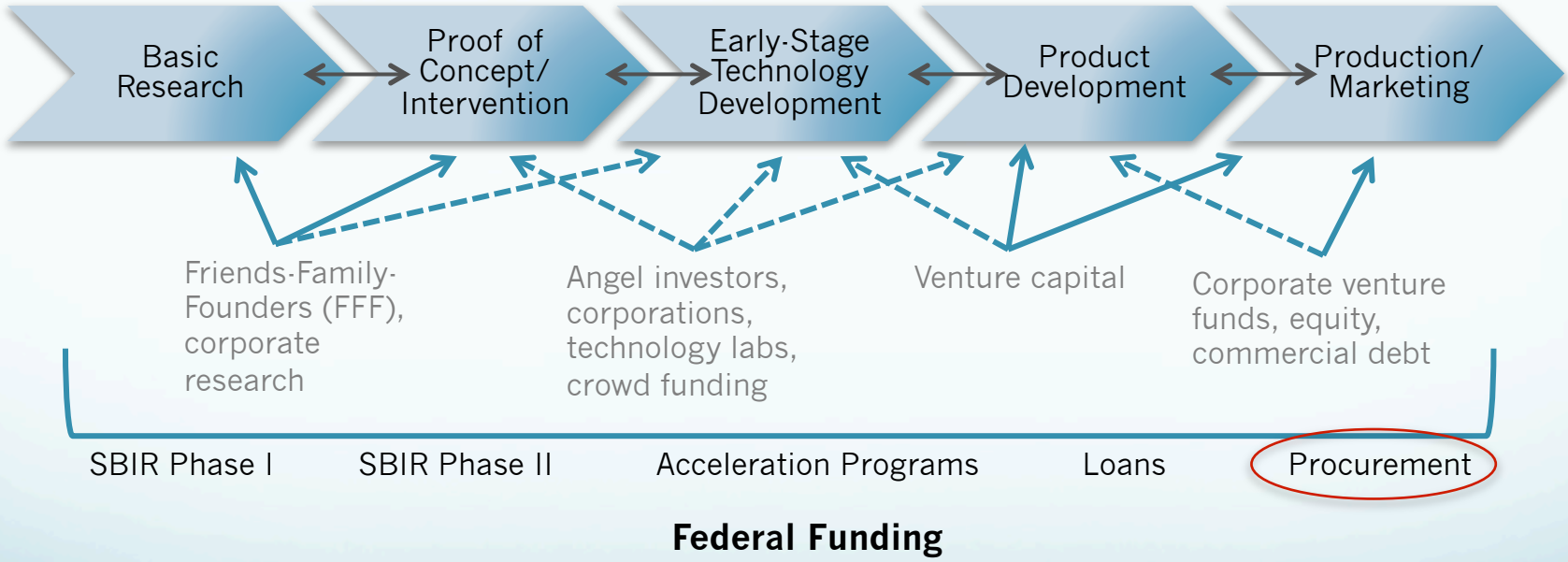

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Procurement

- The U.S. government is the world's largest purchaser of goods and services
- Government as end user / customer
- Dual – private sector & government
- WISPRO

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Subcontract to Large Company

- Boeing Ares I rocket (FY 2008)
- Evaluated 15 companies
- Subcontracts to 3 small businesses
- Evaluation
  - Technical ability
  - Management capability
  - Costs

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BOEING 787 Dreamliner

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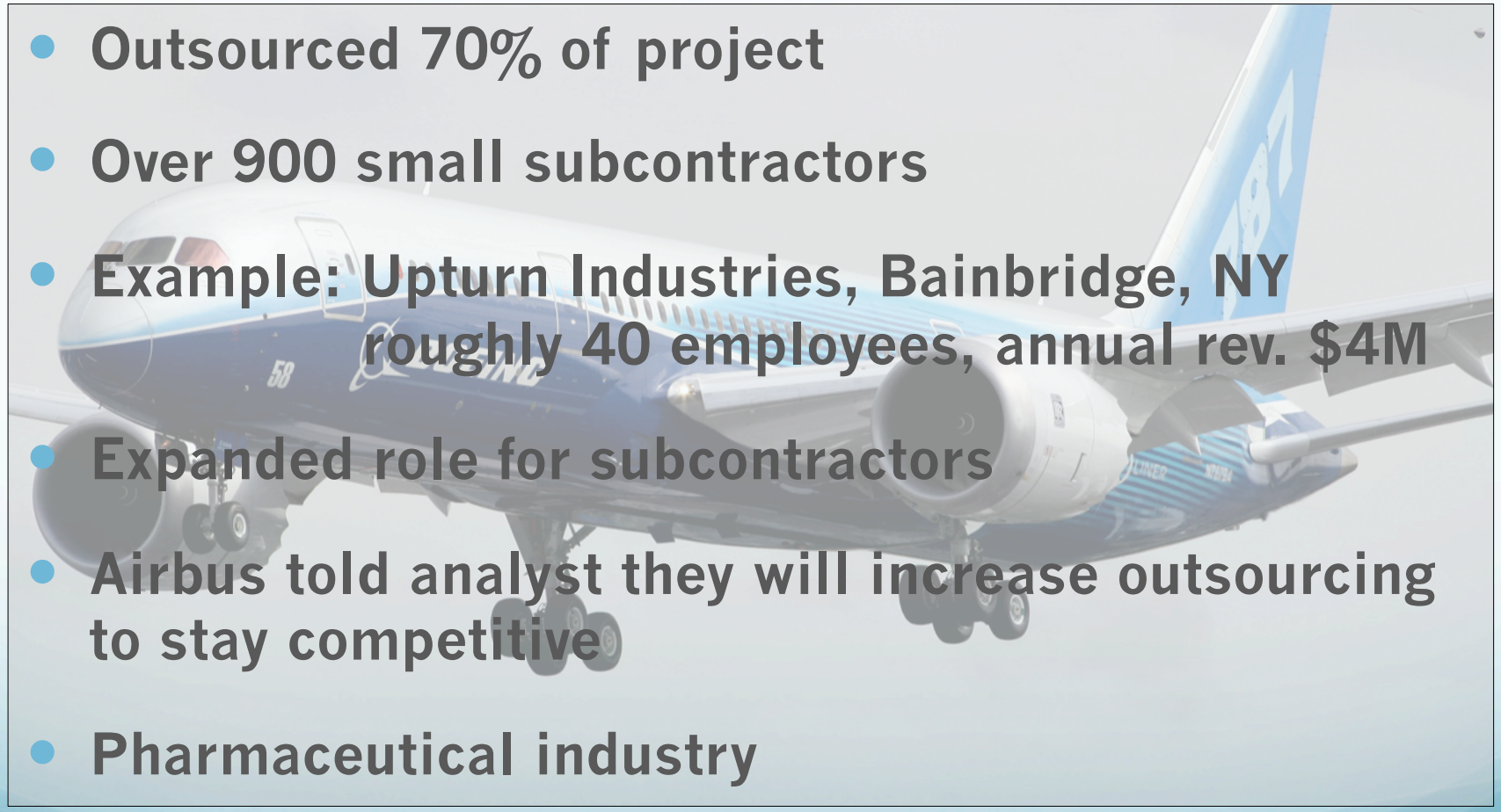
BOEING 787 Dreamliner



- Outsourced 70% of project
- Over 900 small subcontractors
- Example: Upturn Industries, Bainbridge, NY
  roughly 40 employees, annual rev. $4M
- Expanded role for subcontractors
- Airbus told analyst they will increase outsourcing to stay competitive
- Pharmaceutical industry

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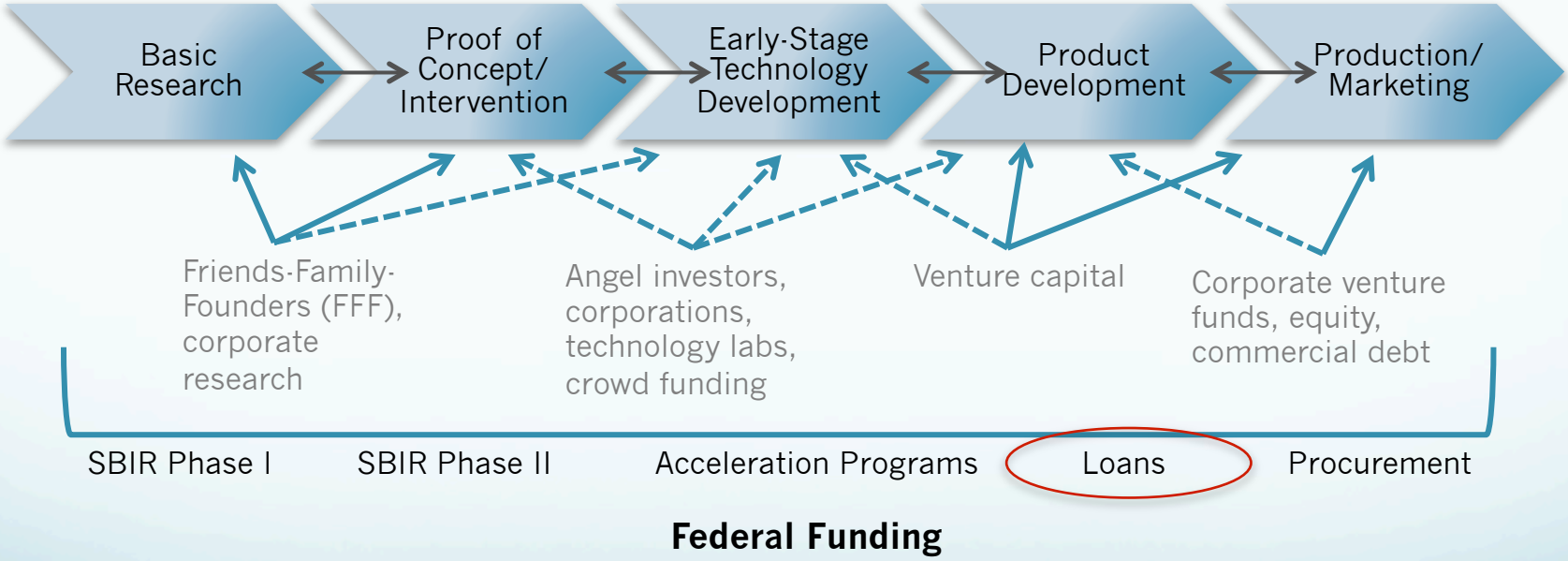

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SBA 7(a) Loan Program

- SBA guarantees loan, do not loan capital
  - 85% for <$150,000
  - 75% for >$150,000
  - Maximum loan of $5 million
- Loans can used for
  - Replenishing seasonal inventory
  - Building expansion or renovation
  - Purchasing equipment
  - Working capital
- Loan program eligibility

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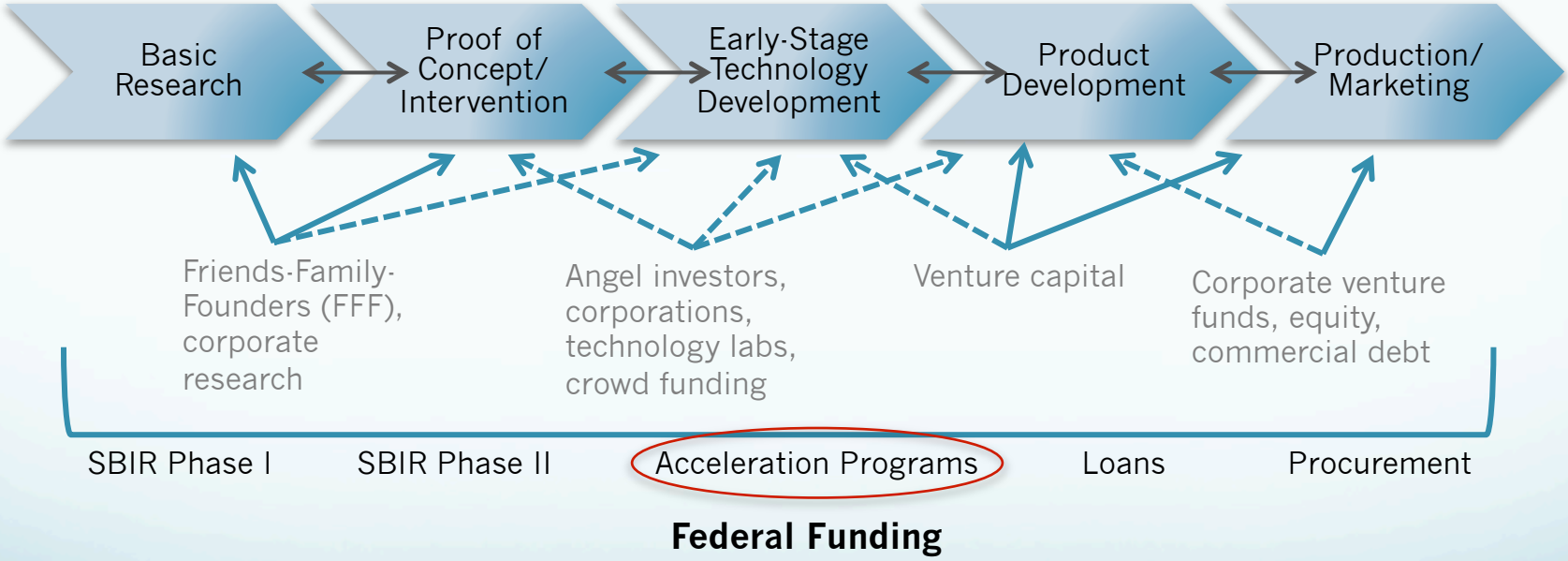

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The SBIC Program

The Small Business Investment Company Program is a multi-billion dollar, government-sponsored investment fund created in 1958 to bridge the gap between entrepreneurs' need for capital and traditional sources of financing:

- SBA invests long-term capital in privately-owned and managed investment firms licensed as Small Business Investment Companies (SBICs)
- For every $1 an SBIC raises from a private investor, the SBA will typically provide $2 of debt capital, subject to a cap of $150 million
- Once capitalized, SBICs make debt and equity investments in some of America's most promising small businesses, helping them grow

SBIC Success Stories

Costco	Amgen	Staples
Apple	Quiznos	Sun
Callaway	Adaptec	AOL
HP	Cutter & Buck	Intel
FedEx	Jenny Craig	Build-a-Bear
Outback Steakhouse	Nutri-systems	Adam's Respiratory (Mucinex)

Innovation Programs

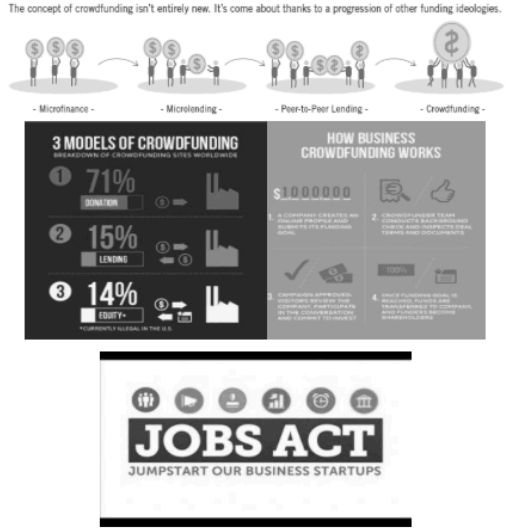
Oll's Innovation Initiatives support high-growth entrepreneurs and ecosystems

- **Accelerators** | $2.5 million pilot program to work with platforms that provide mentorship, access to capital, and co-working space to new businesses in exchange for equity - key activities include:
  - Demo Day | Hosting demo day for accelerators, provide funding and enhance the channel
  - Startup U | Fostering startup ecosystems for universities
  - Network/ Educate Accelerators | "train the trainers" and increase quality of startups via best practice sharing
- **Crowdfunding** | Leadership role on crafting proposed regulations and their impact to stake holders along with educating the small business community on the new platforms
- **Small Business Tax Reform** | Working on proposed regulation, their impact on high-growth businesses along with educating the small business community on its implementation

Linking Innovation Industry and Commercialization (LINC)

Butler Venture Accelerator Program

RampCorp



Infographic Source: crowdfunder.com; prafulla.net/infographics/crowdsourcing-and-crowd-funding-infographic

SBA

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Other Government Crowdfunding

- Health and Human Services (HHS) challenge
- Antibiotic-resistant bacteria
- Roughly 2 million infections per year
- 23,000 deaths annually
- HHS $20M prize to first group to develop
  - Rapid, point of care test
  - Identify highly resistant bacterial infections
  - “Real-time” detection vs. 48-72 hours, or longer

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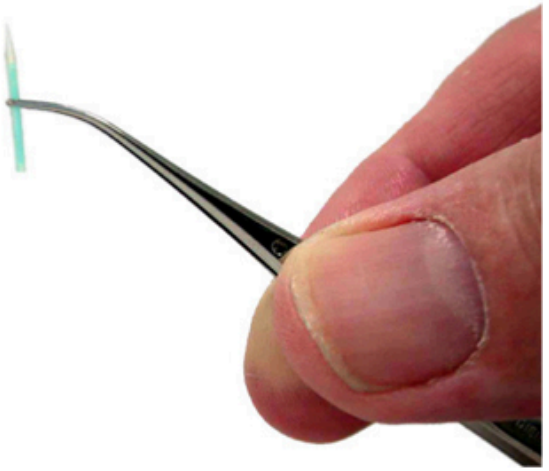
THE ELEVATOR PITCH

LAUNCH is a global initiative established to: (1) identify and support innovations poised to contribute to a sustainable future and (2) accelerate solutions to meet urgent challenges facing our society.

+ (1) We live on a finite planet. Long-term comfort and a high standard of living for all 7.2 Billion of our fellow human beings means finding technologies that replenish, rather than diminish the Earth's ability to support our civilization.

+ (2) Many of the predicted problems facing humanity are happening right now. Whether it is is disease, access to energy, clean water or merely what to do with mountains of waste, we urgently need to get new solutions to work at a scale that can make a substantive impact.



PICTURE: Bioneedle - a revolutionary new way of increasing the safety and comfort of injections.

WHY LAUNCH MATTERS

COLLECTIVE GENIUS = ACCELERATING WORLD CLASS INNOVATION IN A WAY THAT MAKES SUBSTANTIVE IMPACT:

So far, Launch innovators have attracted $40m in private capital, helped bring clean water to 4.5m Kenyans and renewable power to 3,000 people in India.

THE LAUNCH PROCESS:

(3) THE ANATOMY OF A LAUNCH CYCLE

BIG THINK

WHAT HAPPENS
+ Domain specialists are gathered together to gain an initial understanding of the opportunity area.

KEY OUTCOMES
+ Emerging trends and early partner opportunities are surfaced as well as a draft CHALLENGE STATEMENT.

SUMMIT

WHAT HAPPENS
+ The year's Challenge is Launched at a high-profile event.

KEY OUTCOMES
+ The call goes out for world-class innovators and potential LAUNCH COUNCIL participants.

SELECTION

WHAT HAPPENS
+ Innovators upload their entry to this year's cycle to the Launch Submission Portal. A short-list is put to public vote and a final selection by the Launch team.

KEY OUTCOMES
+ A final shortlist of 10 LAUNCH INNOVATORS.

FORUM

WHAT HAPPENS
+ Innovators and Launch Council members spend 3 days together at a NASA location, evaluating and evolving via IMPACT ROTATIONS.

KEY OUTCOMES
+ Commitments from participants to continue the good work.

ACCELERATOR

WHAT HAPPENS
+ A support infrastructure is put in place around Innovators for the next 6 months

KEY OUTCOMES
+ New approaches, opportunities and partnerships identified at the FORUM are put into practice.

Active Challenges

- Textiles

- Energy

- Fabric

- Health

- Water

- Waste

- Green Chemistry

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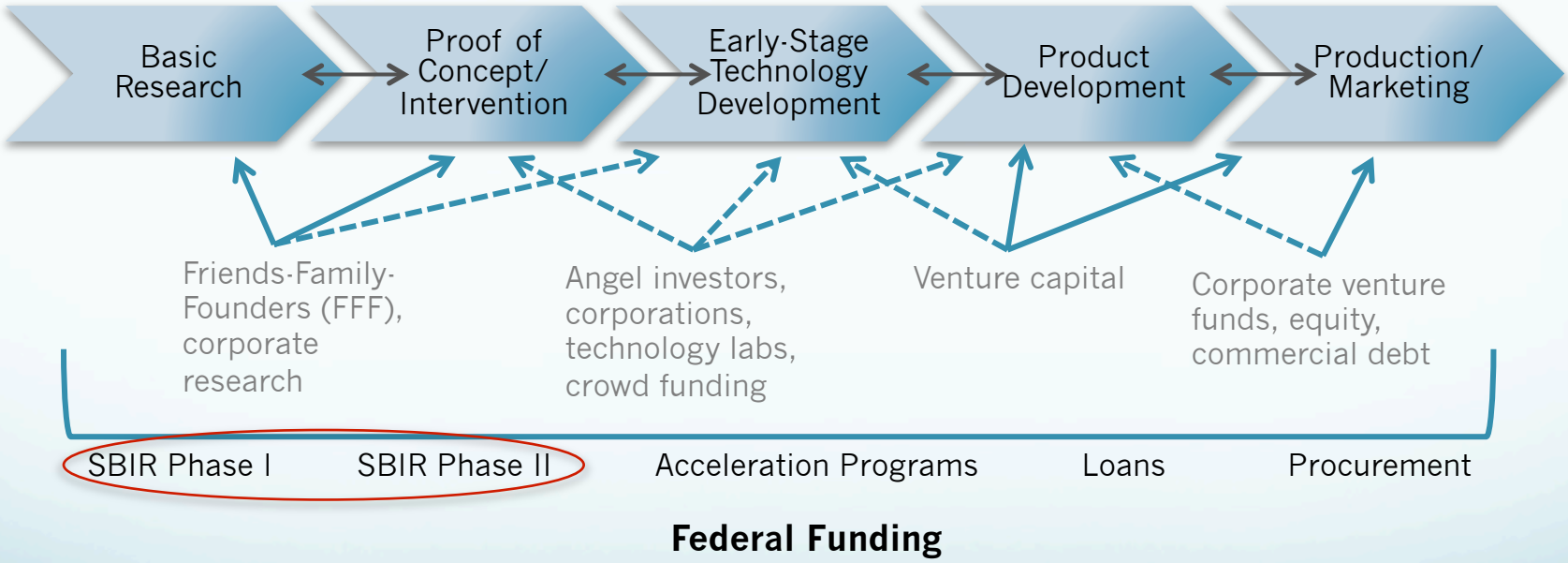
Sequential Model of Development and Funding



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Reasons to Pursue SBIR/STTR

- Develop new products or services
- Non-dilutive early stage capital
- Build intellectual property
- Build technical staff
- Build relationships with Federal Agencies, potentially clients
- Develop partners
- Leverage other's facilities, equipment and expertise
- Build credibility with investors
- Process worth strategies you develop
- *Note: Not free money!*

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SBIR & STTR

Small Business Innovation Research (SBIR)

- A set-aside program for small business to engage in Federal R&D – with potential for commercialization
- 2.6% of the extramural research budget (> $2 billion) for all agencies with a budget greater than $100MM per year.

Small Business Technology Transfer (STTR)

- A set-aside program to facilitate cooperative R&D between small business concerns and U.S. research institutions – with potential for commercialization.
- 0.35% of the extramural research budget (>$250 million) for all agencies with a budget greater than $1B per year.

Milestone-Driven Award Process

Phase I | Feasibility Study or Prototype
- $150 thousand maximum and 6 months

Phase II | Full Research and Development Effort
- $1 million maximum and 24 months

Phase III | Commercialization Effort
- Private funds only

Participating Federal Agencies

SBIR/STTR Success Stories

Qualcomm	Symantec
iRobot	Genzyme
Nimble Systems	NanoMech
Autonomous Technologies	Adaptec
Ecovative Design	Children's Progress Inc
JENTEK Sensors	SQUID

SBA

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Differences Between Programs

Small Business Innovation Research (SBIR) grant

Phase I - up to $150K

- Feasibility – generally **6 months**
- **66% - small business percent of effort**
- **33% - business may use subcontractors/consultants**
- **PI – must be with the small business (employed >50%)**

Phase II – up to $1M

- Prototype – up to 24 months
- **>50% - small business percent of effort**
- **<50% - subcontractors/ consultants**

Small Business Technology Transfer (STTR) grant

Phase I - up to $150K

- Feasibility – generally **12 months**
- **>40% - small business**
- **>30% - research institution**
- **~30% - other subcontractors**
- Requires STTR Model Agreement
- **PI can be from either small business or research institution**

Phase II – up to $1M

- Prototype – up to 24 months
- **>40% - small business**
- **>30% - research institution**
- **~30% - subcontractors/ consultants**

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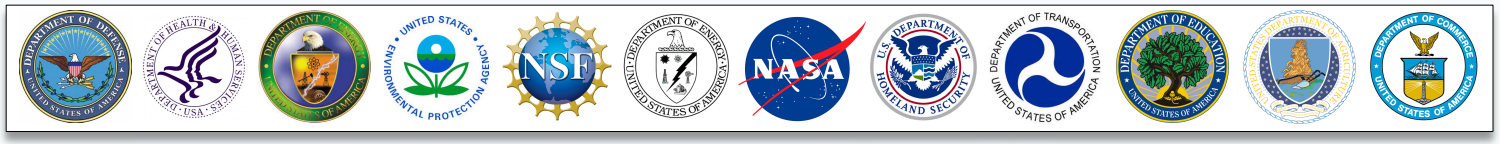
SBIR Participating Agencies



- Department of Defense
- Department of Health and Human Services (NIH, CDC, FDA and ACF)
- Department of Energy
- National Aeronautics and Space Administration
- National Science Foundation
- Department of Agriculture
- Department of Commerce
- Department of Homeland Security
- Environmental Protection Agency
- Department of Transportation
- Department of Education

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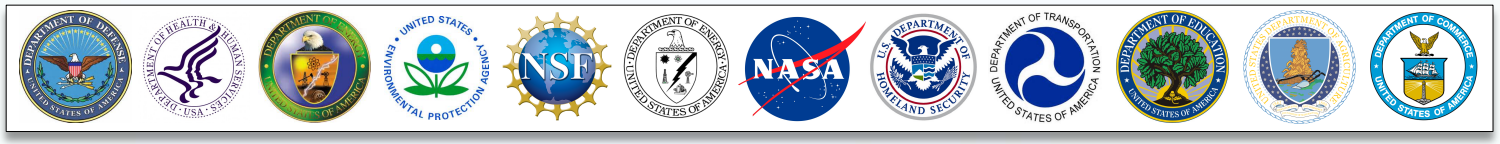
STTR Participating Agencies



- Department of Defense
- Department of Health and Human Services (NIH, CDC, FDA and ACF)
- Department of Energy
- National Aeronautics and Space Administration
- National Science Foundation

Agencies that Participate in STTR

- Department of Agriculture
- Department of Commerce
- Department of Homeland Security
- Environmental Protection Agency
- Department of Transportation
- Department of Education

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"Selection and Evaluation Criteria"

Peer Reviewed Process

Proposals are evaluated on three items:

A. soundness, technical merit, and innovation

B. qualifications of the team

C. potential for commercial success

Do not assume the reviewers are acquainted with your firm or key individuals or referenced experiments.

Outside reviewers strengthen your proposal prior to submission

It is a very competitive process!

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Difference Award Logistics

Contracting Agencies

- Agency establishes plans, protocols, requirements
- Highly focused topics
- Procurement mechanism for DOD and NASA
- Increased financial requirements

DOD, DHS, HHS/NIH, NASA, ED, EPA, DOT, DOC

Granting Agencies

- Investigator initiated
- Less-specific topics
- Assistance mechanism for commercialization
- More flexibility with financials

HHS/NIH, NSF, ED, USDA, DOE

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Additional Funding

- DOD Phase II Enhancement
- DOD Acceleration Program
- NIH new drug development program
- State of Wisconsin

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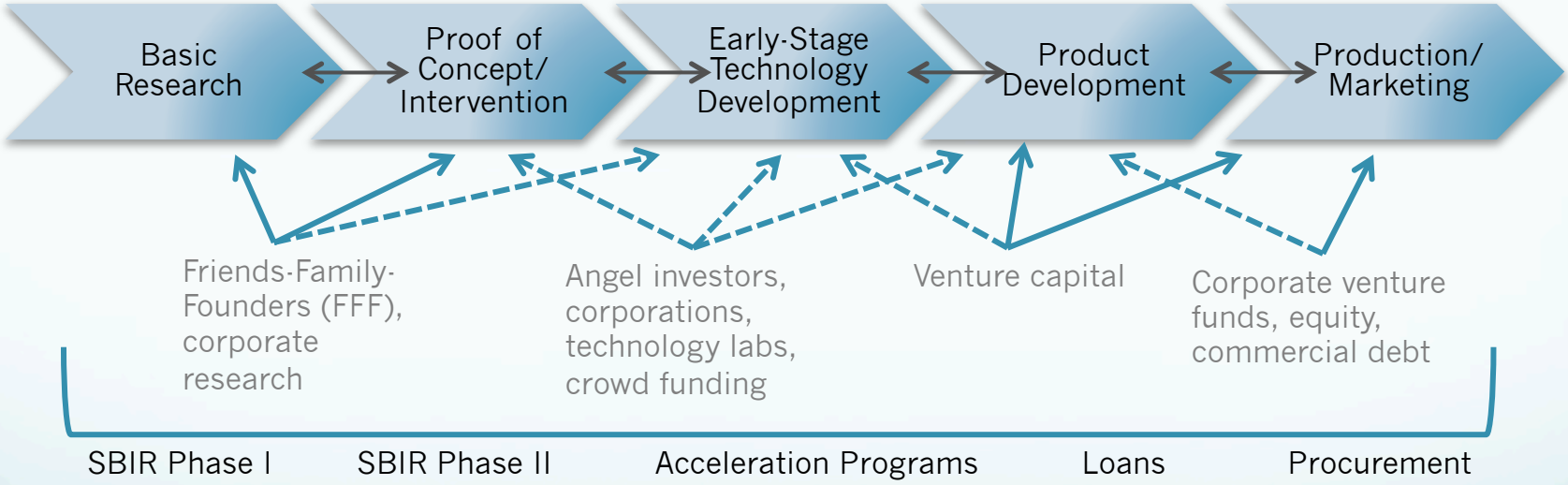

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Cool Tech Projects

- FAA
  - Legal and regulatory
  - Drone registration
  - Qualcomm
- Amazon plans to deliver packages with autonomous octocopters
- Google testing unmanned drones for shipping to customers doorsteps

- Consider partnerships with institutions such as Sandia National Laboratories, Woods Hole Oceanographic Institute, and NASA

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Energy
IT and Big Data
Advanced Manufacturing

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Energy Funding Opportunities

U.S. Department of Energy

- Exoscale computing
- Energy-Water Nexus
- Grid modernization
- Subsurface engineering
- Cybersecurity


Celebrating Higgs boson

- Bioenergy Technology Office (BETO)

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Funding Opportunities

Networking and Information Technology Research and Development (NITRD) Program

- Big data
- Cyber physical systems and info assurance
- Health information technology
- Large scale networking
- Video and image analytics

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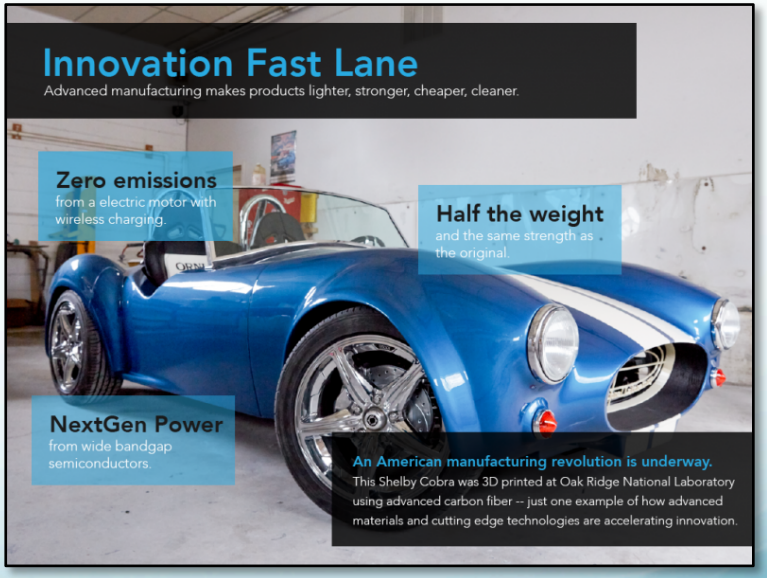
Advanced Manufacturing

- Sustainable manufacturing: DOE, EERE, ITP
- Bio-manufacturing: DOD, DOE, NIST
- Lightweight materials: DOD, DOE
- 3D printing: NSF
- Nano-manufacturing: NSF
- Advanced sensing: NSF
- Biofuels: DARPA
- Flexible electronics: DOE, NIST



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Advanced Manufacturing

- Material genome: DOD, DOE, NIST, NSF
- Precision machining: DOD
- Simulation/test infrastructure: NSF
- Composite assembly: DOD
- Ceramics: DOD
- Mobile robots: NSF
- Advanced forming: NSF
- Advance joining/bonding technology: NSF

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NIST National Institute of Standards and Technology U.S. Department of Commerce

AMTech Program

- Advanced Manufacturing Technology Consortia
  - Awards range from ~$250K to $500K
  - Two year grants
  - 2015 received 82 applications
  - Awarded 18 grants totaling $7.8M
  - FY2016 AMTech merged with NNMI (National Network for Manufacturing Innovation)

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Closing Thoughts

Federal Capital for Commercialization

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The Right Opportunity for You

- Remain diligent for hunting opportunities
- Become efficient at vetting opportunities
- Attend industry and government conferences
- Consider potential large company partners

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Help with Federal Contracts

- Wisconsin Procurement Institute
  - FREE bid match services
  - Individual counseling and assistance
  - Small business subcontracting plans
  - Assist with pre- and post-award functions
  - Assist with regulations, requirements, and GSA schedule
  - Work throughout the state
- Contact us at 414-270-3600 or info@wispro.org

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Questions on this presentation?

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