

# The SBIR/STTR Program: America's Seed Fund for Innovative Technology

April 2019



# Agenda

- 1. Overview of the SBIR/STTR Program**
- 2. MTI TAP Support Program**
- 3. Next Steps**
- 4. Overview of MTI**

# Overview of the SBIR/STTR Program

# The SBIR/STTR Program

- +\$2.5B R&D funding program for early-stage, high-risk development of innovative technology
- Set-aside for small businesses - with some exceptions
  - 3.2% - SBIR    0.45% STTR
- Purpose: Stimulate innovation, use small businesses to meet Federal R&D needs, encourage entrepreneurship by socially and economically disadvantaged small businesses, increase private sector commercialization of innovations derived from Federal R&D funding

# SBIR/STTR Program Facts

- For Small Businesses that are:
  - Independently owned and operated
  - Organized for-profit
  - Principal place of business is in the USA
  - 51% + ownership by US citizens/permanent residents
  - 500 or less employees, including affiliates
  - Principal Investigator (PI) leading the effort must be more than 50% employee of the business
- Small Businesses are always the applicant

# The SBIR/STTR Program

- 11 agencies have Small Business Innovation Research (SBIR) Program
- 5 agencies have Small Business Technology Transfer (STTR) Program
- Agencies issue solicitation with topics of interest
- Small Businesses submit technically competitive proposals
- Gated Program – Phase I → Phase II → Phase III 
  - With exceptions and caveats
- Awards grants or contracts up to \$1.5M seed capital

# Why Participate?

- Ideas are Investigator-Initiated
- Requires NO REPAYMENT of monies received – grant or contract
- Requires NO EQUITY sacrifice
- Intellectual property rights remain with small business
- Follow-on Phase III awards are sole source up to 4 years from date of last SBIR/STTR award
- Normally only source of early stage funding for R&D

# SBIR/STTR Program Facts

- **SBIR: Small Business Innovation Research**
  - Small business must perform minimum 67% of work (Ph I), 50% (Ph II) outsources balance of effort to subcontractors/consultants
  - May partner with non-profit research institution
- **STTR: Small Business Technology Transfer**
  - Small business performs minimum 40% of work, and
  - **MUST** partner with research institution (30%),
  - Balance is discretionary
  - Negotiate allocation of IP rights



# Three Phase Process



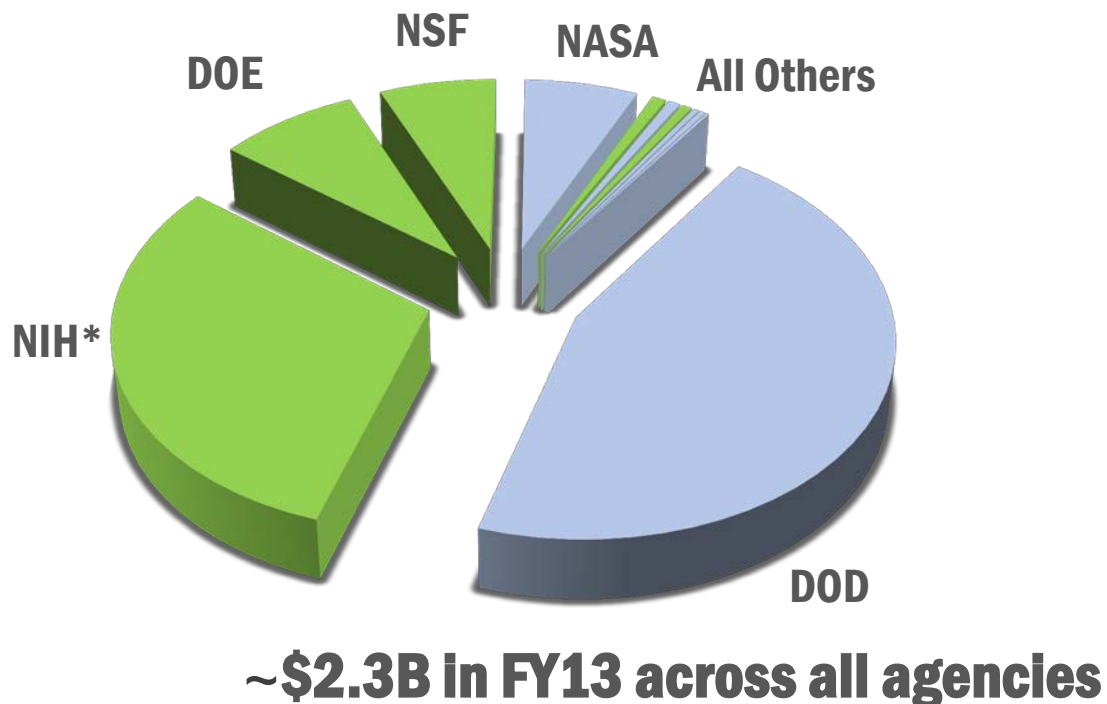
## Solicitation to Award Process



# Criteria for Award

- Evaluation is based on:
  - scientific and technical merit,
  - firms' qualifications,
  - commercial potential and
  - societal benefits
- Proposals reviewed by outside experts – academia, businesses and consultants
- Subcontracting to universities and labs are permitted and encouraged

# SBIR/STTR Budgets by Agency, FY 2013



**Grants** █ *\*NIH and ED also issue contracts; Within DOC, NIST issues grants and NOAA issues contracts*

**Contracts** █

Agencies with SBIR & STTR Programs	Budget
Department of Defense (DOD)	\$ 1.29 B
Department of Health and Human Services (HHS): National Institutes of Health (NIH)*	\$891.0 M
Department of Energy (DOE), including Advanced Research Projects Agency (ARPA-E)	\$228.0M
National Aeronautics and Space Administration (NASA)	\$187.7M
National Science Foundation (NSF)	\$ 183.4 M
Agencies with SBIR Programs	Budget
U.S. Department of Agriculture (USDA)	\$28.8M
Department of Homeland Security (DHS): Science and Technology Directorate (S&T) and Domestic Nuclear Detection Office (DNDO)	\$17.07 M
Department of Transportation (DOT)	\$11.6 M
National Oceanic and Atmospheric Administration (NOAA)	\$9.2 M
Department of Education (ED)	\$7.5 M
Environmental Protection Agency (EPA)	\$4.9 M
Dept. of Commerce: National Institute of Standards and Technology (NIST)	\$3.3M

# Topics

# Sample Topic Areas

## Department of Defense

A19-063 “Heat-Transmitting/Heat-Trapping Lightweight Textile” (ORISE)

## National Institutes of Health

Development of sleep monitoring technologies or biomarker panels to assess sleep deprivation.....

## Department of Energy

Innovation in Solar Module Manufacturing Processes and Technologies

## National Science Foundation

Personalized Manufacturing / Maker Manufacturing /  
Maker to Manufacturer

## NASA

Spacecraft Technology for Sample Return Missions

## U.S. Department of Agriculture

Small & Mid-Size Farms

## Department of Homeland Security

On Body Power Module for First Responders

## Department of Education

Education technology products for use by infants, toddlers, or students with or at risk for disabilities, or teachers

## Department of Transportation

In-Vehicle Highway Rail Grade Crossing  
Alert System

## Department of Commerce:

**NIST:** Physical Infrastructure and Resilience

**NOAA:** Aquaculture - Contaminants in Shellfish

## Environmental Protection Agency

Clean and Safe Water



*Kelly Roth, owner*

## **VitaminSea**

Phase I and II SBIR awards from the  
U.S. Department of Agriculture

Phase I Total: \$100,000

Phase II Total: \$600,000

Topic Area – Small and Mid-Size Farms

*“The best advice for anyone thinking of applying for an SBIR/STTR grant is to make sure you’re focused, have a different idea, and not a cookie cutter project.”*



“The whole SBIR program, from the writing of the application to the execution of the Phase I, has really helped us frame our business strategy from innovation to execution.

Funded or not, the process is a valuable tool for startups to get a handle on their present and future challenges and understand the commitment really needed to bring a new product to market.”

*Joshua Henry, Principal Investigator*



## Go Lab, Inc.

Phase I SBIR award from the EPA \$100,000

Topic Area – Greener Exterior Construction Materials



## Introspective Systems, Inc.

“Don't apply to every SBIR that you could possibly do. Focus on ones that legitimately extend your technology and move you toward your company's end goal.”



Numerous Phase I/II's from the Department of Energy

Topic Areas – National Grid, MicroGrids, Energy Transactions

*Kay Aikin, CEO*





# MTI's SBIR Technical Assistance Program (TAP)

# Technical Assistance Program (TAP)

- Cadre of expert consultants across needed areas of expertise
- Proposal development support and guidance
- Commercialization planning
- Government accounting support
- Market research
- NIH (Biotech) proposal development support
- Funding opportunities to defray the costs of writing a Phase I proposal
- Funding opportunities to conduct business development activities in support of a Phase I or Phase II proposal

# Overview of MTI

# The History of MTI



**1999**

**MTI Founded**  
by State Statute

**2005**

**500 Projects**  
Across All 7 Sectors Funded

**2011**

**1000 Projects**  
Funded

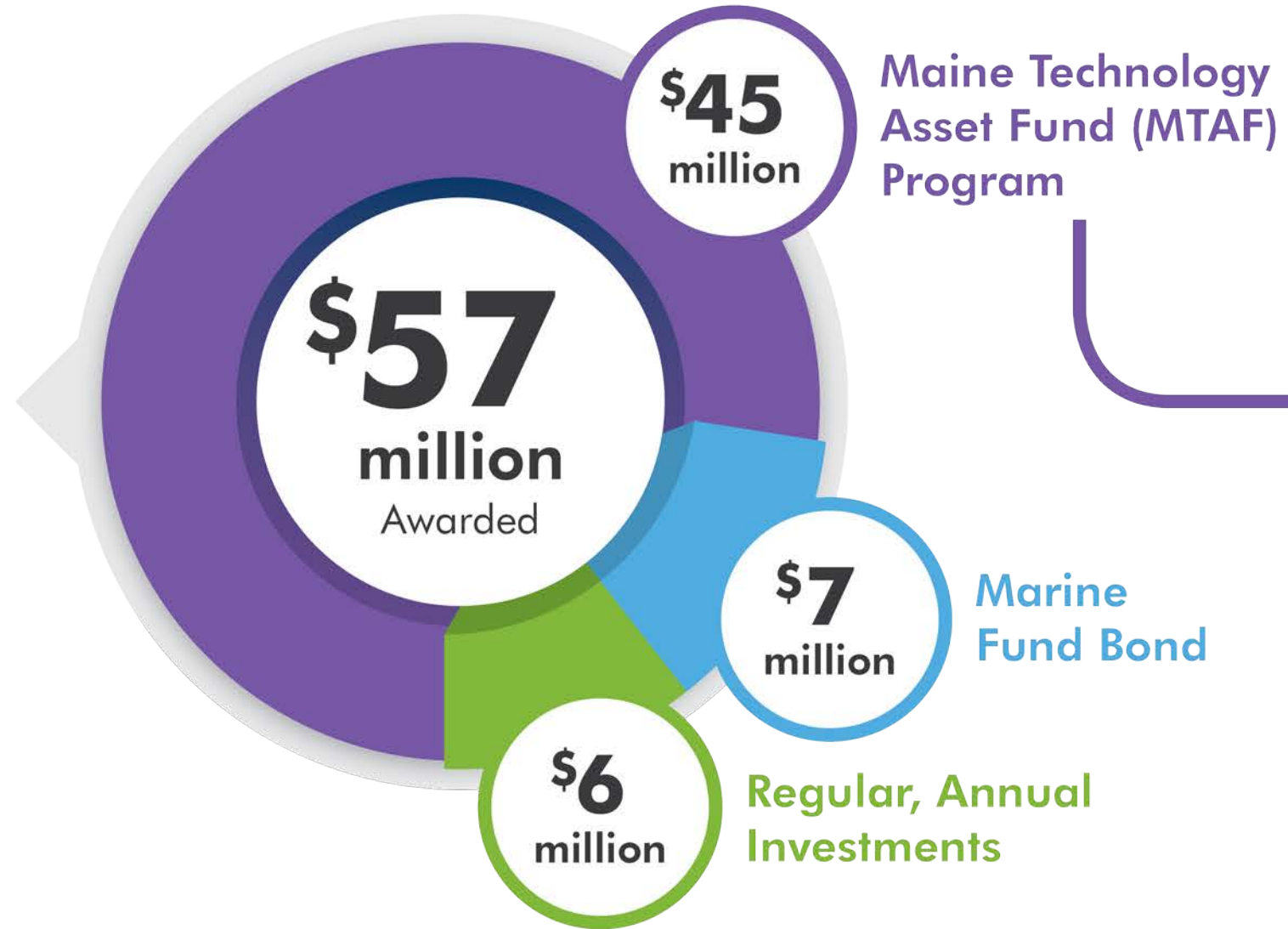
**2018**

**\$260+ Million**  
Invested in Maine Companies

# Our Core Mission

To diversify and grow Maine's economy by encouraging, promoting, stimulating and supporting innovation and its transformation into new products, services and companies and, ultimately, the creation of quality jobs for Maine people

# FY18 Impact







## Gneiss Spice

A grant from MTI helped us improve our product and scale our business. Our business growth means job security and higher wages for employees in rural, Western Maine, where much of the economy is fueled by small businesses. Creating sustainable businesses with reliable wages allows employees to invest in their own financial security and lift the economy in the area.

**Beth Weisberger**

Owner







## STARC Systems

MTI helped us with both funding and connections. MTI is really putting a stake in the ground around innovation.

**Bruce Bickford**  
COO & Co-Founder





# Next Steps

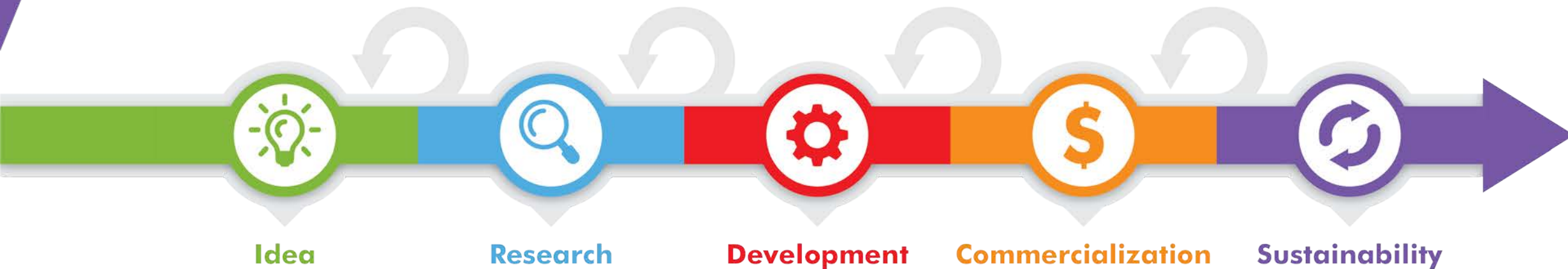


- Get Registered – up to 5 required registrations, contact Maine PTAC for assistance
- Contact Karen West!
- Get mentally prepared to spend 140-180 hours to write a competitive proposal
- Pull together your team
- Understand where your technology fits into the market
- Read the solicitation, over and over and over again
- Understand the elements of a proposal
- Have faith that you can do it!

# Strategic Changes

# The Innovation Process:

Driving to Commercialization



# Scope of MTI Funding



# Key Requirements



**Shared  
Goals**



**Innovative  
& Forward  
Thinking**



**Maine-based  
Organizations**



**7 Targeted  
Technology  
Sectors**



**Access to  
Matching  
Funds**

# VIRAL Assessment Tool

# Adoption of the VIRAL<sup>®</sup> Assessment Tool

- MTI will use a nationally recognized assessment tool to help our clients assess their strengths and weaknesses to maximize their chances of successfully commercializing their innovation.
- MTI is partnering with Village Capital, the creator of the tool, to adapt and customize for better alignment with the Maine innovation ecosystem
- Anyone applying to MTI for funding will start with this assessment including all entrepreneurs and supporting partners.

# VIRAL is a Self-awareness Tool

- Describes key milestones on a path to maturity
- Measures milestones achieved and current maturity
- Identifies milestones you need to “level up”
- Focus on profitable business with a successful exit or sustained growth



VILLAGE CAPITAL VIRAL PATHWAY © Village Capital 2017										
Level	Name	Team	Problem and Vision	Value Prop	Product	Market	Business Model	Scale	Exit	Type of funding typically closed at this level
9	Exit in Sight	Team positioned to navigate M&A, IPO.	Global leader in stated vision.	Cited as the top solution in the industry solving this problem.	Product recognized as top in industry.	Clear line-of-sight to industry dominance.	Minimum 2x revenue growth for multiple years.	Strong unit economics for multiple customer segments.	Growth with exit.	Acquirers
8	Scaling Up	Team is recognized as market leaders in the industry	Systems-Level Change validated.	Multiple renewals with low sales effort. Customers in multiple markets love the product.	Strong customer product feedback in multiple markets.	Brand established. Hard-to-beat partnerships for distribution, marketing, and growth.	MOM revenue meets industry standard.	Growth of customer base accelerates month-on-month.	Team has turned down acquisition offer.	Close Institutional VC for Recurring Revenue + Growth
7	Hitting Product-Market Fit	C-suite as good or better than founding CEO and can stay with company through its growth and exit phases.	Impact is successfully validated.	Majority of first sales in target market are inbound.	Product is built for scale and additional offerings in progress.	Sales cycles meet or exceed industry standard.	Business model validated - Validation of strong unit economics.	Evidence of strong unit economics across multiple markets.	Team has strong relationships with multiple acquirers.	
6	Moving Beyond Early Adopters	Team has proven sales, product dev skills, and management ability to support a growing team for scale.	Sales validate impact tied to solution and grow as solution scales.	Sales beyond initial target customers. Customers love it and are referring the product to others.	Complete product with strong user experience feedback.	Supply/distribution partners see their success aligned with the company's success.	Sales begin to map to projections. Evidence of decreasing CAC with growing customer base buying at target price.	Company has cleared regulatory challenges and (if applicable) is implementing a strong IP strategy.	Team has identified specific acquirer(s) or other exit environment.	Close Institutional VC for 1st Sales, Market Expansion
5	Proving a Profitable Business Model	Team has clear sales/ops understanding and strategy.	Evidence of impact tied to solution-the company has evidence that by growing the business, company solves the problem.	Target customers love the product and want to keep using it.	Fully functional prototype with completion of product for wide commercial distribution in sight.	Team is having conversations with strategic partners to capture their market faster/cheaper than the competition.	Financial model with evidence of valid projections to reach positive unit economics.	Vision and initial evidence of positive unit economics in two markets.	Inbound interest from large strategics.	Close Round with Angel and Early VC
4	Validating an Investable Market	Team has clear understanding of how their target market operates and has strong industry contacts in this market.	The company can articulate system-level change - how this solution would transform the industry.	Evidence of differentiation through initial target customer feedback that the solution solves their problem significantly better than others in the market.	Team has clear understanding of product development costs and how to build the initial product cost-effectively.	Evidence of \$1B+ total addressable market.	Team has financial model with cost and revenue projections articulated and a strategy for hitting these projections.	Initial evidence that multiple types of customers find value in the solution or in an extension of the product that the company is well-positioned to develop.	Evidence of growth trajectory that could lead to IPO, acquisition, or self-liquidating exit.	Angel/Seed Funding Starts
3	Solidifying the Value Proposition	Team has technical ability to build fully functional product and has a clear understanding of the value chain and cost structures in their industry.	The company can articulate why they're the best ones to solve this problem.	Evidence that customers will pay the target price. For B2C - 100 customers, for B2B - 5 customers and conversations with multiple stakeholders in each.	Team has built a working prototype and a product roadmap.	Initial evidence through sales that team can capture initial target market.	Team can articulate projected costs along the value chain and target cost points to reach positive unit economics.	Clear strategy to move to multiple markets.	Initial evidence that the solution already solves the problem better than any incumbents.	Friends and Family, BootStrap
2	Setting the Vision	Team has senior members with lived experience of the problem and/or deep understanding of their target customer's problem.	The team can solve the problem and can articulate its vision at scale - what does the world look like if they succeed?	The team has potential customers who provide evidence that solution solves key pain point - product is a painkiller, not vitamin.	Team has a basic low-fidelity prototype that solves the problem.	Team understands any regulatory hurdles to entering the market and has a strategy to overcome them.	Company can point to pricing and business models of similar products in the industry as further evidence that their revenue assumptions hold.	Initial evidence that multiple markets experience this problem.	Vision for growth has company solving a large piece of the global problem in 10 years.	
1	Establishing the Founding Team	Strong founding team - at least 2 people with differentiated skillsets.	Team has identified a specific, important, and large problem.	Team has identified their hypothesis of their target customer - the specific type of person whose problem they are solving.	Team has ability to develop low-fidelity prototype and has freedom to operate - not blocked by other patents.	Team can clearly articulate total addressable market, the percentage they will capture, and initial target market.	Team has identified an outline of revenue model.	Team has identified multiple possible markets or customer segments and has aspiration to scale.	Team understands what an exit is and has a vision for how they will ultimately provide a return for their investors.	
		Team	Problem and Vision	Value Prop	Product	Market	Business Model	Scale	Exit	Type of funding closed at this level

VILLAGE CAPITAL VIRAL PATHWAY © Village Capital 2017

Level	Name	Team	Problem and Vision	Value Prop	Product	Market	Business Model	Scale	Exit	Type of funding typically closed at this level
9	Exit in Sight									Acquirers
8	Scaling Up									Close Institutional VC for Recurring Revenue + Growth
7	Hitting Product-Market Fit									
6	Moving Beyond Early Adopters									Close Institutional VC for 1st Sales, Market Expansion
5	Proving a Profitable Business Model									Close Round with Angel and Early VC
4	Validating an Investable Market		█	█		█	█		█	Angel/Seed Funding Starts
3	Solidifying the Value Proposition	█	█	█		█	█	█	█	Friends and Family, BootStrap Grants for R&D (Hardware)
2	Setting the Vision				█					
1	Establishing the Founding Team	█								
		Team	Problem and Vision	Value Prop	Product	Market	Business Model	Scale	Exit	Type of funding closed at this level

**Area to Improve**



# Honest Self Awareness

- Higher isn't better, it's just farther along.
- Goal is to know where you are and what you need to do.
- The levels do NOT indicate whether a company is a good or bad investment. Rather, they help companies assess their progress and the key milestones they need to achieve to raise their next round of investment

# New Application Processes

# New Investment Process



**Start**



**Meet**



**Apply**



**Review**



**Decision**



**Reporting**

# Next Steps

# Thank You!

Karen West

[cpmgt@fairpoint.net](mailto:cpmgt@fairpoint.net)

(207) 845-2934

Shane Beckim

[sbeckim@mainetechnology.org](mailto:sbeckim@mainetechnology.org)

(207) 588-1018

[\*\*www.mainetechnology.org\*\*](http://www.mainetechnology.org)