

#### Week 4

**How To Win Grants – Mastering Non-Dilutive Funding Sources** 



## **Course Schedule**

Week	Date	Course Title	Presenters
1	May 28	Entrepreneurship 101 – What It Takes To Commercialize Your Tech	Felix Litvinsky, Abakama Allison Yacci, DataCicada
<b>2</b> 2	June 4	Discover Customer Discovery	Olga Petrova, University at Buffalo Kathryn Cherny, Binghamton University
3	June 11	Evaluation of the Opportunity – Patentability and Marketability Basics	Lance Reich, SUNY RF Joy Goswami, SUNY RF
<b>9</b> 4	June 18	How To Win Grants – Mastering Non-Dilutive Funding Sources	Kirk Macolini, InteliSpark
5	June 25	Mastering Startup Agreements and Exit Strategies	Rich Honen, Phillips Lytle
6	July 2	Team Chemistry - Leveling Up Your Company	Doug Benel, SUNY RF Ana-Maria Galeano, Galeano Law Firm
7	July 9	Strategies for Unstoppable Success	Arel Moodie, Reed Oak
8	July 16	Telling and Selling Your Story	Maureen Ballatori, Agency 29 Michael Lightman, Hate Your Deck
9	July 21- July 25	1:1 Meeting With SUNY Venture Advisors	
10	July 30	Demo Day and Graduation	You!

## Course Schedule: What you need to know

- 1. May 28-July 16: Instructional Zoom webinars will be held every Wednesday from 10:30-12:00 PM ET. Invites have been sent.
- 2. June 30 July 28: Virtual I-Corps short regional course.
- 3. July 21 July 25: Office hours with Venture Advisors to apply what you are learning and prep for your Demo Day pitch.
- 4. <u>July 30</u>: S4 culminates with a Demo Day and Graduation celebration where participants pitch their technology or venture for one or more \$50k Technology Accelerator Fund Catalyst Investments. Demo Day and Graduation are scheduled to be in person at the University at Albany's ETEC Complex in Albany, NY on July 30.



## Course Schedule: What you need to know

- 1. Recordings will be shared after each class, but we highly encourage you to attend live to take advantage of the full experience.
- 2. Keep doing what you're already great at participating! more you join in, the more points you rack up for a winning some awesome S4 swag!



- 3. At the end of each live session, please answer a 1 question **Zoom poll** about this week's topic. Your feedback helps us improve the program.
- 4. You will have an opportunity to provide feedback at the end of the course. If you have any questions, issues or ideas along the way, please don't hesitate to contact us.



## **S4 Leaderboard**

Leaderboard  SUNY STARTUP  Top 21						
	First Name	Last Name	Points			
	Bahram	Salehi	12			
_	Junaid	Zubairi	11			
_	Josh	Chen	10			
	Teresa	Huho	10			
	Gurtej	Singh	10			
6	Ridham	Varsani	10			
7	Aiman	Yaseen	9			
8	Weiying	Dai	9			
9	Janet	Paluh	9			
	Chen	Lin	7			
11	Rommel	Trotman	7			
12	Michael	Mak	7			
13	Biswas	Rijal	7			
14	Fraser	Sim	7			
15	Jinjun	Xiong	7			
16	Ahmed	Alajlouni	6			
17	Tsogt Erdene	Jamiyansuren	6			
18	Jennifer	Adams	6			
19	Jonathan Raj	Katikala	6			
	George	Murtha	6			
21	Andrew	Talal	6			

SU	NY STARTUP	eaderboard. By Campus
#	Campus	Points
1	University at Buffalo	140
2	Binghamton University	100
3	Stony Brook	67
4	University at Albany	57
5	SUNY Fredonia	17
6	ESF	16
7	Upstate Medical University	15
8	SUNY Poly	8
9	SUNY Empire State College	7
10	SUNY Oswego	5
11	NY-Creates	4
12	SUNY New Paltz	4
13	SUNY College of Optometry	2
14	SUNY Brockport	2
15	SUNY Old Westbury	2
16	Mohawk Valley Community College	1
17	SUNY Oneonta	1
18	Buffalo State, SUNY	1
19	UCAWD/SUNY ATTAIN	1
20	Downstate Health Sciences Univ	0
21	Monroe Community College, SU	0



# SUNY Technology Accelerator Fund (TAF) S4 Catalyst Investment Eligibility

To be eligible for a TAF S4 Catalyst Investment, teams and/or companies must meet all of the following requirements:

- 1. Developing technology that is SUNY intellectual property;
- 2. Enrolled in the S4 Class of 2025;
- 3. Participate in the S4 Demo Day pitches on July 30, 2025;
- 4. By December 31, 2025, complete the company formation process if a company has not already been formed; and
- 5. By December 31, 2025, the company receiving the TAF \$4 Catalyst Investment must demonstrate that it has an active license or option to the technology it plans to commercialize from a SUNY campus.



### **Questions about S4?**





Email us at S4@rfsuny.org

Let's jump into our session on How To Win

Grants - Mastering Non-Dilutive Funding

Sources!





How To Win Grants

Mastering Non-Dilutive Funding Sources





## Meet your presenters!

Kirk J. Macolini

**President** 

InteliSpark, LLC

Kirk@InteliSpark.com

Follow us on



https://www.linkedin.com/company/intelispark-llc





## INTELISPARK TRACK RECORD



>750 proposals selected for award

>\$450,000,000 in projects selected for award





81 start-up clients funded in 2023

Clients have had >\$3,500,000,000 in successful exits















































# GENERAL ELIGIBILITY

- ▶ Organized for-profit U.S. business
- ► At least 51% owned by U.S. individuals or small businesses and independently operated (NIH, CDC, ARPA-E (DoE) are exceptions- can be 51% owned by multiple VC firms)
- Small Business located in the U.S.
- ▶P.I.'s primary employment with small business during project (NIH allows STTR PI to come from University)
- ▶500 or fewer employees (including affiliates)
- ► All SBIR-funded work must be done in the U.S.

# SBIR vs. STTR

SBIR: Permits allows research partners (non-profit or for profit)

- no more than 33% during Phase I
- no more than 50% during Phase II

STTR: Requires non-profit research institution partner (e.g., universities)

- A minimum of 40% for small business
- A minimum of 30% for research institution
- Remained 30% can go to either partner or 3<sup>rd</sup> parties

Despite misconceptions, there is NO Requirement to do Tech Transfer under an STTR

# SBIR/STTR PHASES



- PHASE I (Crawl)
  - Feasibility Study
  - ≤ \$150,000 and ~6 months (SBIR) or ~12 months (STTR)



- PHASE II (Walk)
  - Full R&D
  - ≤\$1,000,000 and ~24 months



- PHASE III (Run)
  - Continued R&D/Commercialization
  - Non-SBIR funded

## AN UNEFFICIENT MARKET

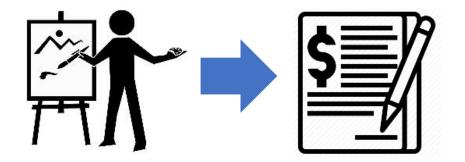
Understand your buyer to improve your Phase I Proposal Success Rate

You can exploit discontinuities in the funding probabilities

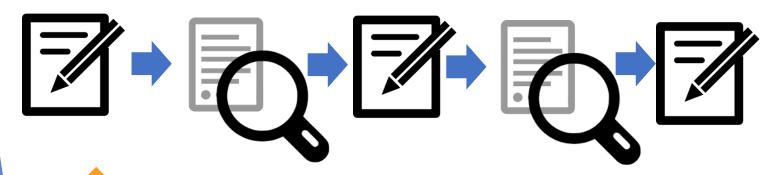


## **VIEW SBIR/STTR AS A MARKETPLACE**

"ART" OF GRANT WRITING



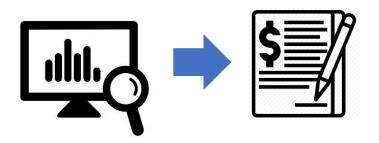
#### **Investigator Driven Perspective**

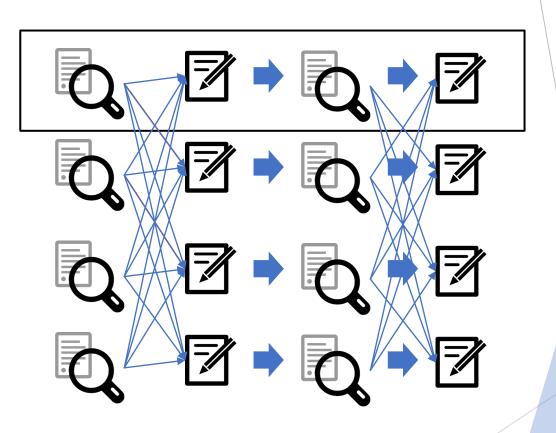




## VIEW SBIR/STTR AS A MARKETPLACE

► DATA DRIVEN MARKETPLACE





Focused on matching the seller to the buyer



# AGENCY SELECTION

- ▶Seems obvious but it's not
- ►Lot's of overlap in projects funded by various agencies
- ▶ Each agency takes a different perspective
  - ►EX: DoD, NASA are trying to solve problems
  - ►EX: NIH, DoE are trying to promote research in general
  - ►EX: NSF is trying to promote research AND stimulate successful commercialization
- ► This leads to varying levels of acceptance by different agency
- ► Where to apply can be extra challenging when considering multiple granting agencies

## **SBIR AND STTR BY AGENCY**

#### SBIR/STTR













DoD

NSF

**NASA** 

DOE

HHS (NIH, CDC, FDA)

**USDA** 

#### **SBIR**











DHS

**EPA** 

DOT

ED

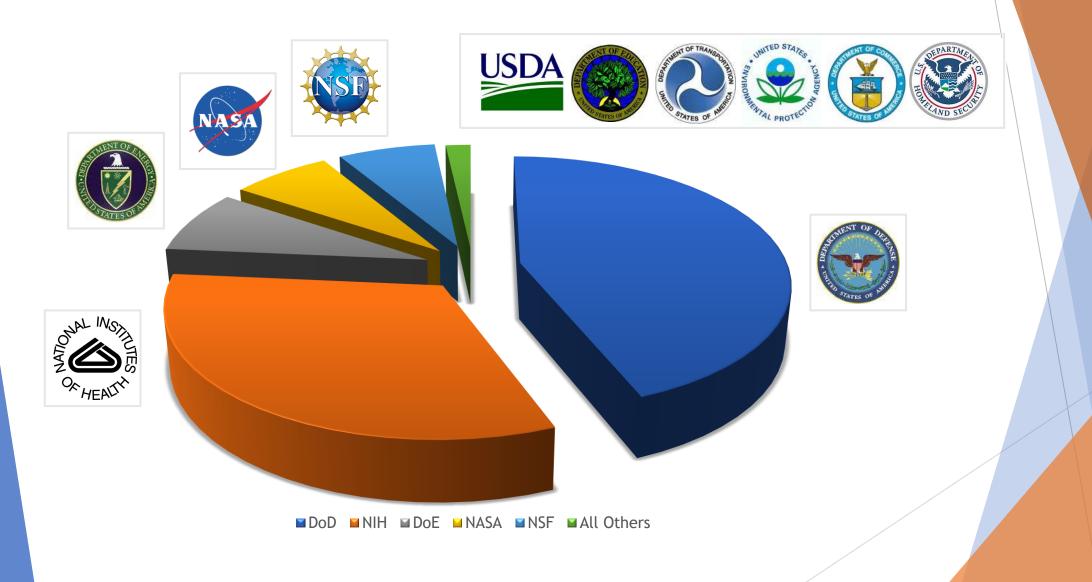
DOC (NIST, NOAA)



### **EVERY AGENCY IS UNIQUE**

- ► R&D Topic Areas
- Dollar Amount of Award (Phase I and II)
- Receipt Dates / Number and Timing of Solicitations
- Proposal Review Process
- Proposal Success Rates
- ► Type of Award (Contract or Grant)

## **GO FISHING WHERE THE FISH ARE**



## CASE STUDY: THE CROWDED FISHING HOLE



24,000+ applications for ~200 awards = >1% probability ~800 applications for ~100 awards = 12.5% probability

DoD
Operational
Medicine
BAA
\$100 Million
for ~100
projects

### GO FISHING WHERE THE FISH ARE, BUT ....





AVOID THE CROWDED FISHING HOLES

## NSF IS THE MOST START-UP FRIENDLY

#### TECHNOLOGY AGNOSTIC

Need true technical risk

#### COMPANY SIZE:

> ~ 95% of awardees have 10 or fewer employees

#### HISTORY:

➤ ~ 87% of awardees had never had a prior SBIR/STTR Phase II award from any agency

#### **COMPANY AGE:**

▶ ~81% of awardee companies were incorporated within the past 5 years

#### AWARD SIZE

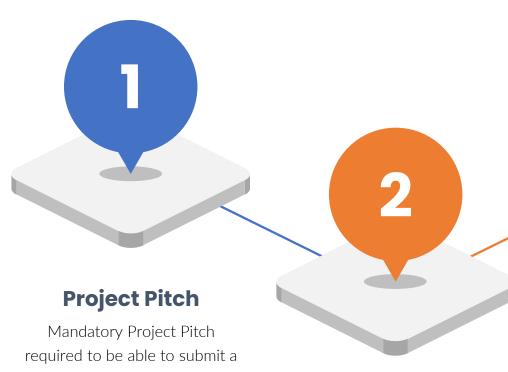
Phase I: \$305K

Phase II: \$1.25 Million

► Fastrack: \$400k Phase I, \$1.15 Phase II (heavy requirements)



## NSF SBIR/STTR PROCESS



project

#### **Submit Full Proposal**

Three submission windows per year (March, July, November)

## Proposal Review/Due **Diligence**

Peer review 2-4 months after submission + Program manager due diligence for a subset

#### Award

6-9 months after submission

## NSF Topics - What is in a Topic

ADVANCED MANUFACTURING (M)	ADVANCED MATERIALS (AM)	ADVANCED SYSTEMS FOR SCALABLE ANALYTICS (AA)	AGRICULTURAL TECHNOLOGIES (AG)	ARTIFICIAL INTELLIGENCE (AI)	AUGMENTED AND VIRTUAL REALITY (AV)
M	AM	AA	AG	ΑI	AV
BIOLOGICAL TECHNOLOGIES (BT)	BIOMEDICAL TECHNOLOGIES (BM)	CHEMICAL TECHNOLOGIES (CT)	CLOUD AND HIGH- PERFORMANCE COMPUTING (CH)	CYBERSECURITY AND AUTHENTICATION (CA)	DIGITAL HEALTH (DH)
ВТ	BM	CT	CH	CA	DH
DISTRIBUTED LEDGER (DL)	ENERGY TECHNOLOGIES (EN)	ENVIRONMENTAL TECHNOLOGIES (ET)	HUMAN- COMPUTER INTERACTION (HC)	INSTRUMENTATION AND HARDWARE SYSTEMS (IH)	INTERNET OF THINGS (I)
DL	EN	ET	HC	IH	
LEARNING AND COGNITION TECHNOLOGIES (LC)	MEDICAL DEVICES (MD)	MOBILITY (MO)	NANOTECHNOLOGY (N)	OTHER TOPICS (OT) →	PHARMACEUTICAL TECHNOLOGIES (PT)
LC	MD	MO	N		
PHOTONICS (PH)	POWER MANAGEMENT (PM)	QUANTUM INFORMATION TECHNOLOGIES (QT)	ROBOTICS (R)	SEMICONDUCTORS (S)	SPACE (SP)
PH	PM	QT	R	S	
WIRELESS					

#### **Sample Sub-Topics**

EN1. Advanced Nuclear Energy Tech

EN2. CO2 and Methane Conversion, Petrochemicals,

Oil and Gas

EN3. Directed Energy

EN4. Electromagnetics

EN5. Energy Efficiencies and Data Technologies

EN6. Energy Production and Power Generation

EN7. Energy Storage

EN8. Fusion

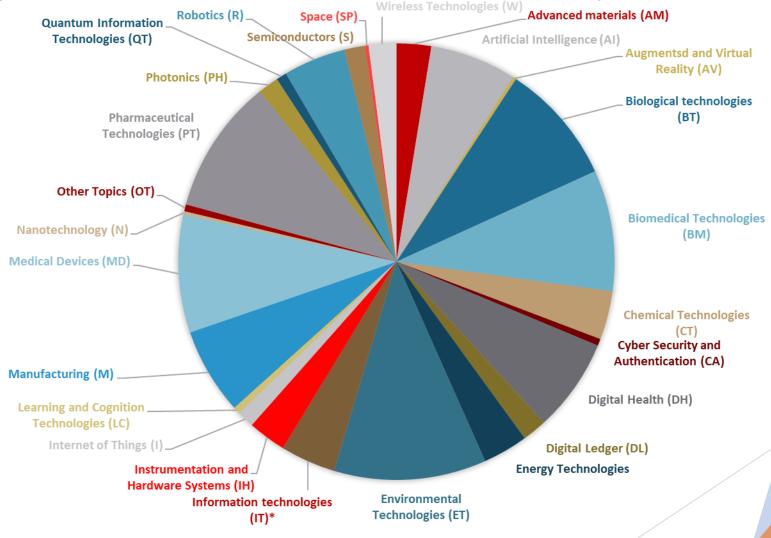
EN9. Hydrogen Technologies

EN10. Renewable Energy Generation & Storage

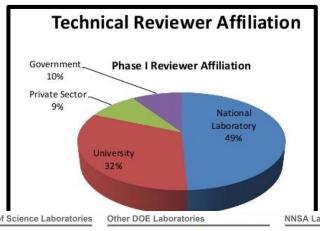
EN11. Other Energy Technologies

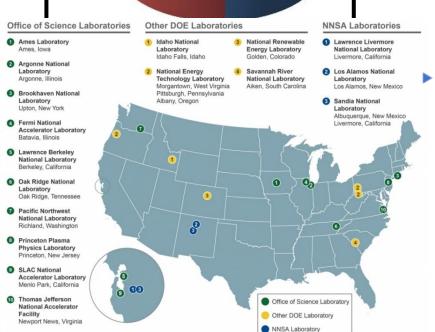
NSF Topics - 2021 Phase I awards by

topic



DoE favors National Lab connections and prior awardees





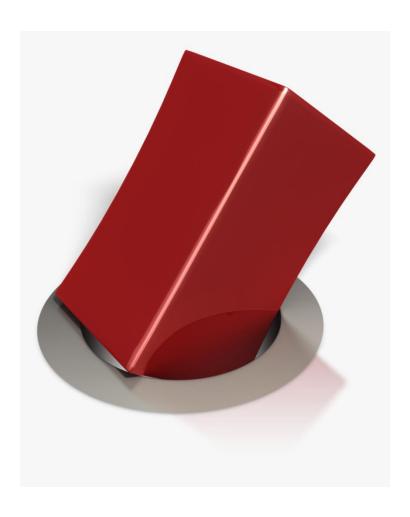
#### EXCESSIVE multiple awards:

- 10 companies with over 100 DoE SBIR/STTR awards
- 24 companies with 51-100 DoESBIR/STTR awards
- 192 companies with 11-100 DoE SBIR/STTR awards

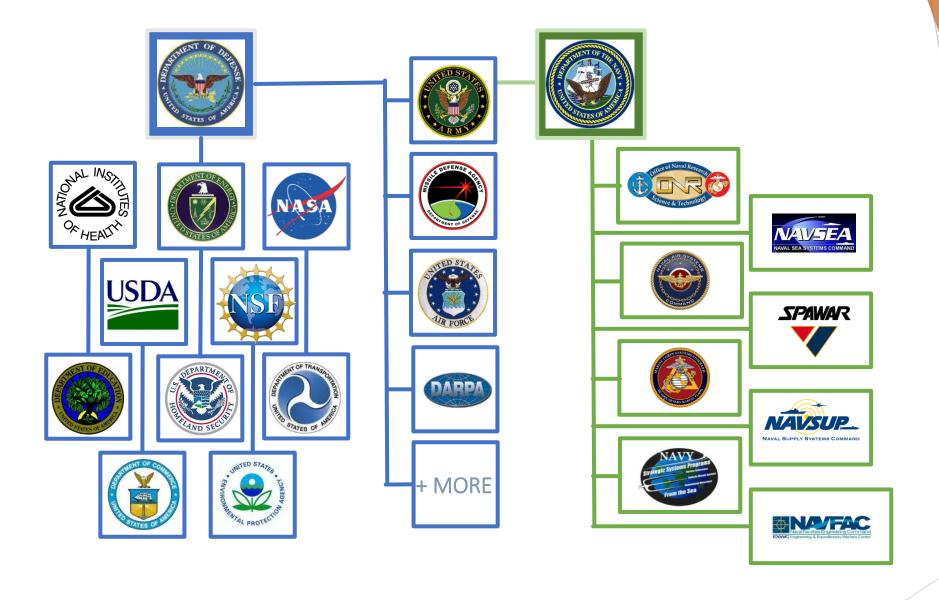
#### AWARD SIZE

- ▶ Phase I: ~\$250K
- Phase II: \$1.1-1.6 Million
- Sequential Phase IIs: \$1.1 Million (both a 2<sup>nd</sup> and 3<sup>rd</sup> possible)

## **DoD IS ALL ABOUT A GOOD MATCH**



- Large SBIR budget
  - Often driven by narrow needs
- Potential end customer
- Need to have a strong topic match
- Significant competition from SBIR mills
  - ▶ 200+ companies with over 100 SBIR/STTR awards
  - ▶ 6 companies with over 1,000 SBIR/STTR awards
- The AFWERX Exception
  - Open topics
  - Need to be ready to take advantage of opportunity



SBIR/STTR IS NOT MONOLITHIC

## **NARROW VS. OPEN TOPICS**









#### NARROW TOPICS











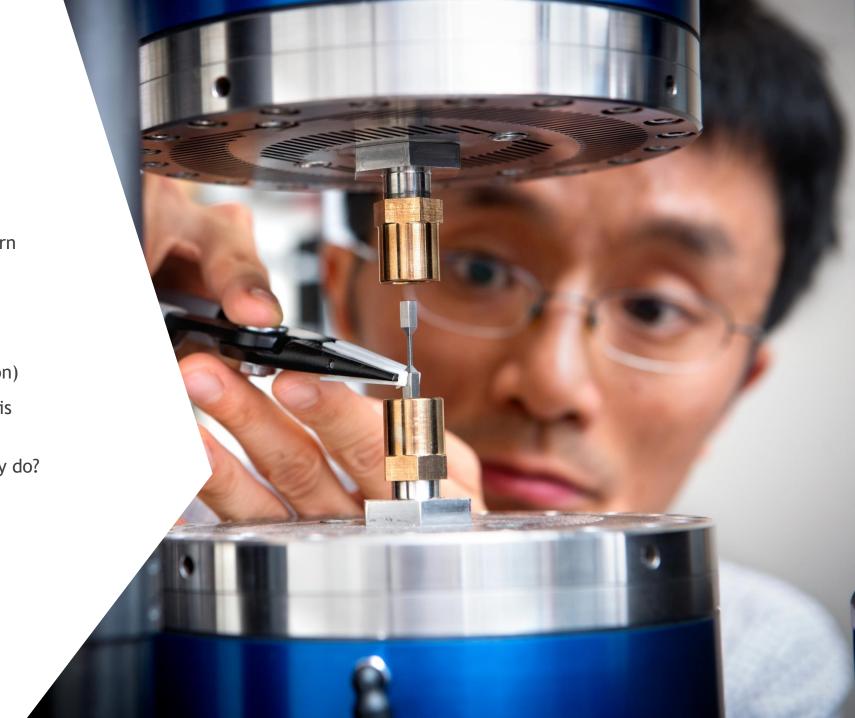
OPEN TOPICS





# CHOOSING A TOPIC

- ► Call topic author (if appropriate) to learn everything
- ▶ Does it match the topic?
- ▶Is the solution strong?
- ▶ Is it innovative? (innovation vs. evolution)
- ▶ Is the company prepared to invest in this opportunity?
- ▶ How much of the work will the company do?



# SELECTING OPPORTUNITIES IS CRITICAL

SBIR/STTR awards aren't random drawings

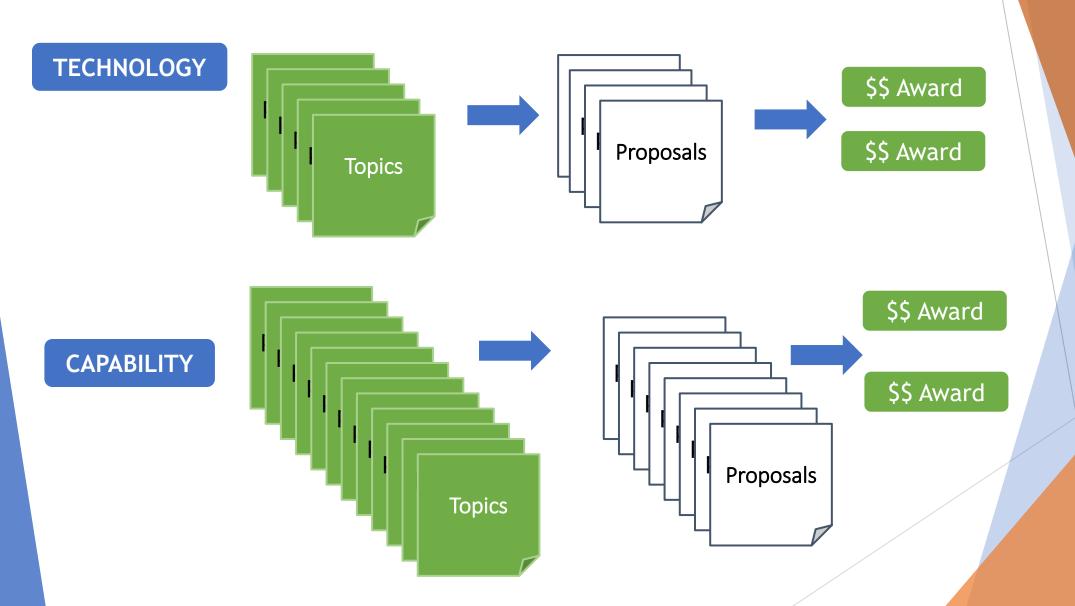
Preparing a winning SBIR/STTR proposal is a mountain of work.

The key is to pick battles that can be won

Choosing the right topic/agency is the most overlooked (and perhaps most important) ingredient of success

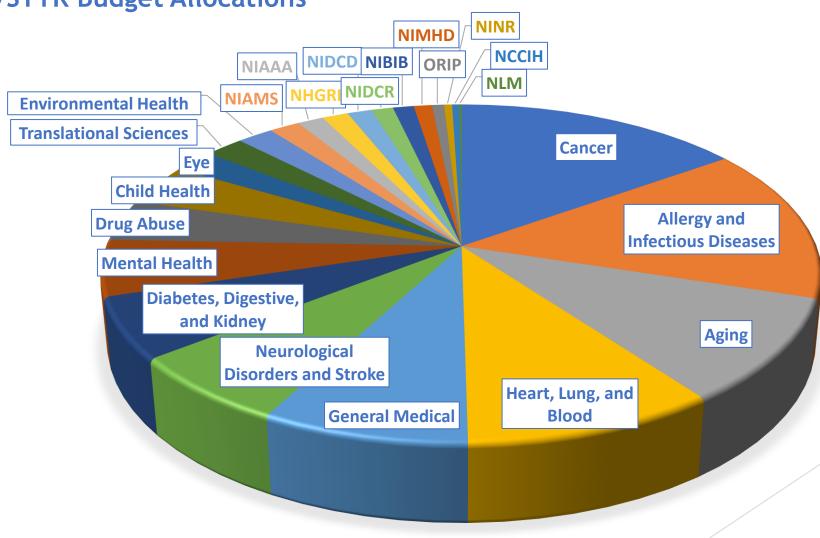


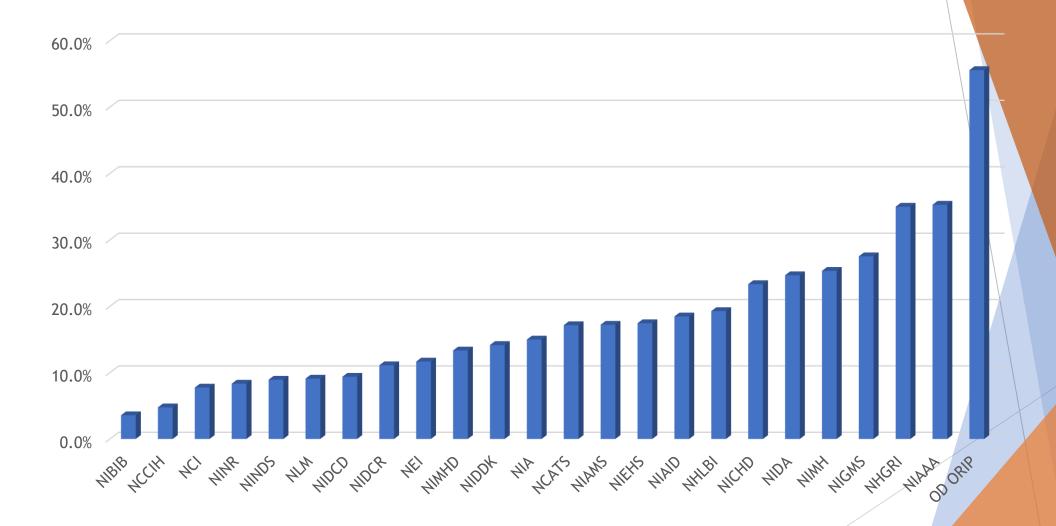
#### **TECHNOLOGY VS. CAPABILITY APPROACH**



# **NAVIGATING NIH**

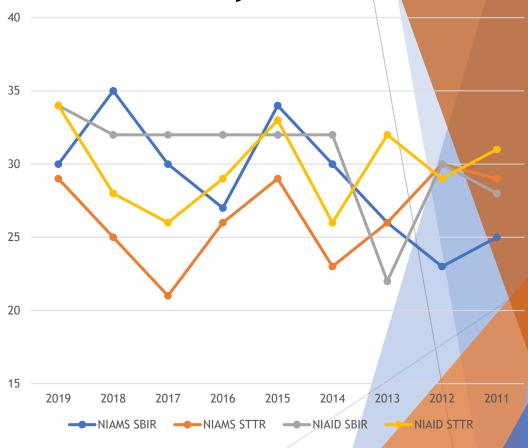
**SBIR/STTR Budget Allocations** 





- ► Each sub-agency has own funding policy
- Some publish paylines (10-90, 10 is best score (most fall between 15-55)
- ► You can request assignment to a sub-agency (otherwise NIH will choose)
- ► Choosing the right sub agency can be the difference between success and failure

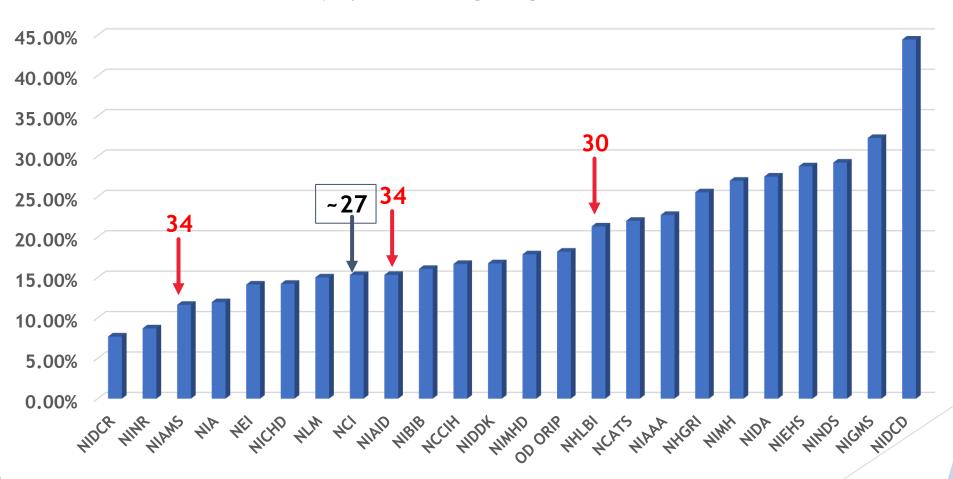
# NIAID+NIAMS SBIR vs STTR Paylines



NIH STTR Success Rates and Paylines can fluctuate wildly

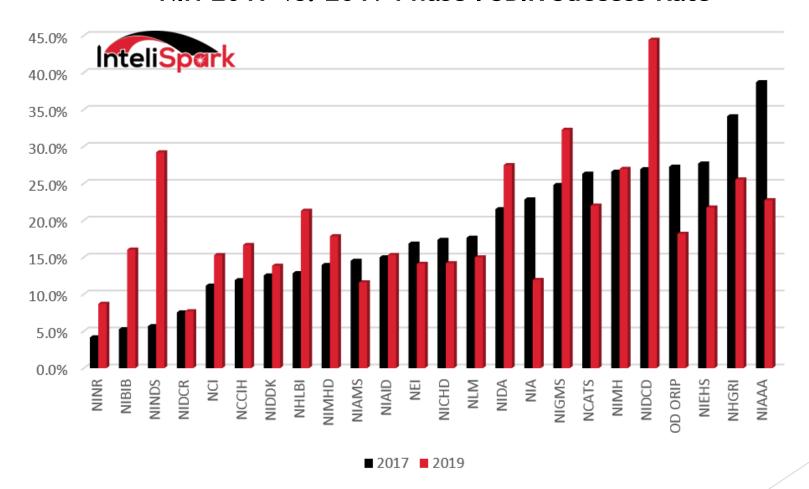
#### SUCCESS RATE DOES NOT EQUAL PROBABILITY

2019 NIH Phase I SBIR Success Rates



#### LOOKING FORWARD VS. BACKWARD

#### NIH 2017 vs. 2019 Phase I SBIR Success Rate

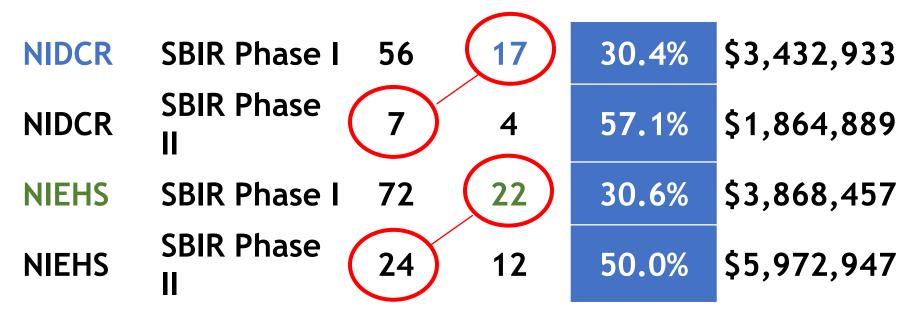


### LOOKING AT SUCCESS RATES...

NIDCR	SBIR Phase I	56	17	30.4%	\$3,432,933
NIDCR	SBIR Phase II	7	4	57.1%	\$1,864,889
NIEHS	SBIR Phase I	<b>72</b>	22	30.6%	\$3,868,457
NIEHS	SBIR Phase II	24	12	50.0%	\$5,972,947

What matters is the future and how the past shapes it!

#### **BEING SMARTER THAN THE NUMBERS**

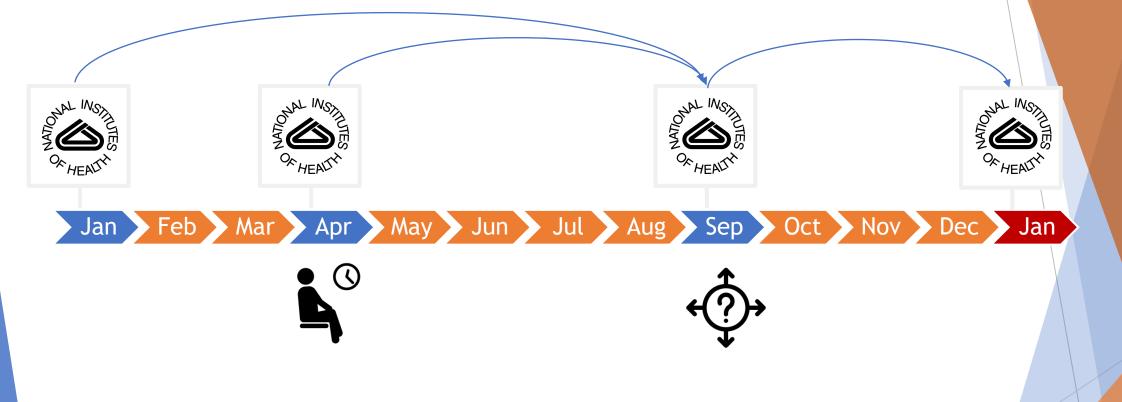


Published Data is Backward looking...project forward!!!

#### **PHASE II APPLICATIONS**

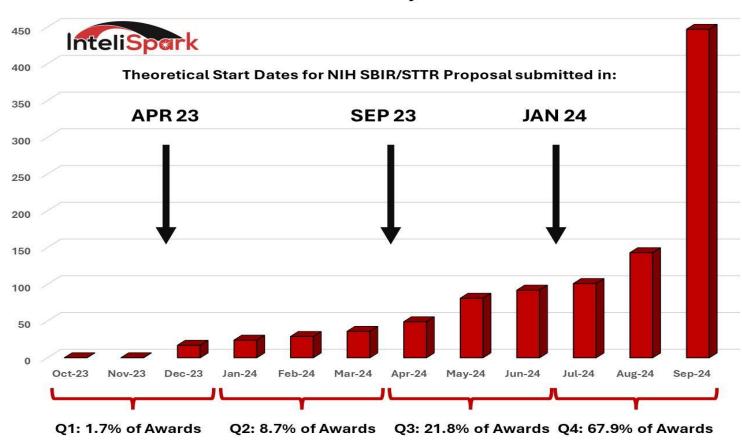


### IMPACT OF SOLICITATION SCHEDULES



### Requested Start Dates vs. Actual start dates

#### New NIH SBIR/STTR Awards Issued by Month of Fiscal Year FY 2024

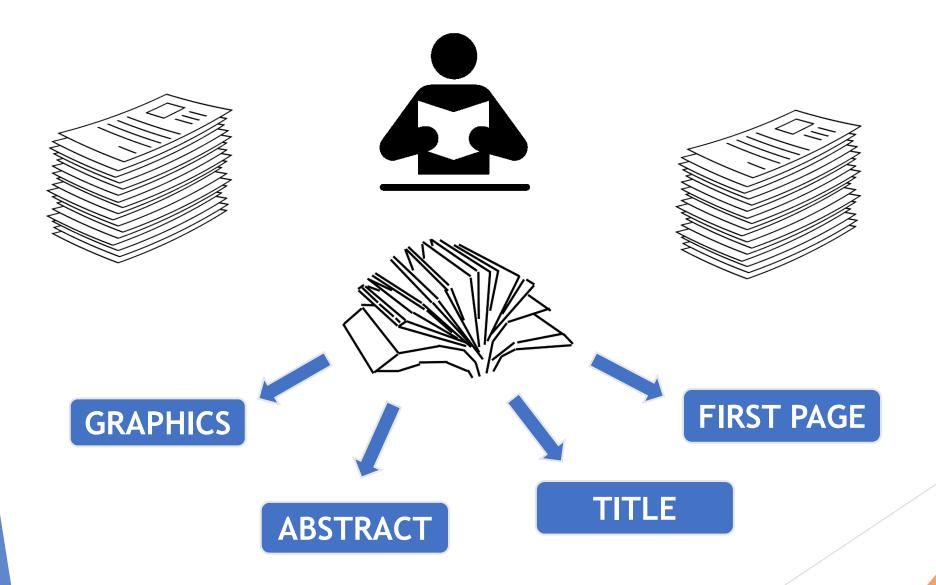






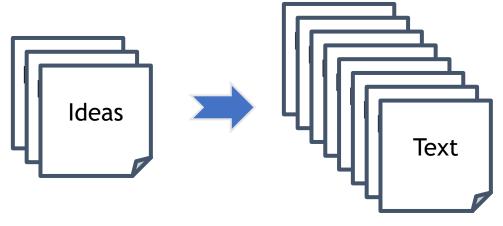
NOW WRITE | Writing an SBIR/STTR Proposal

#### **UNDERSTANDING REVIEWER'S POINTS OF ENTRY**



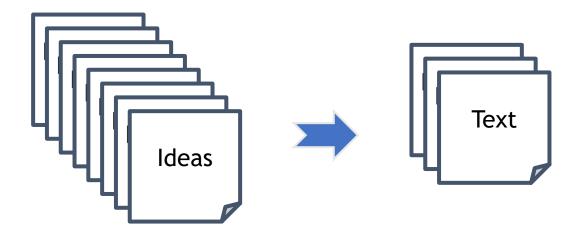
# RESEARCH PROPOSAL WRITING

#### HOW YOU ARE TAUGHT TO WRITE IN SCHOOL





#### **EFFECTIVE RESEARCH PROPOSAL WRITING**







# HOW SHOULD I WRITE A PROPOSAL?

- A proposal is written in a similar style as a peer-reviewed journal article...
- ▶...BUT is NOT an academic explorationit needs concrete goals, objectives,and measures of success
- ► Write concisely
- ► Use visuals to convey big ideas
- Mock-up interfaces to software
- ►Cite your peers (especially if they might be reviewers)
- Show you understand the field
- ► Avoid sloppy mistakes

#### EVEN SMART PEOPLE ARE BAD WITH NUMBERS



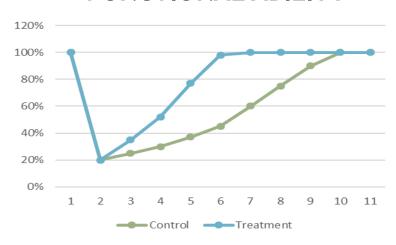
20/100 or 20% or 0.2 or 1/5

A telling example of innumeracy levels in society involves a study of clinicians (who represent a sample with education levels representative of reviewers) who were asked to consider the release of a psychiatric patient. When told that that 20 of 100 similar patients could be expected to commit an act of violence if released, 41% refused to discharge the patient. However, when instead told that 20% of similar patients could be expected to commit an act of violence if released, only 21% refused to discharge the patient.

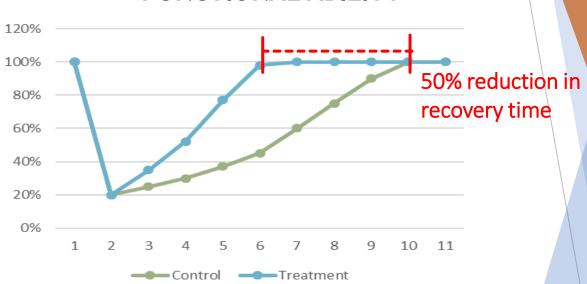
Slovic, P., J. Monahan, and D.G. MacGregor, Violence risk assessment and risk communication: the effects of using actual cases, providing instruction, and employing probability versus frequency formats. Law Hum Behav, 2000. 24(3): p. 271-96.

#### CONTROL THE NARRATIVE

#### **FUNCTIONAL ABILITY**



#### **FUNCTIONAL ABILITY**



PHASE II IS
EVERYTHING | Winning a
Phase I makes your mom
proud of you, winning a
Phase II changes the value
of your company



# **KEYS TO SUCCESSFUL PHASE II**

- STARTS WITH A GOOD PHASE I
- ► HAVE A PHASE I DESIGNED TO CHANGE THE NARRATIVE AND PRODUCE INTERESTING DATA (which may change the order in which you do things
- ► EVERYTHING YOU DO IN PHASE I IS ABOUT WINNING PHASE II!!!
  - ► Adjust plans as required
  - ► Create data that supports Phase II proposal
  - ► Understand tradeoff between submission time and success rate
- **▶**TWO BIGGEST GAME CHANGERS
  - ▶ Raise money during Phase I
  - Move from talk to action with 3<sup>rd</sup> Parties (i.e. secure pilot customers/users during Phase I)

# IMPORTANCE OF COMMERCIALIZATION







**MINIMAL** 













**VERY** 







#### **TECHNOLOGY PUSH**

► Define why the technology creates a new product category

Make the case the customers need what they don't know the need

Only works with truly transformative disruptive technologies

"If I had asked people what they wanted, they would have said faster horses" - Henry Ford



DOING IT RIGHT | Ensure your SBIR/STTR effort adds value to your start-up. SBIR is a means not an end!



# WHY ARE YOU INTERESTED IN SBIR FUNDING?

YOU ARE A TOAD...AND YOU HAVE WARTS!

- ►Too risky
- ►Too early
- ►Unproven Team
- ►Unproven Market
- ► Unproven Technology
- ► Limited or no resources

## YOU ARE A TOAD WITH WARTS, NOT A FROG PRINCE



SBIR/STTR can help you remove enough warts so Investors, Partners, & Customers will Shake your hand!

# YOU ARE A TOAD WITH WARTS NOT A FROG PRINCE



- Too risky
- Too early
- Unproven Team
- Unproven Market
- Unproven Technology
- Limited or no resources

- Remove risk
- Advance technology
- Develop applications for technology
- 3<sup>rd</sup> party validation

- Investors
- Partners
- Customers
- Future Employees

## **FAMOUS SBIR COMPANIES**



Market Cap: \$248B



Market Cap: \$32.9B



**Market Cap: \$152.5B** 



Market Cap: \$20B

None received more than \$9 million in SBIR/STTR funding
Total combined funding less than \$20 million

#### SUCCESSFUL COMPANY COMMON THEME











































# SBIR · STTR

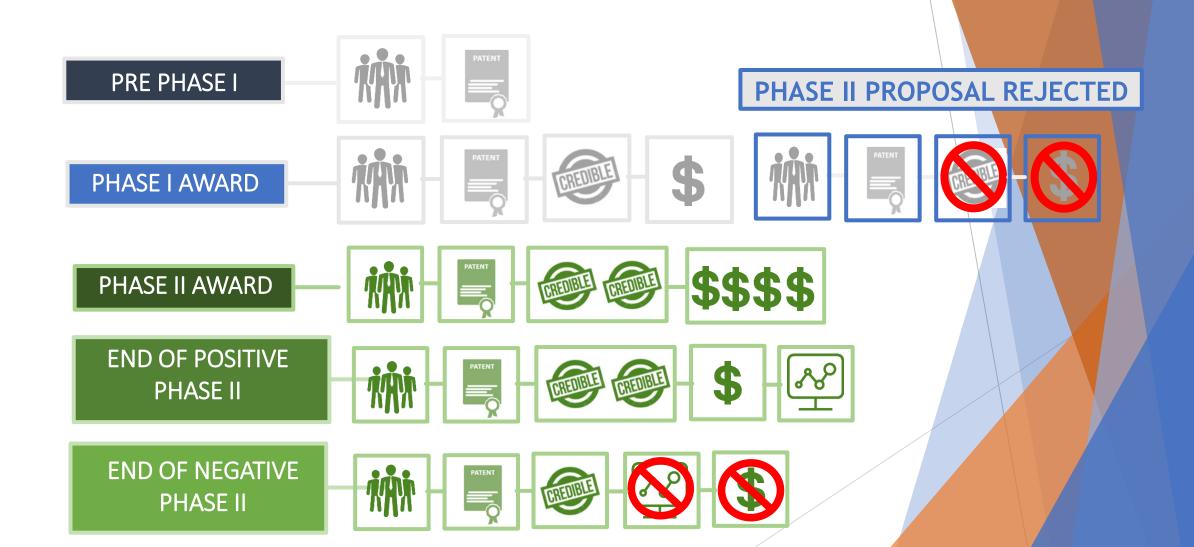
America's Seed Fund



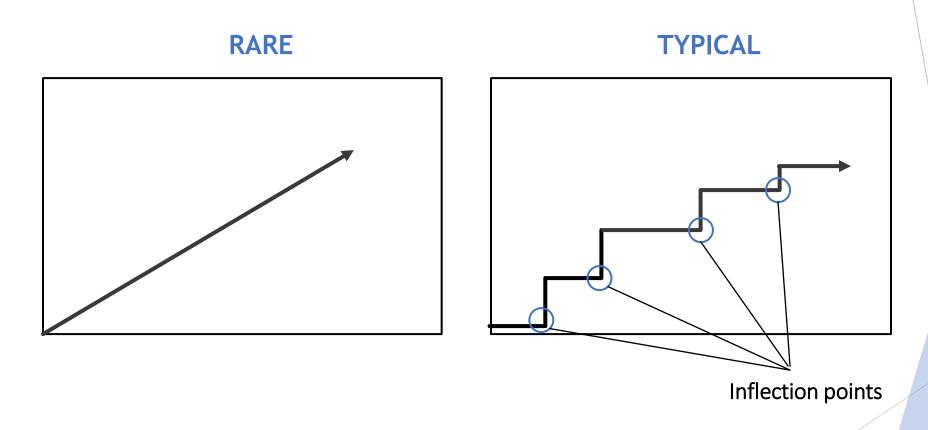


VENTURE CAPITOL

#### RAISE MONEY FROM POSITION OF STRENGTH

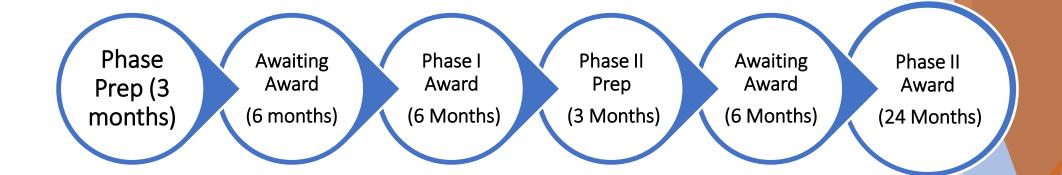


#### UNDERSTAND THE STEP FUNCTIONS

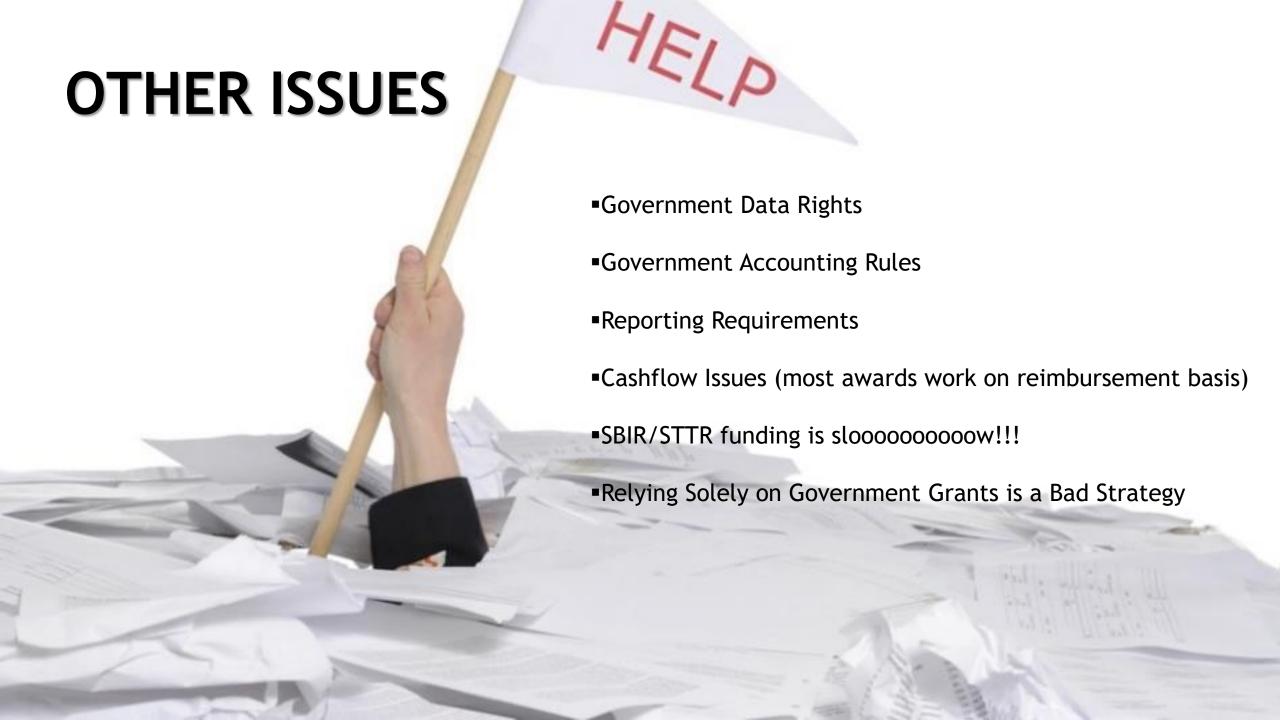


You need to understand the inflection points that change the perspective of investors, customers, and partners...and build your SBIR/STTR around them

# **UNDERSTAND THE TIMING**



**4+ Year Process** 



# **EVOLVING LANDSCAPE**

#### FOREIGN DISCLOSURE

	Legislative Requirement	Due Diligence Dimension	Foreign Involvement Determination	No Foreign Involvement Determination	
	Foreign Ownership Foreign Ownership and Control		Confirmed indicators of active (ongoing) partnership or a controlling equity, joint venture, and/or subsidiary in a <a href="foreign">foreign</a> country of concern	No confirmed indicators of active (within 1 year) partnership or a controlling equity, joint venture, and/or subsidiary in a country of concern	
	Financial Ties & Obligations to a Foreign Country of Concern			No confirmed indicators of active (within 1 year) foreign financial obligations with a <u>foreign country of concern</u> , person residing in a foreign country of concern, or an entity affiliated with a country of concern	
Emplo	Employee Analysis	Foreign Talent Program	Confirmed indictors of current or past participation in a malign foreign talent recruitment program (defined by section 10638 of the Research and Development, Competition, and Innovation Act; Public Law 117-167)	No confirmed indictors of current or past (within 1 year) participation in a malign foreign talent recruitment program (defined by section 10638 of the Research and Development, Competition, and Innovation Act; Public Law 117-167)	
		Foreign Affiliations	Confirmed indictors of a recent affiliation (within 1 year) with an entity or research institution affiliated with a <u>foreign country of concern</u>	No confirmed indicators of recent affiliation (within 1 year) with an entity or research institution affiliated with a <u>foreign country of concern</u>	
	Cybersecurity Practices	Cybersecurity Concerns	Confirmed foreign IP activity (within 1 year) indicative of business operations in a foreign country of concern or using IT software, hardware, and/or services from a <u>U.S.G.</u> <u>prohibited vendor</u> or from an IT vendor from a <u>foreign country of concern</u>	No confirmed foreign IP activity (within 1 year) indicative of business operations in a foreign country of concern or using IT software, hardware, and/or services from a <u>U.S.G. prohibited vendor</u> or from an IT vendor from a <u>foreign country of concern</u>	
	Patent Analysis	Foreign Patents	Confirmed patent application(s) or patent(s) based on research funded by the U.S. Government that were filed within the last 5 years in a foreign country of concern prior to filing in the U.S. or filed on behalf of a foreign country of concern connected entity	No confirmed patent application(s) or patent(s) based on research funded by the U.S. Government that were filed within the last 5 years in a <u>foreign country of concern</u> prior to filing in the U.S. or filed on behalf of a foreign country of concern connected entity	

#### Foreign Countries of Concern

- China
- Russia
- Iran
- North Korea
   Chinese CROs unofficially
   blacklisted at NIH:
- BGI Genomics
- Complete Genomics (subsidiary of MGI Tech)
- WuXi
- NGI Tech

USG prohibited information technology companies:

- Huawei Technologies Company
- ZTE Corporation
- Hytera Communications Corporation
- Hangzhou Hikvision Digital Technology Company
- Dahua Technology Company

#### ADMINISTRATION IMPACTS - Overview

- 2025 BUDGET LARGELY INTACT 2026 FORWARD UNCERTAIN
- INDIRECT COST RATE REDUCTIONS
  - WILL WIN IN COURT FOR NEW PROJECTS ONCE FUNDING ANNOUNCEMENTS ARE UPDATED
  - DOES NOT AFFECT SMALL BUSINESSES
  - MAY AFFECT UNIVERSITY SUBAWARDS
- AVOID OVER DISCUSSING DISEASE DEMOGRAPHICS
- PROGRAM OFFICER TERMINATIONS
- CHAOS IS THE STATE OF PLAY BUT CHAOS ALSO CREATES AN OPPORUNITY
- Intelispark POSTS REGULARLY ON LINKED IN ON NEW UPDATES:
- https://www.linkedin.com/in/kirk-macolini-25148b12/



President at InteliSpark, LLC, SBIR & STTR Expert...







THE END | Questions?

# WANT TO SCHEDULE A 1-ON-1?

https://calendly.com/intelispark/intro



## Thank you!

- Please answer the Zoom poll question.
- Recording will be sent tomorrow.
- Don't forget to connect with us on LinkedIn.
- See you next week for

#### Week 5: June 25

Mastering Startup Agreements and Exit Strategies with Rich Honen from Phillips Lytle