



SUNY **STARTUP SUMMER SCHOOL**

How To Win Grants Mastering Non-Dilutive Funding Sources

Meet your presenters!

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INTELISPARK TRACK RECORD



>600 proposals (95%+ SBIR/STTR) selected for award

~\$325,000,000 in projects selected for award



47 start-up clients funded in 2022

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



Alterna Therapeutics





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 3rd 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*

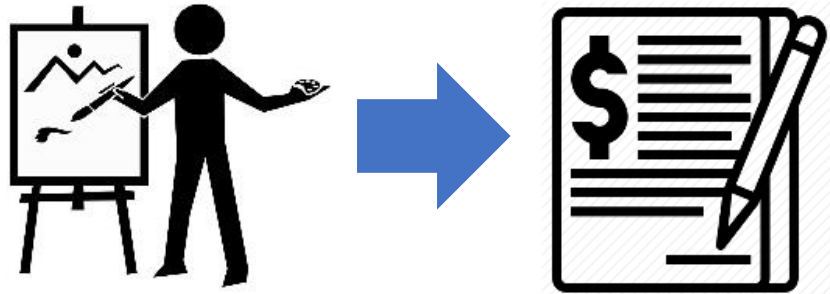
You can exploit discontinuities in the funding probabilities



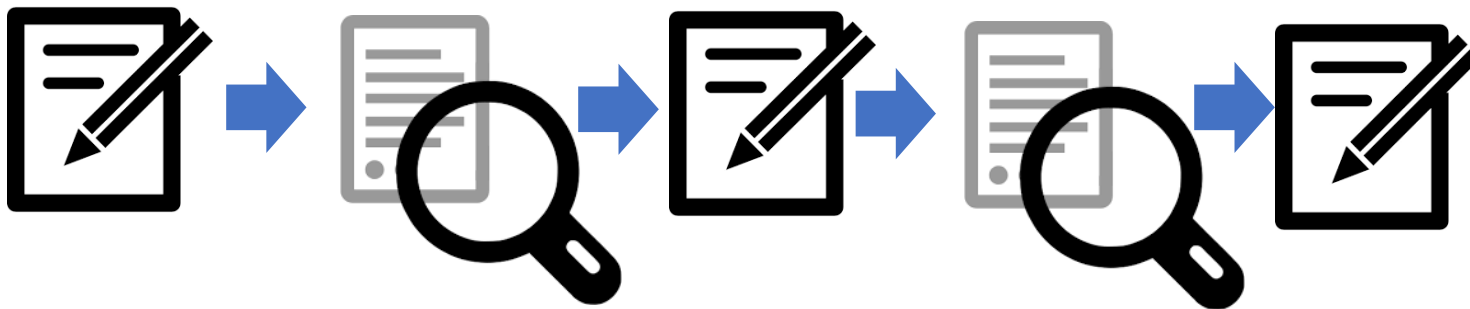
SUNY STARTUP
SUMMER SCHOOL

VIEW SBIR/STTR AS A MARKETPLACE

“ART” OF GRANT WRITING



Investigator Driven Perspective

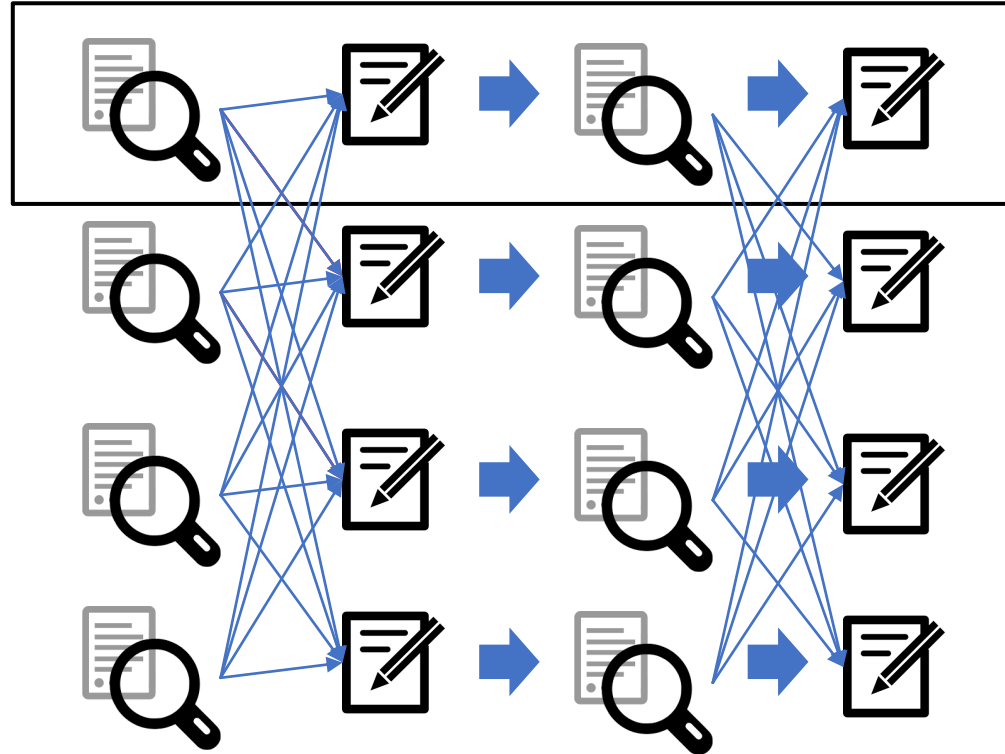
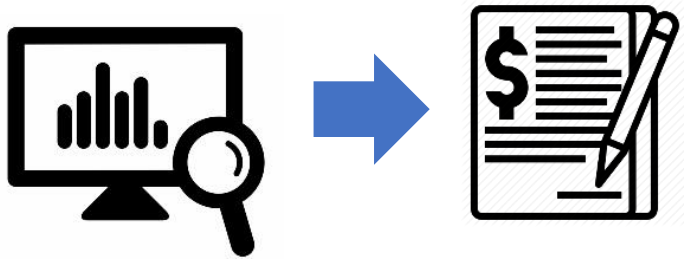


Tends to be Focused on the Seller



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



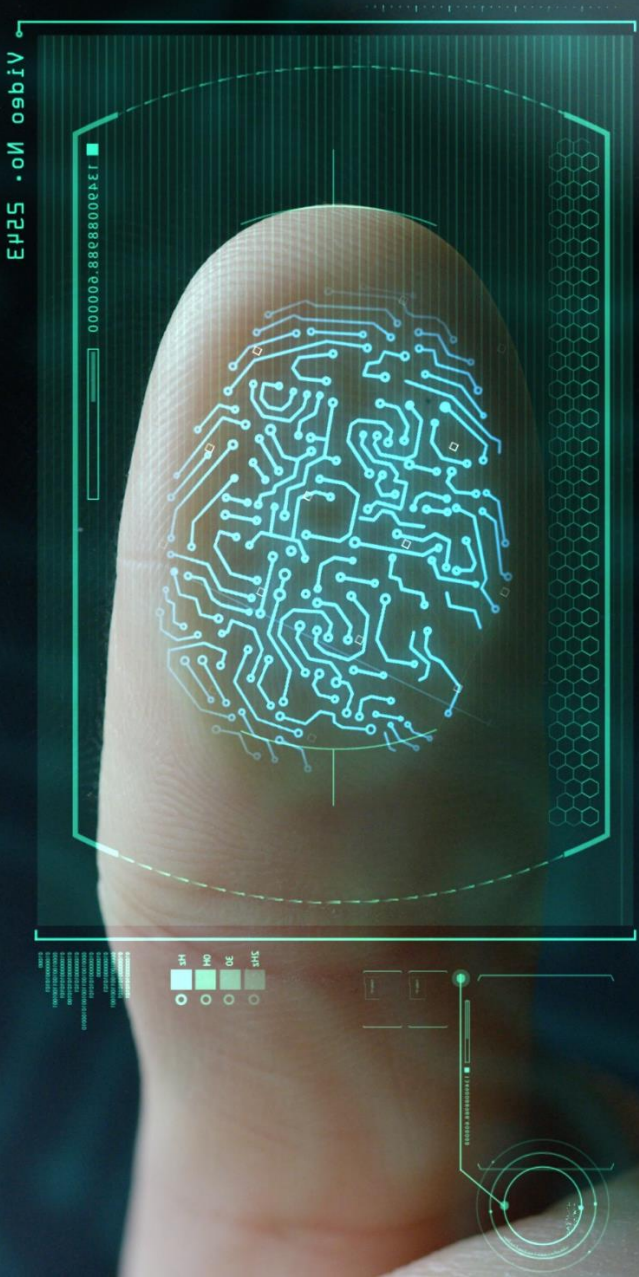
DOT



ED



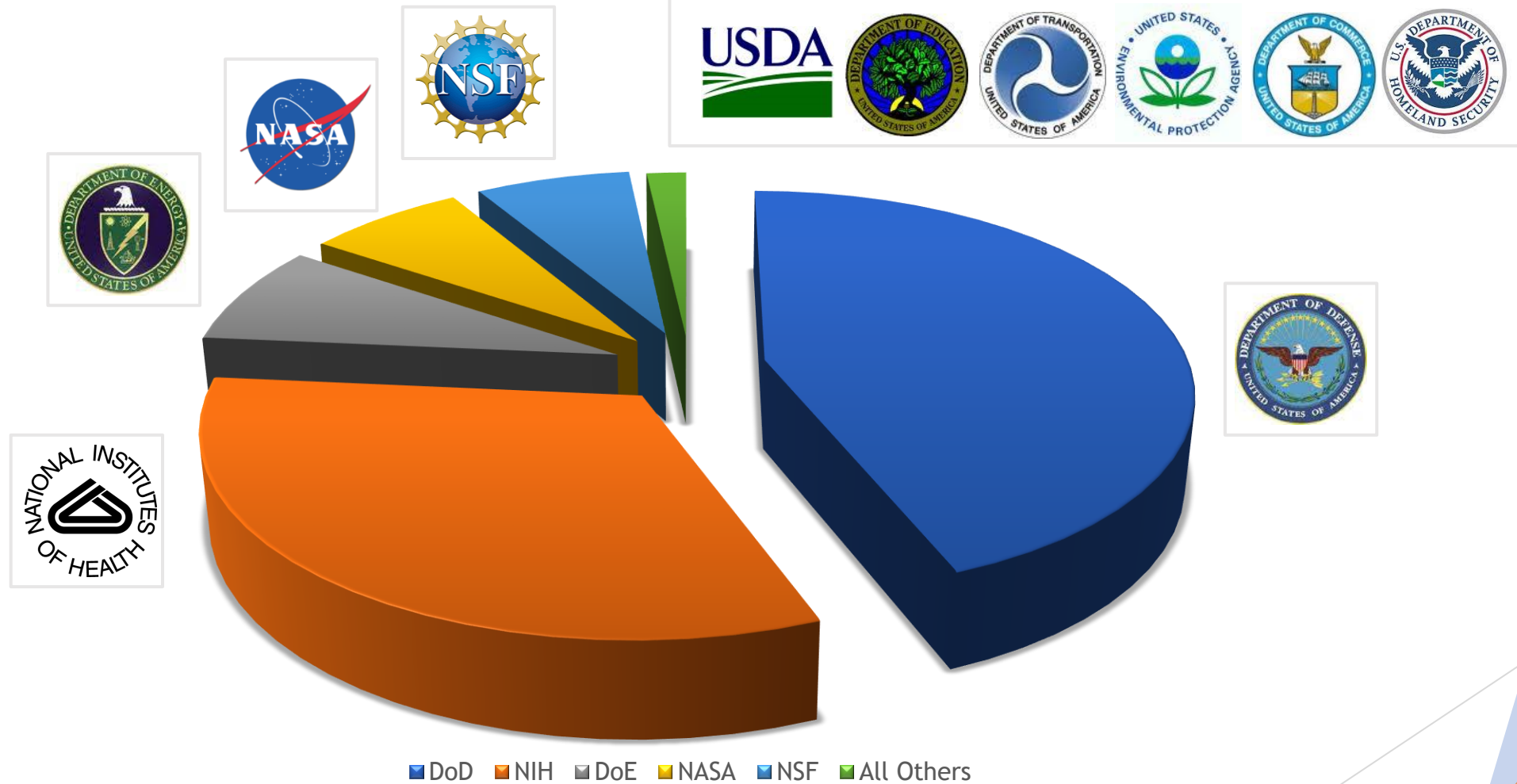
DOC (NIST, NOAA)



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



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



NIH
Challenge
Grants
\$200 Million
for 200
projects



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

AVOID THE CROWDED FISHING HOLES

NSF IS THE MOST START-UP FRIENDLY

► COMPANY SIZE:

- ~ 92% 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:

- ~ 78% of awardee companies were incorporated within the past 5 years



DoE favors National Lab connections and prior awardees



Technical Reviewer Affiliation



EXCESSIVE multiple awards:

- ▶ 10 companies with over 100 DoE SBIR/STTR awards
- ▶ 24 companies with 51-100 DoE SBIR/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 2nd and 3rd possible)

Office of Science Laboratories

- 1 Ames Laboratory
Ames, Iowa
- 2 Argonne National Laboratory
Argonne, Illinois
- 3 Brookhaven National Laboratory
Upton, New York
- 4 Fermi National Accelerator Laboratory
Batavia, Illinois
- 5 Lawrence Berkeley National Laboratory
Berkeley, California
- 6 Oak Ridge National Laboratory
Oak Ridge, Tennessee
- 7 Pacific Northwest National Laboratory
Richland, Washington
- 8 Princeton Plasma Physics Laboratory
Princeton, New Jersey
- 9 SLAC National Accelerator Laboratory
Menlo Park, California
- 10 Thomas Jefferson National Accelerator Facility
Newport News, Virginia

Other DOE Laboratories

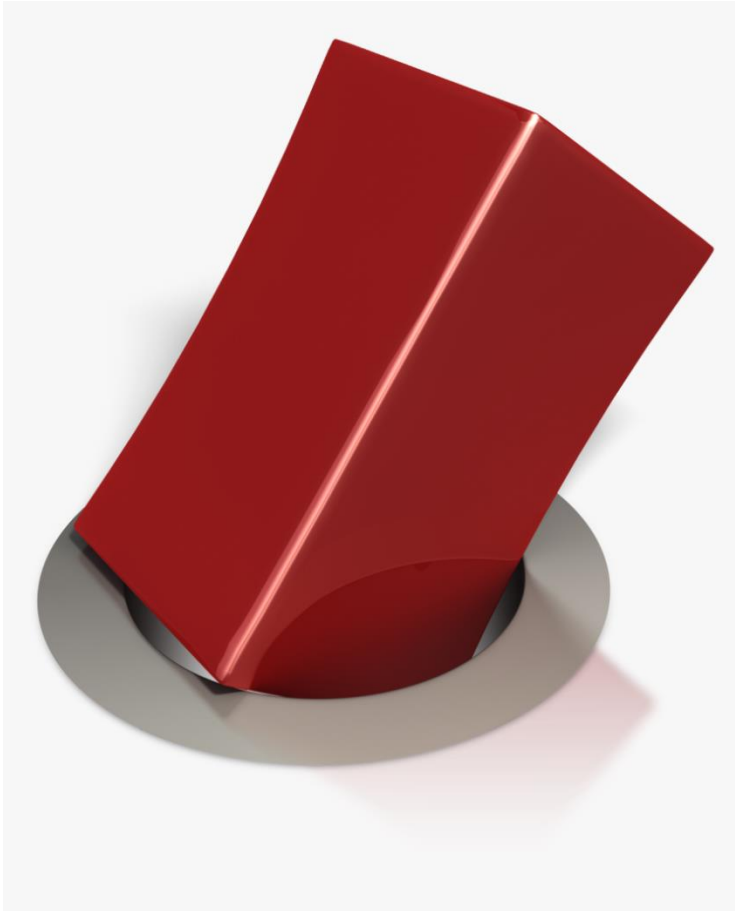
- 1 Idaho National Laboratory
Idaho Falls, Idaho
- 2 National Energy Technology Laboratory
Morgantown, West Virginia
Pittsburgh, Pennsylvania
Albany, Oregon
- 3 National Renewable Energy Laboratory
Golden, Colorado
- 4 Savannah River National Laboratory
Aiken, South Carolina

NNSA Laboratories

- 1 Lawrence Livermore National Laboratory
Livermore, California
- 2 Los Alamos National Laboratory
Los Alamos, New Mexico
- 3 Sandia National Laboratory
Albuquerque, New Mexico
Livermore, California



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

DoE favors National Lab connections and partnerships



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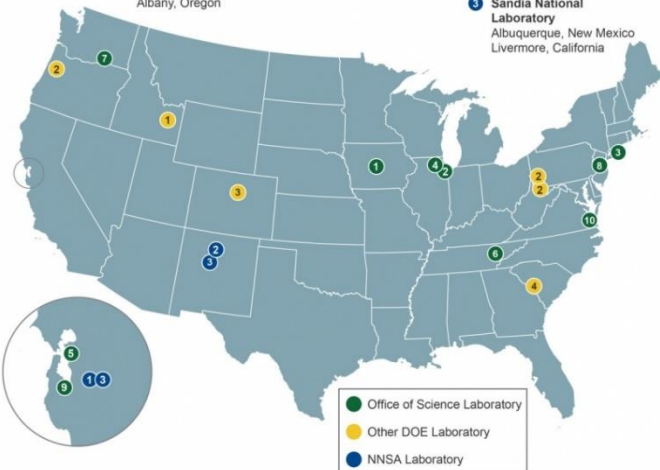
- 1 Ames Laboratory
Ames, Iowa
- 2 Argonne National Laboratory
Argonne, Illinois
- 3 Brookhaven National Laboratory
Upton, New York
- 4 Fermi National Accelerator Laboratory
Batavia, Illinois
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Berkeley, California
- 6 Oak Ridge National Laboratory
Oak Ridge, Tennessee
- 7 Pacific Northwest National Laboratory
Richland, Washington
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Princeton, New Jersey
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Menlo Park, California
- 10 Thomas Jefferson National Accelerator Facility
Newport News, Virginia

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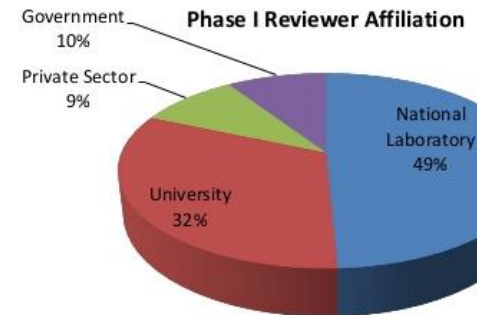
NNSA Laboratories

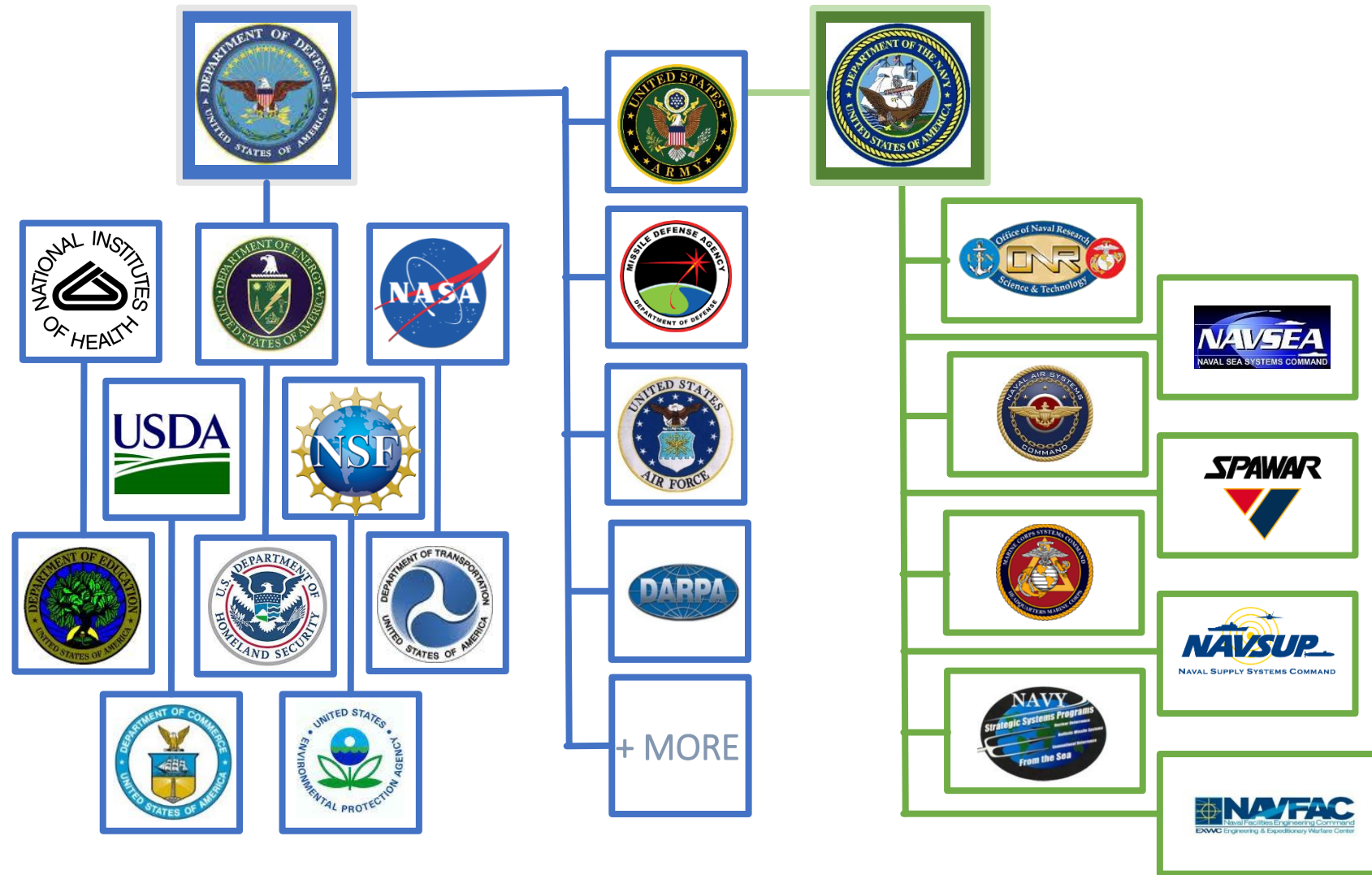
- 1 Lawrence Livermore National Laboratory
Livermore, California
- 2 Los Alamos National Laboratory
Los Alamos, New Mexico
- 3 Sandia National Laboratory
Albuquerque, New Mexico
Livermore, California



Technical Reviewer Affiliation

Phase I Reviewer Affiliation





SBIR/STTR IS NOT MONOLITHIC

NARROW VS. 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.

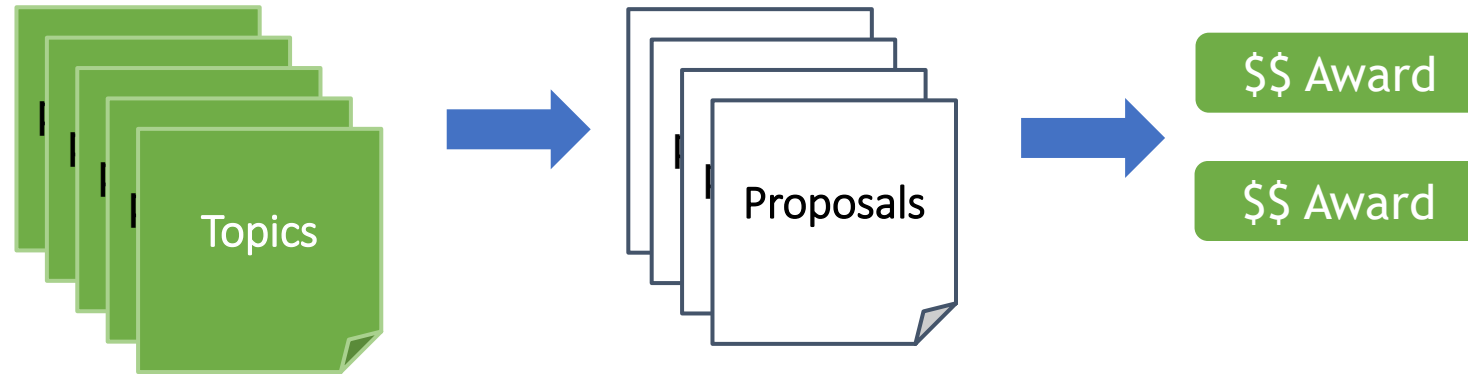
The key is to pick battles that can be won

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

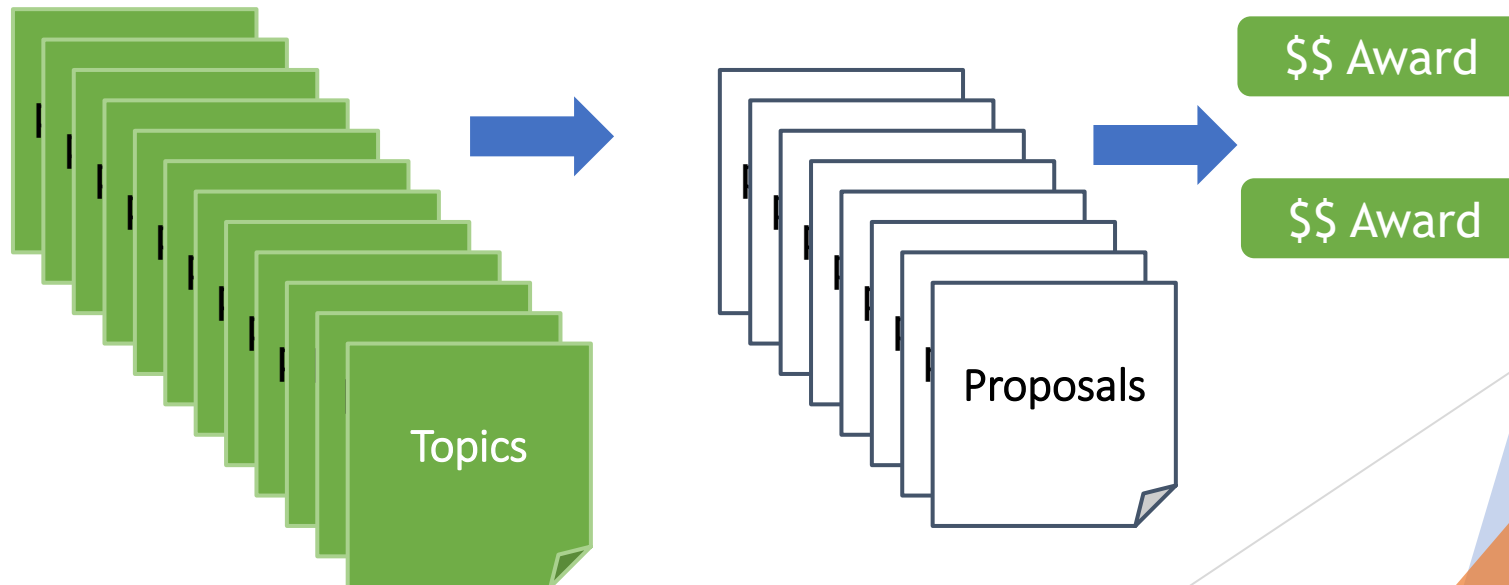


TECHNOLOGY VS. CAPABILITY APPROACH

TECHNOLOGY

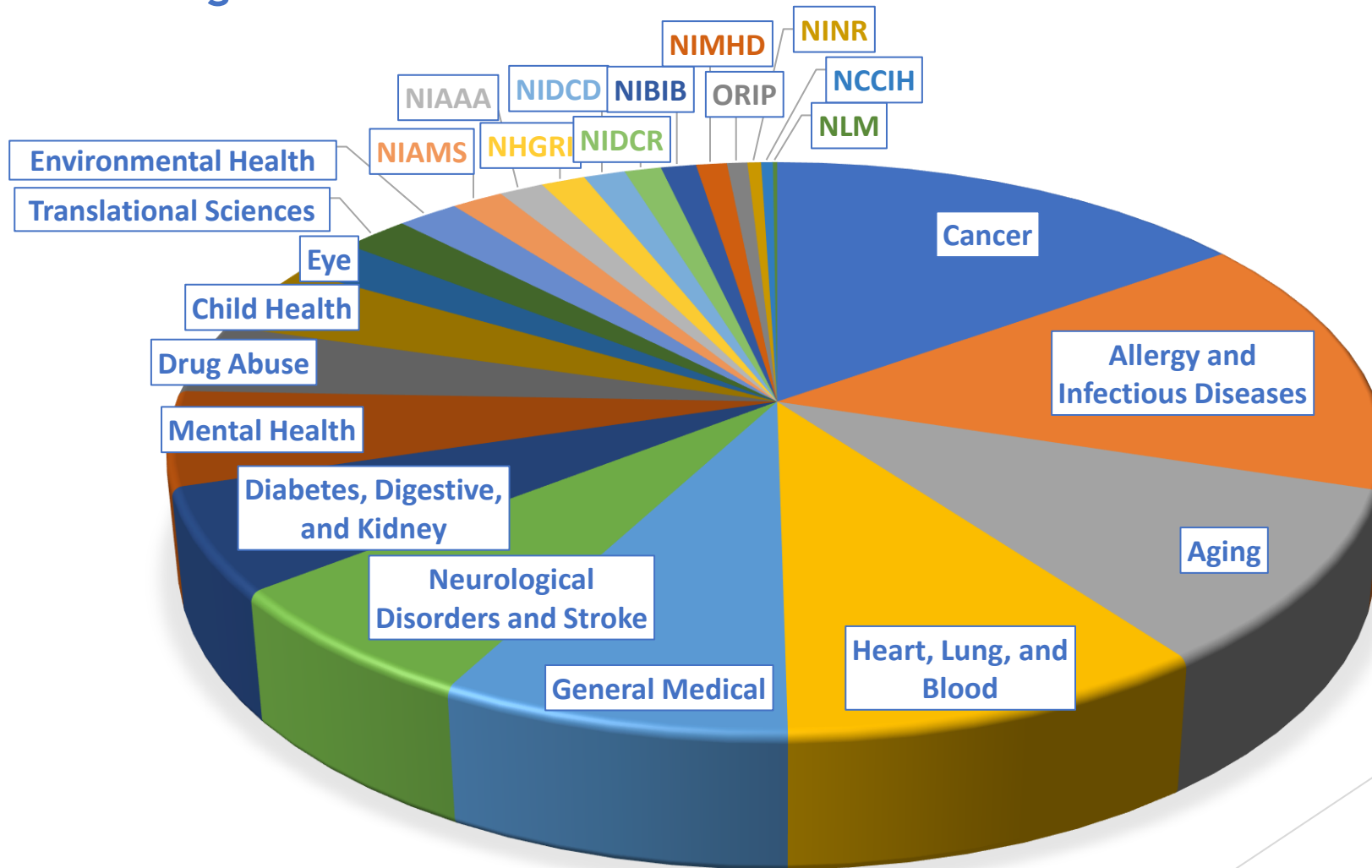


CAPABILITY

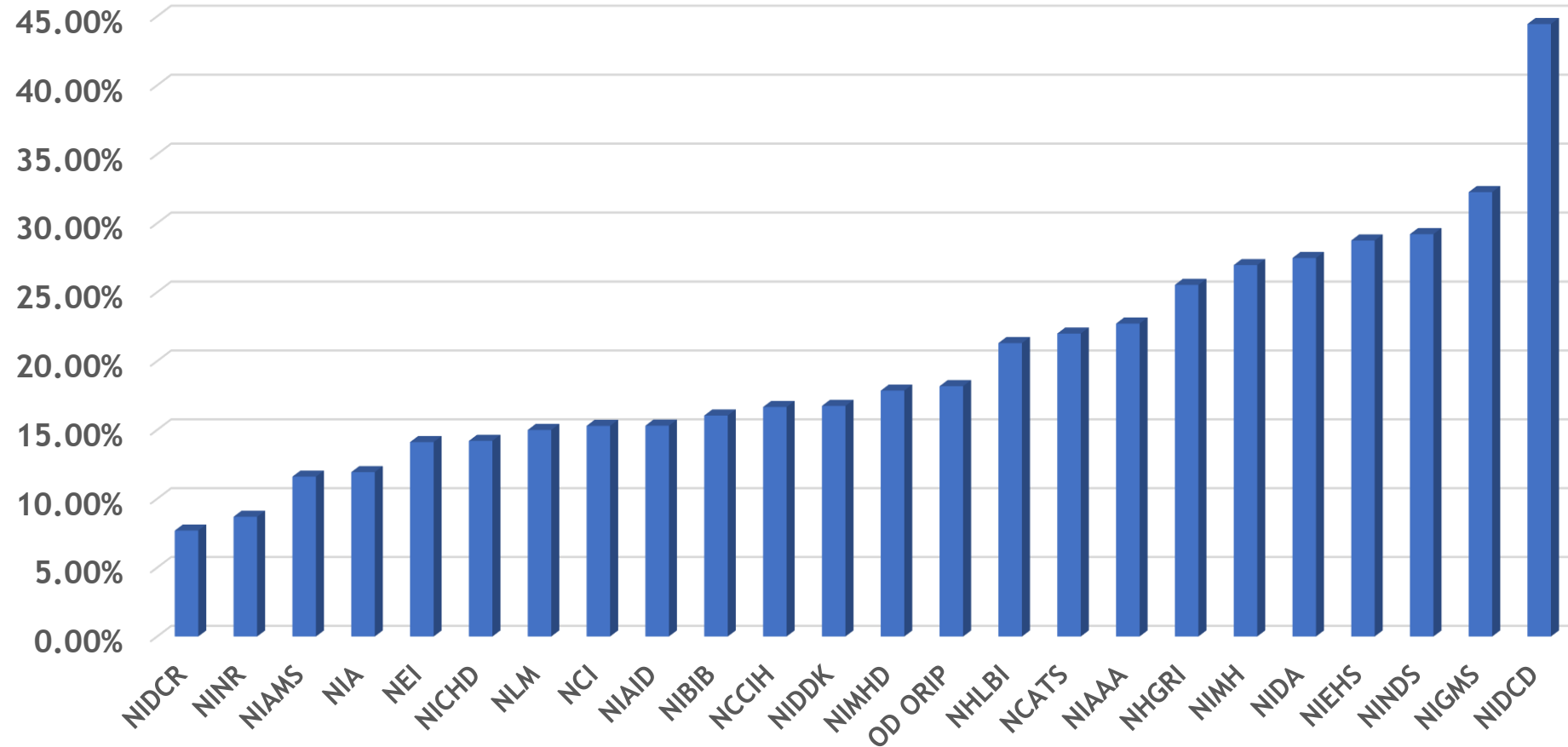


NAVIGATING NIH

SBIR/STTR Budget Allocations



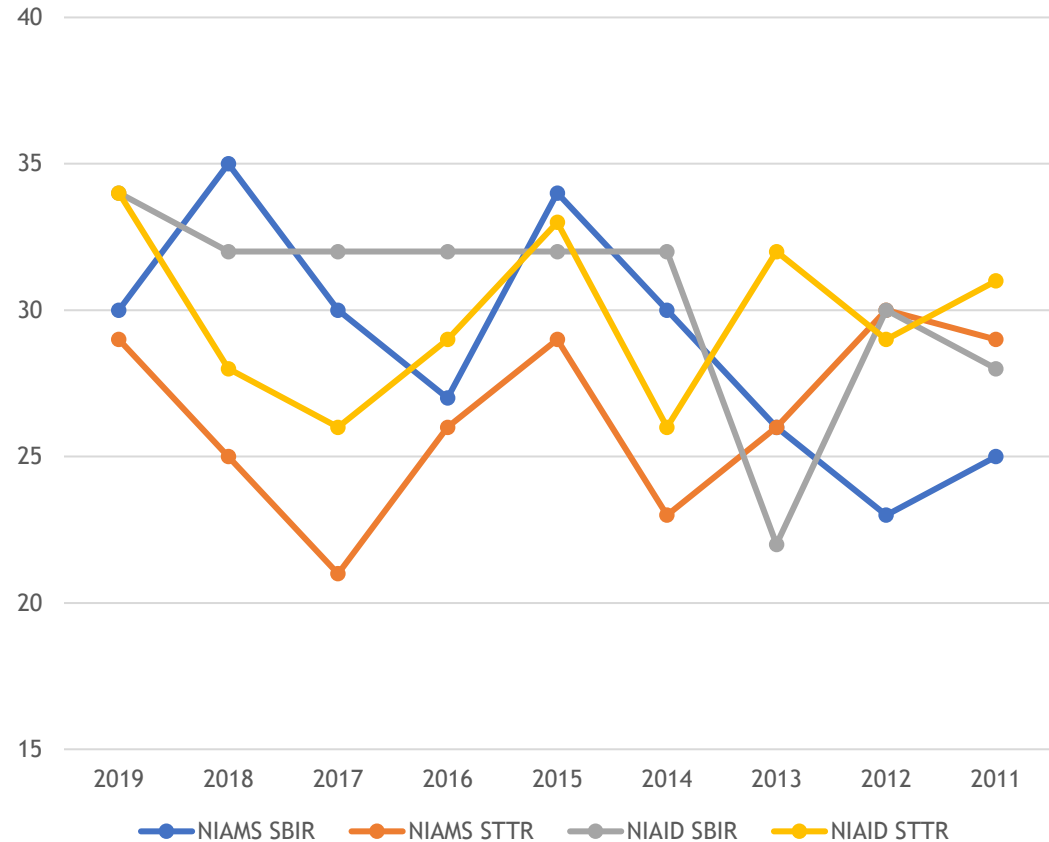
2019 NIH Phase I SBIR Success Rates



UNDERSTANDING NIH SCORING

- ▶ 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

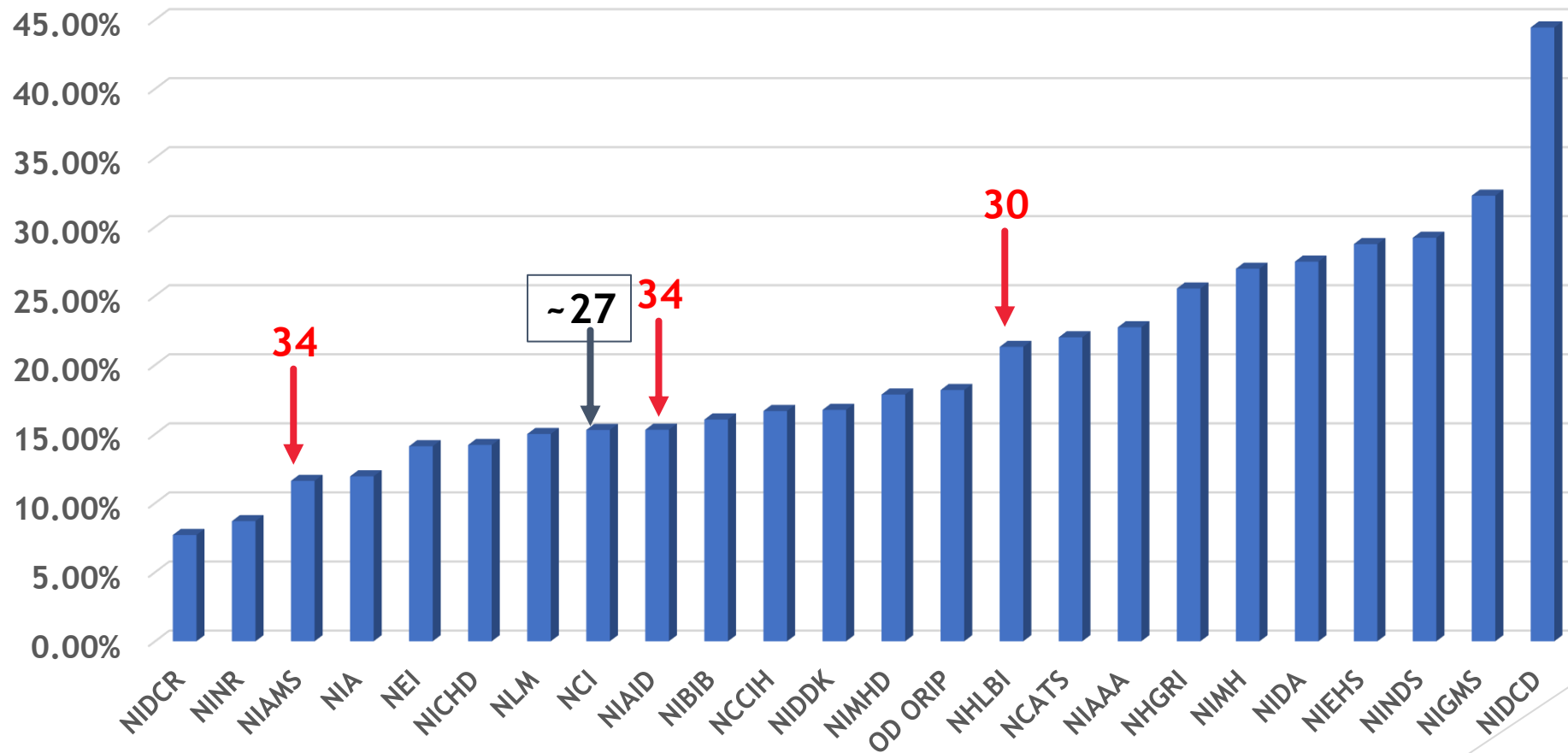
NIAID+NIAMS SBIR vs STTR
Paylines



NIH STTR Success Rates and Paylines can fluctuate wildly

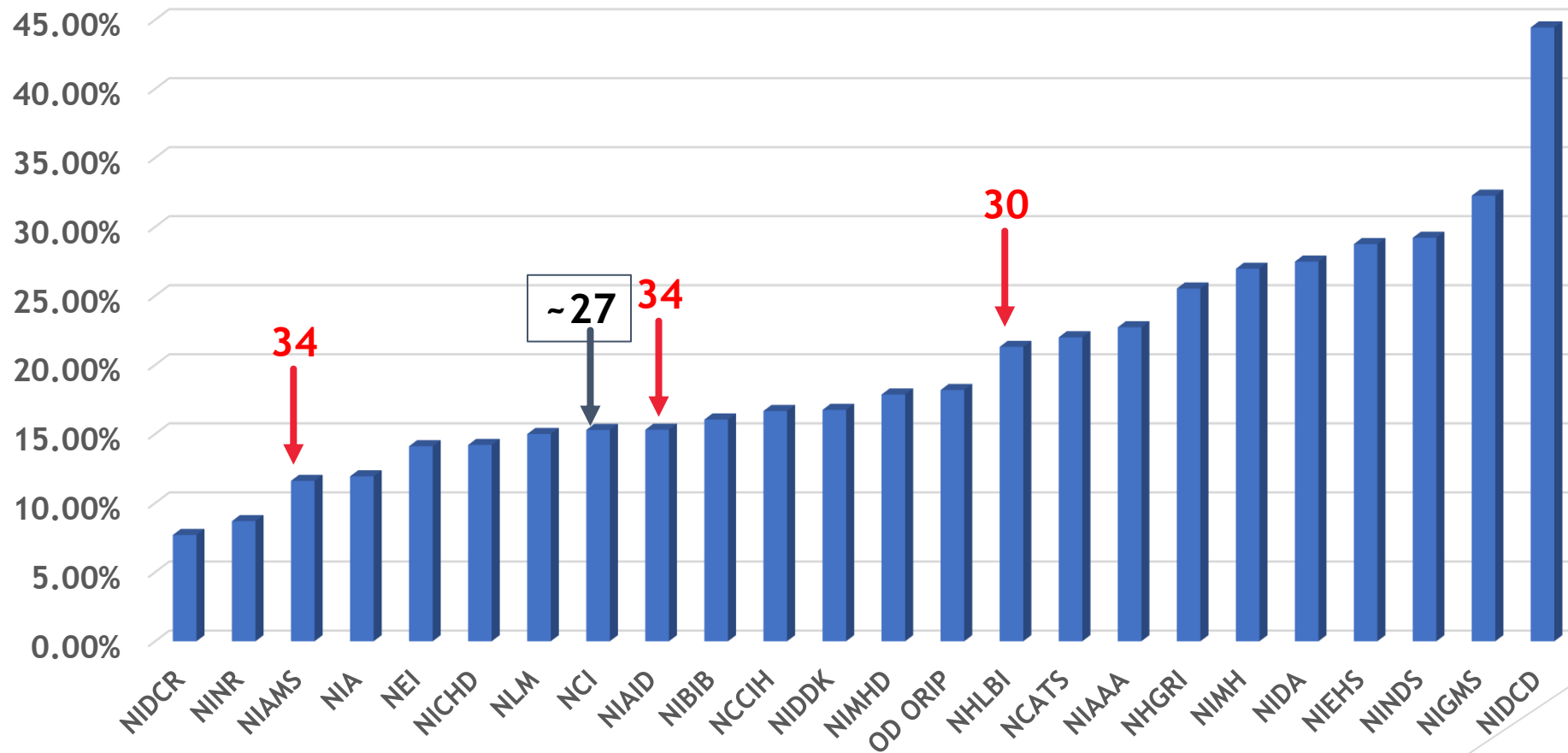
SUCCESS RATE DOES NOT EQUAL PROBABILITY

2019 NIH Phase I SBIR Success Rates



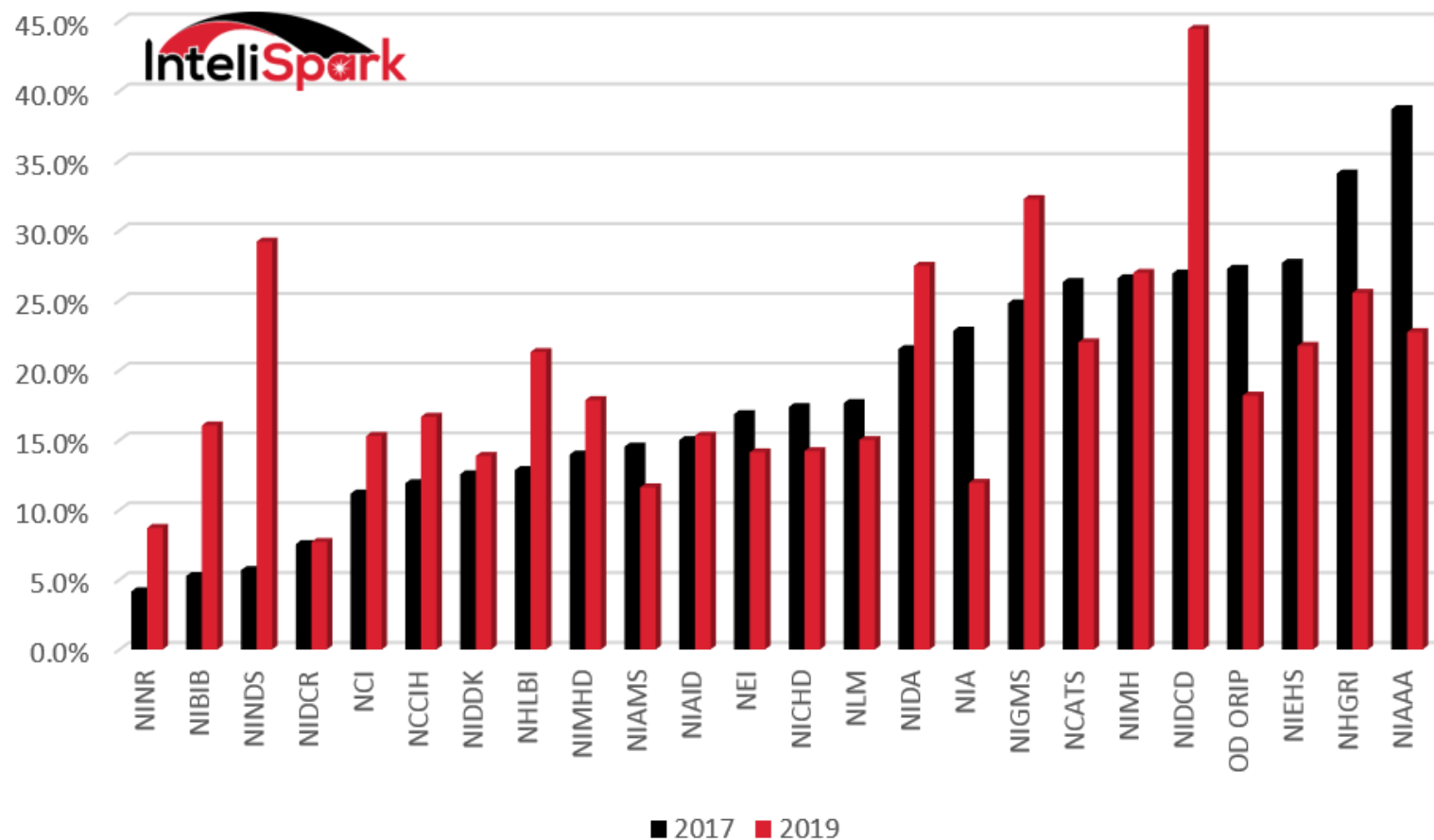
SUCCESS RATE DOES NOT EQUAL PROBABILITY

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	72	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

NIDCR	SBIR Phase I	56	17	30.4%	\$3,432,933
NIDCR	SBIR Phase II	7	4	57.1%	\$1,864,889
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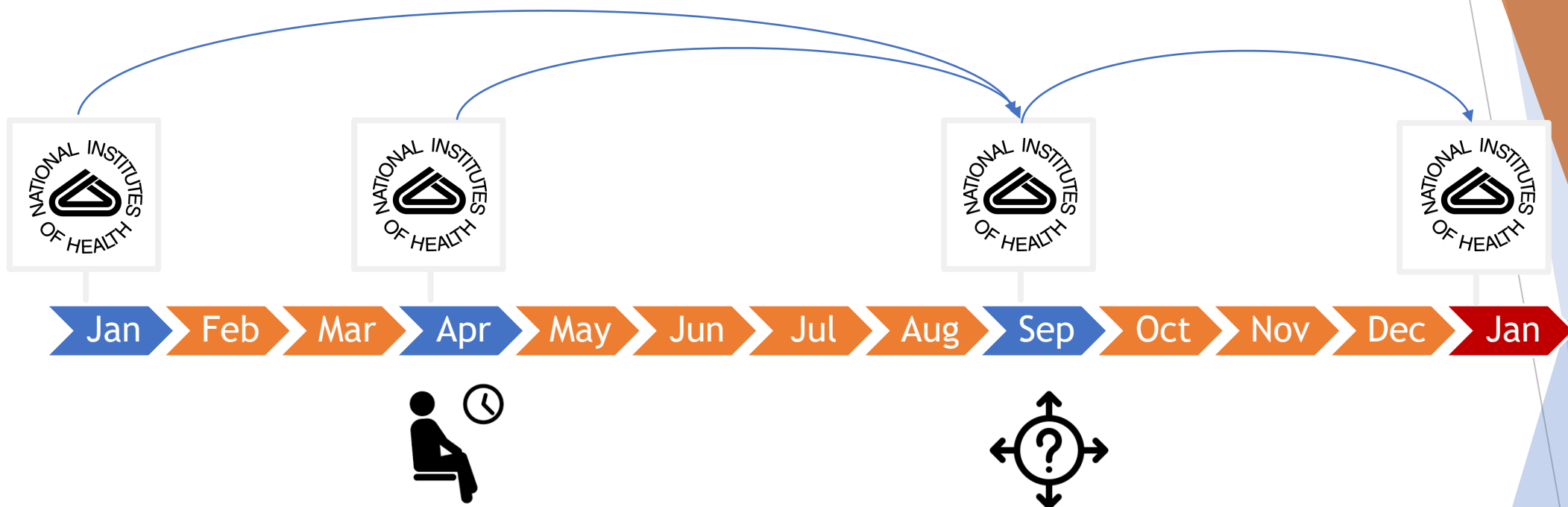
Published Data is Backward looking...project forward!!!

PHASE II APPLICATIONS

NIDCR ➤ Last year 7 ➤ Next Year 17 -- funding probabilities will drop significantly

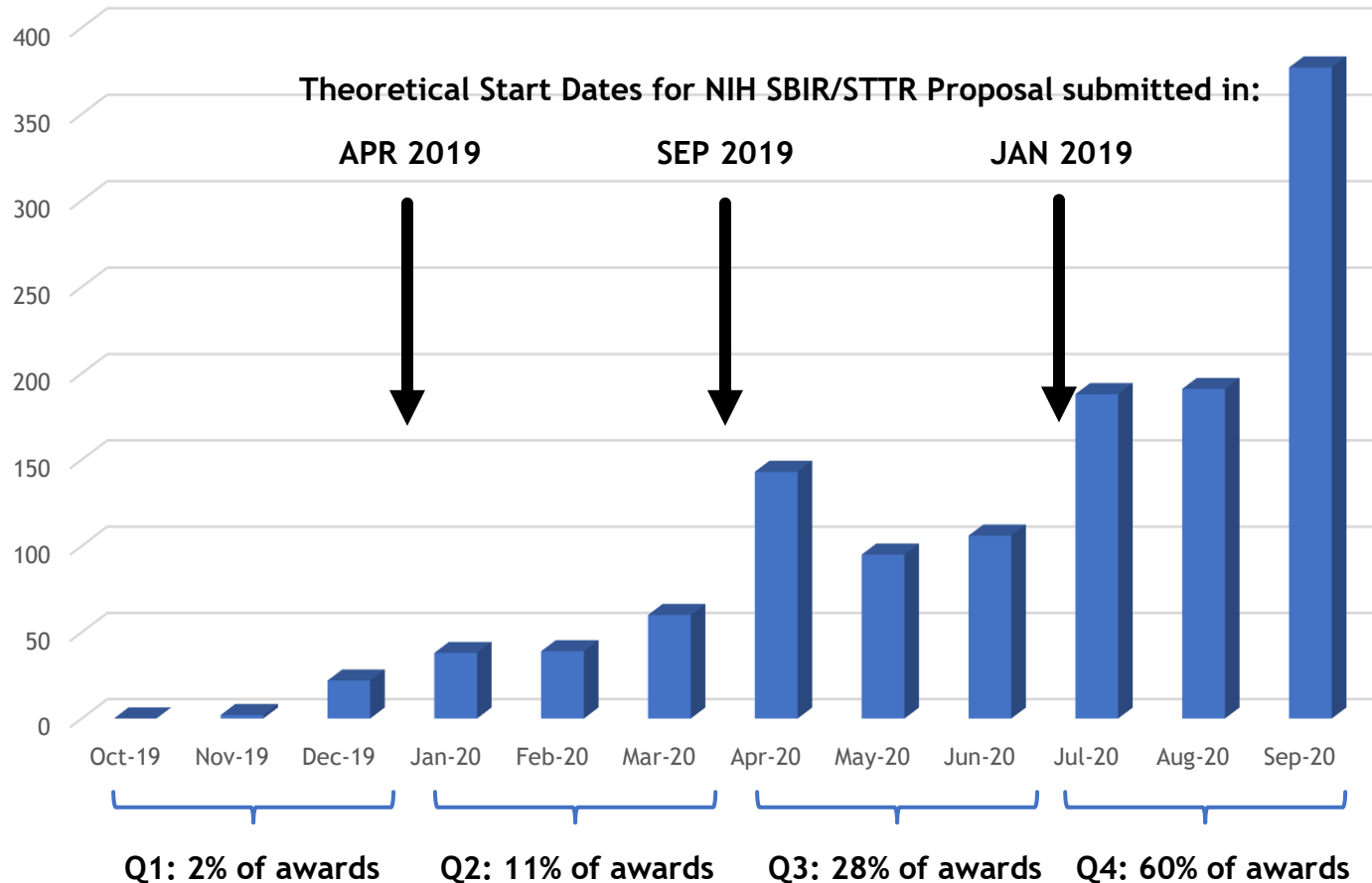
NIEHS ➤ Last year 24 ➤ Next Year 22 -- funding probabilities will be similar expected

IMPACT OF SOLICITATION SCHEDULES



Requested Start Dates vs. Actual start dates

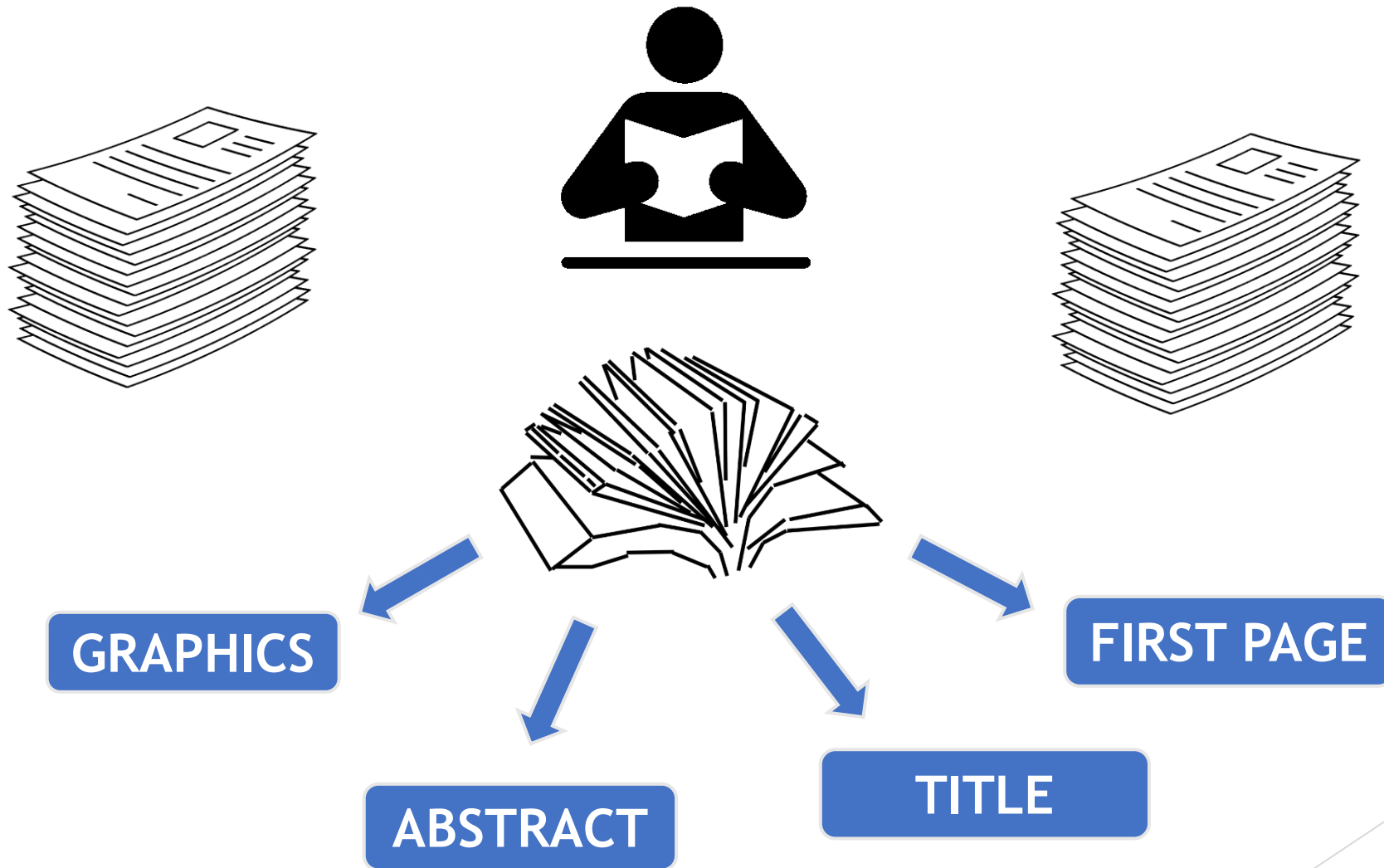
NIH SBIR/STTR Awards Issued By Month of Fiscal Year





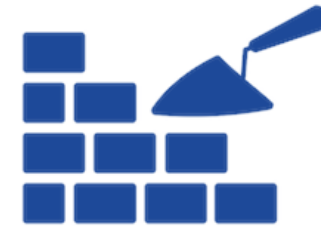
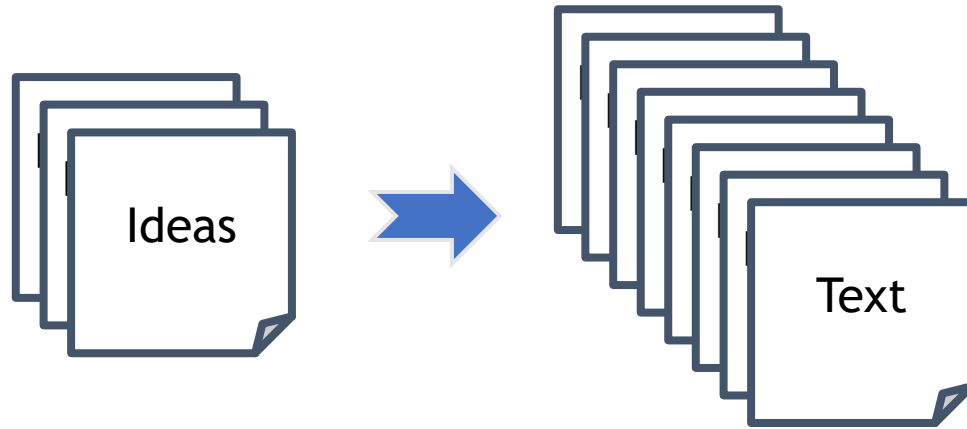
NOW WRITE | *Writing an SBIR/STTR Proposal*

UNDERSTANDING REVIEWER'S POINTS OF ENTRY

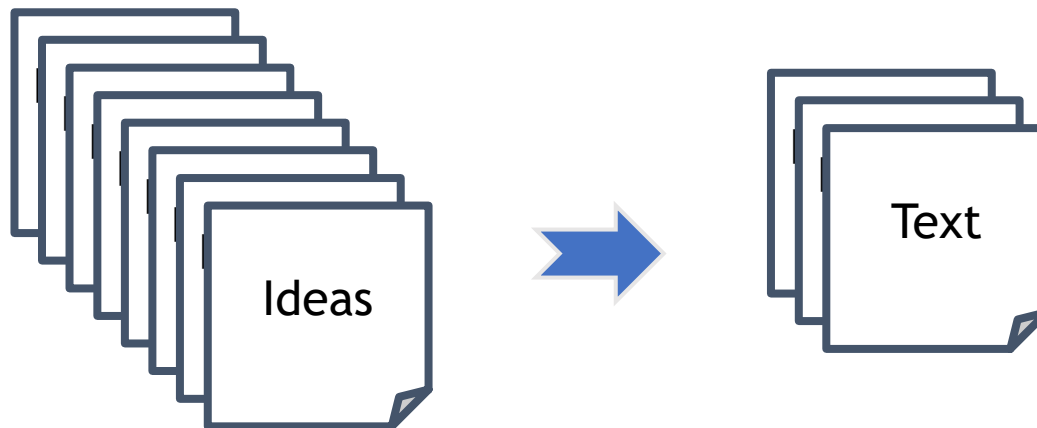


RESEARCH PROPOSAL WRITING

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 exploration
 - it 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

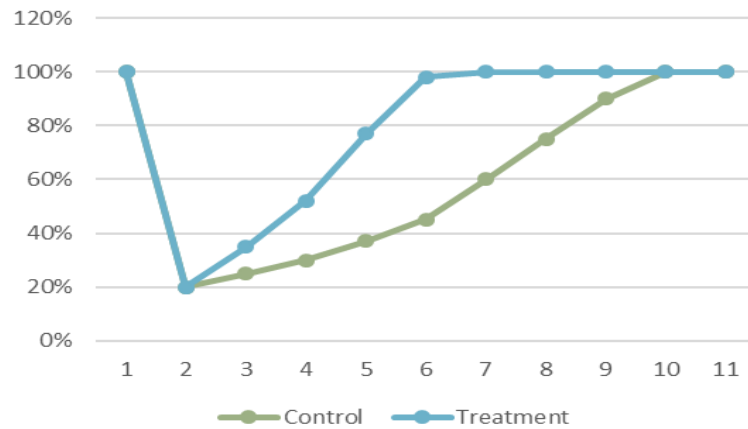
A telling example of innumeracy levels in society involves a study of clinicians (who represent a sample with education levels representative of reviewers) who were asked to consider the release of a psychiatric patient. When told that that 20 of 100 similar patients could be expected to commit an act 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.

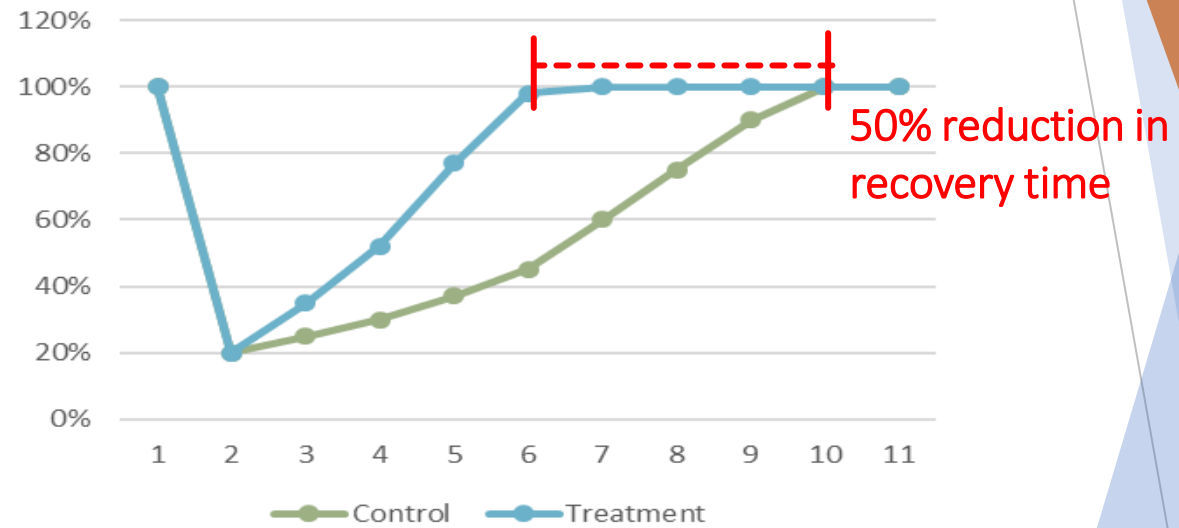


CONTROL THE NARRATIVE

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 3rd Parties
(i.e. secure pilot customers/users during Phase I)

IMPORTANCE OF COMMERCIALIZATION



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
- 3rd party validation

- Investors
- Partners
- Customers
- Future Employees

FAMOUS SBIR COMPANIES



Market Cap: \$135B



Market Cap: \$12.6B



Market Cap: \$68.9B



Market Cap: \$1.5B

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

SUCCESSFUL COMPANY COMMON THEME

Boston
Scientific



facebook



Google



أرامكو السعودية
Saudi Aramco



Agilent Technologies



Microsoft



SBIR • STTR

America's Seed Fund



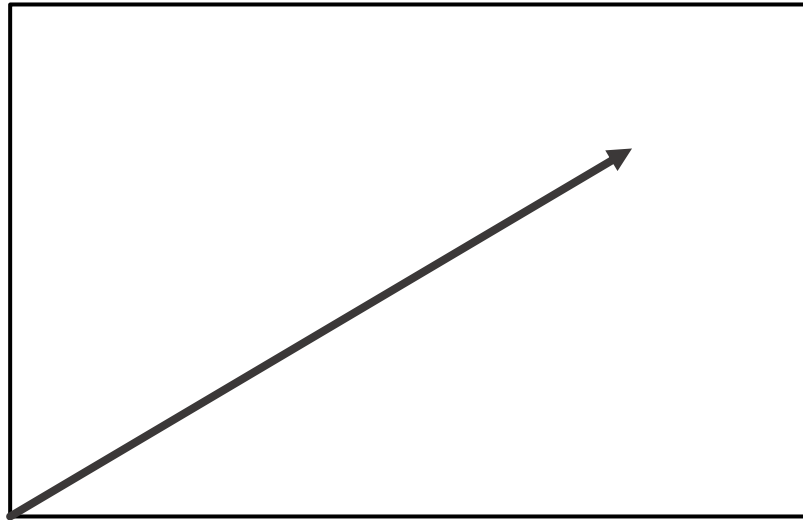
VENTURE
CAPITOL

RAISE MONEY FROM POSITION OF STRENGTH

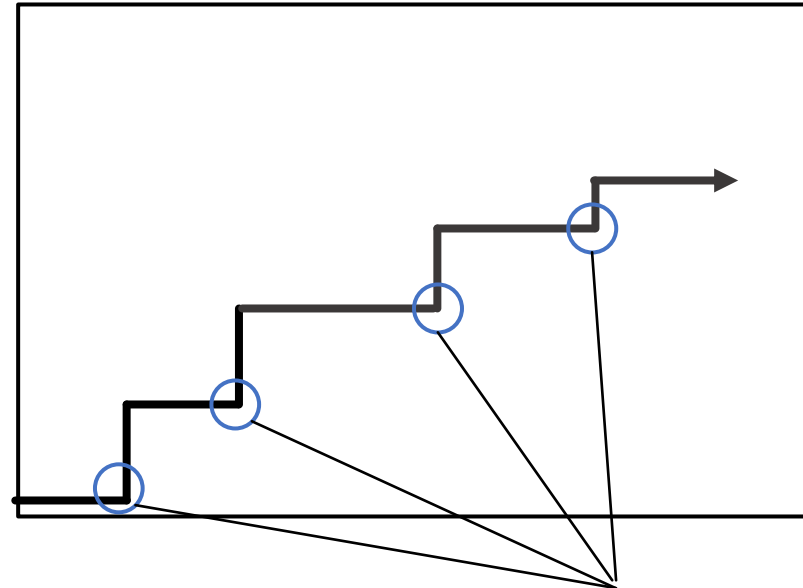


UNDERSTAND THE STEP FUNCTIONS

RARE



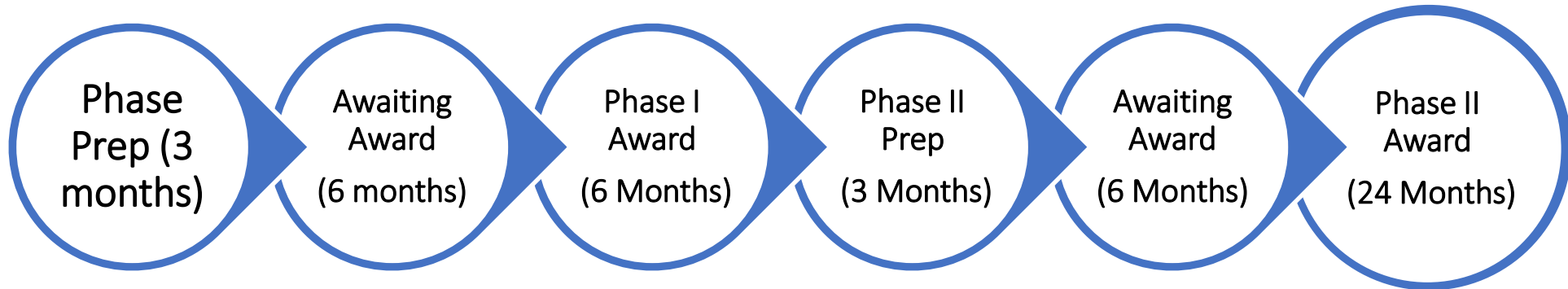
TYPICAL



Inflection points

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



← 3.5-4 Year Process →

OTHER ISSUES

- 
- A hand holding a wooden pole with a white pennant flag that has the word 'HELP' written in red. The hand is emerging from a large, chaotic pile of white papers and documents. The background is white.
- Government Data Rights
 - Government Accounting Rules
 - Reporting Requirements
 - Cashflow Issues (most awards work on reimbursement basis)
 - SBIR/STTR funding is sloooooooooooooow!!!
 - Relying Solely on Government Grants is a Bad Strategy



THE END | *Questions?*

WANT TO SCHEDULE A 1-ON-1?

<https://calendly.com/intelispark/intro>



SUNY STARTUP
SUMMER SCHOOL

- ▶ 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: July 5

Building a Winning Team