



SUNY STARTUP
SUMMER SCHOOL

How To Win Grants

Mastering Non-Dilutive Funding Sources



SUNY STARTUP
SUMMER SCHOOL



Meet your presenters!

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

INTELISPARK TRACK RECORD



>500 proposals (95%+ SBIR/STTR) selected for award

~\$275,000,000 in projects selected for award



44 start-up clients funded in 2021

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



Alterna Therapeutics



Excelsior biofilms LLC.



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*

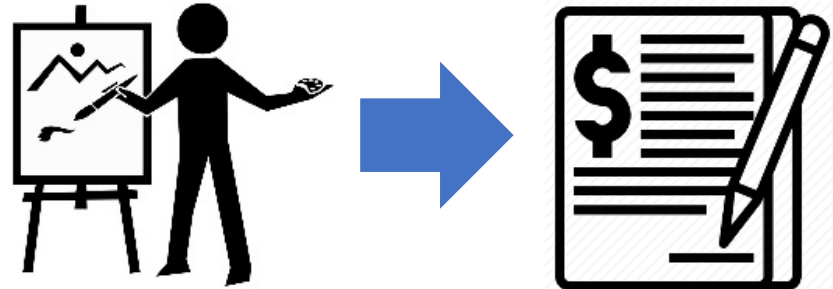
You can exploit discontinuities in the funding probabilities



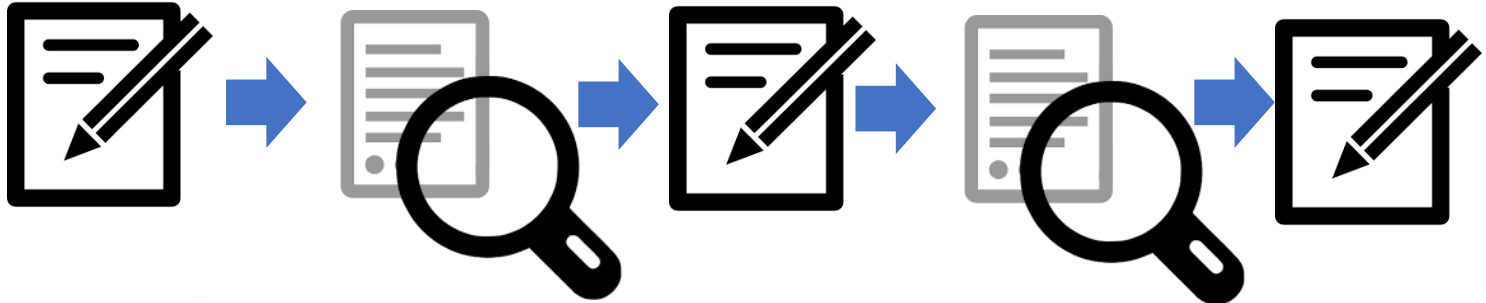
SUNY STARTUP
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VIEW SBIR/STTR AS A MARKETPLACE

“ART” OF GRANT WRITING



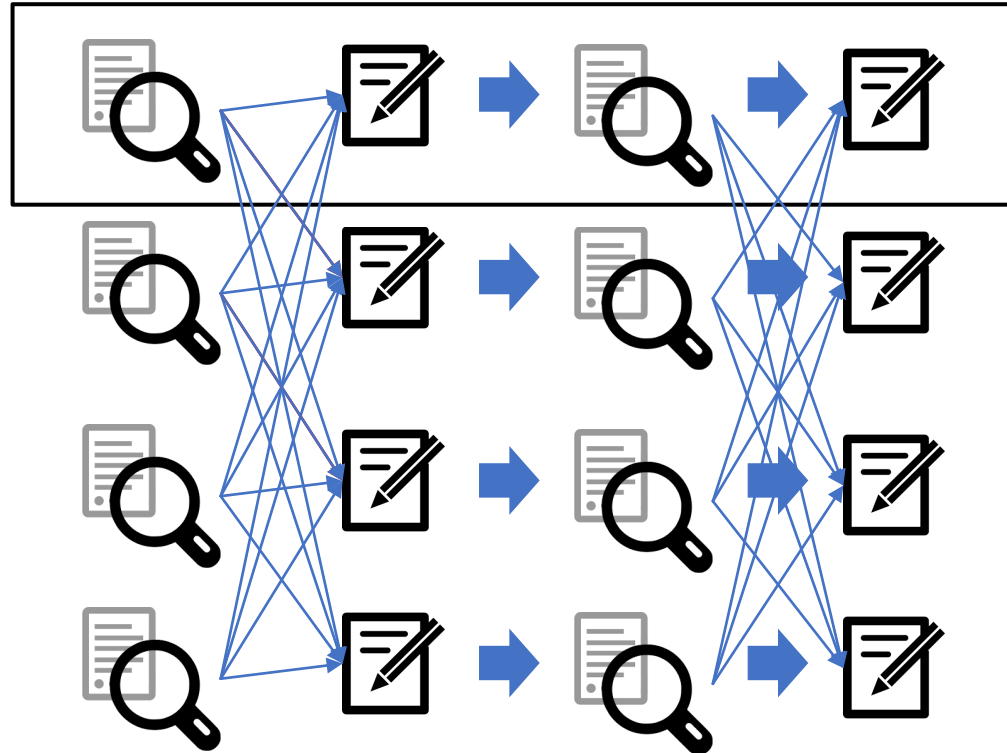
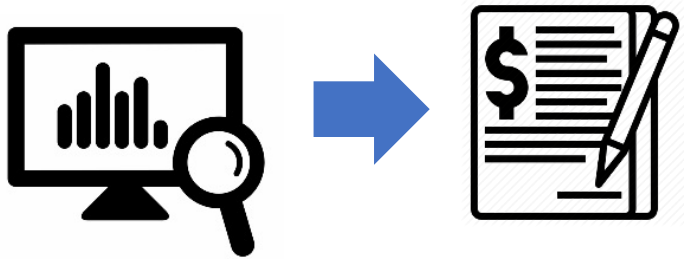
Investigator Driven Perspective



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)

SBIR



DHS



USDA



EPA



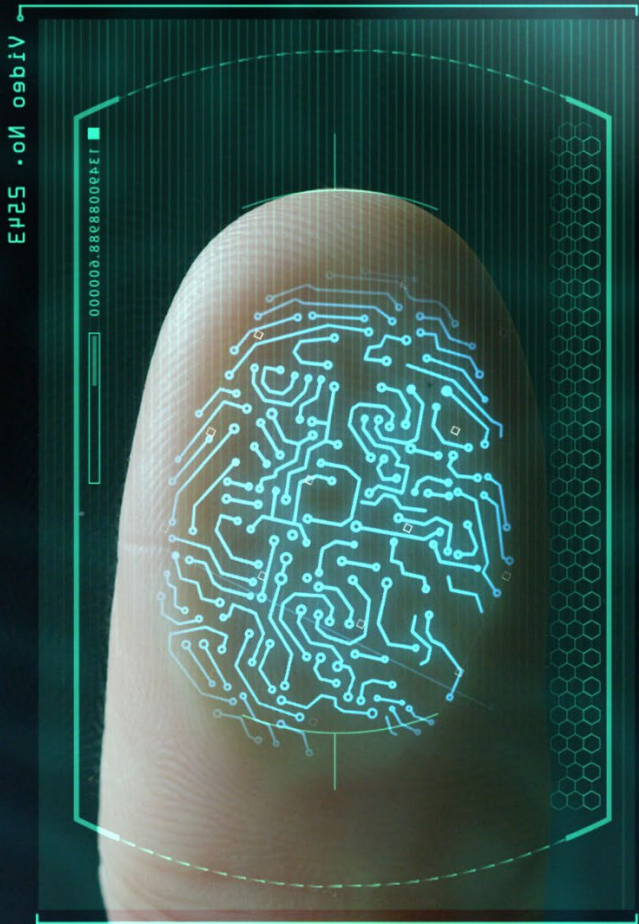
DOT



ED



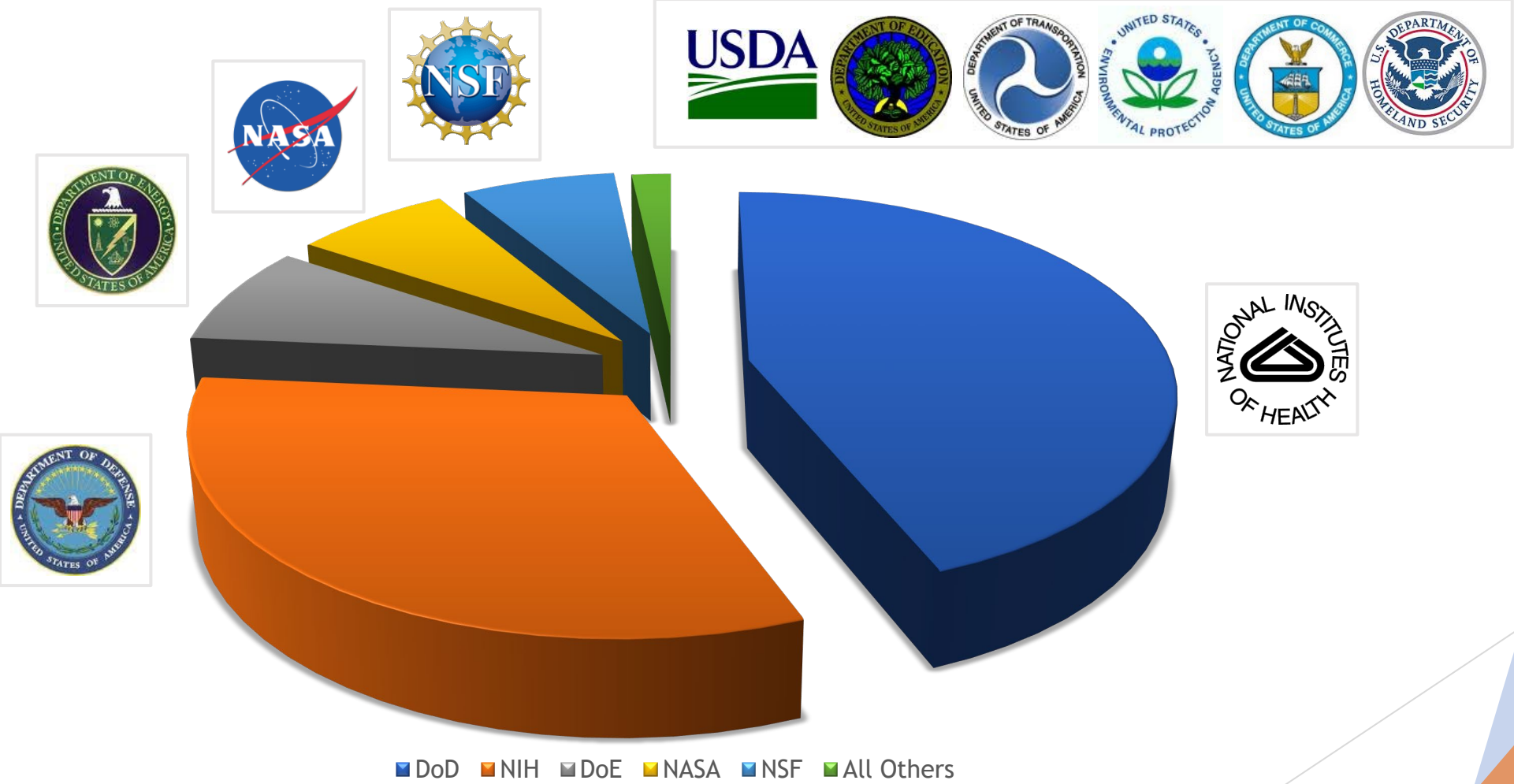
DOC (NIST, NOAA)



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

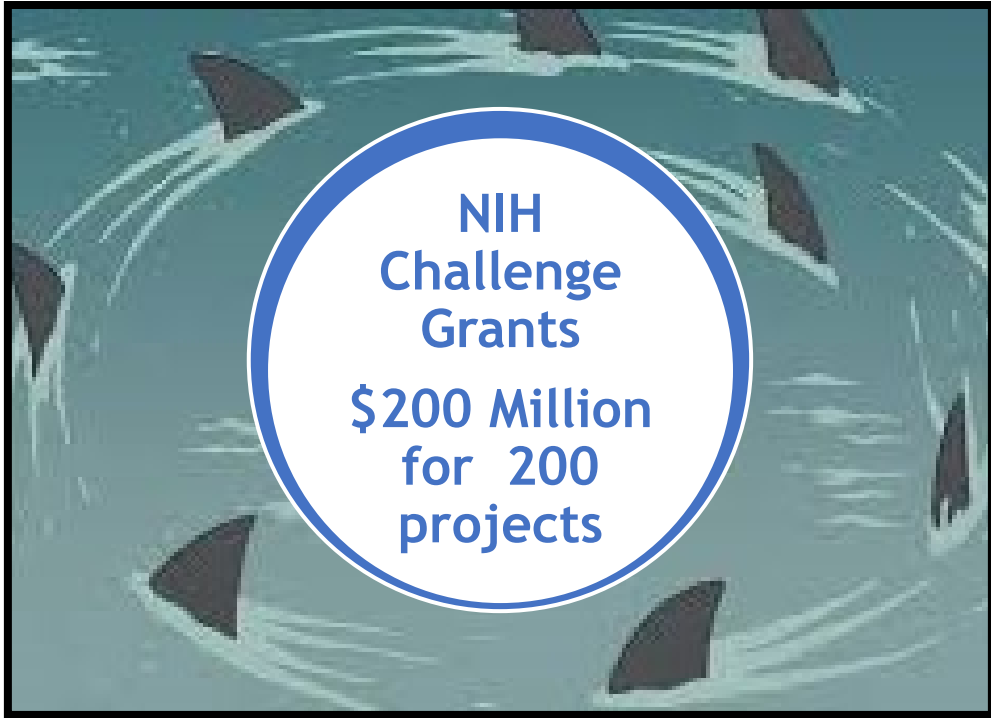


24,000+ applications for ~200 awards
= >1% probability

~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:

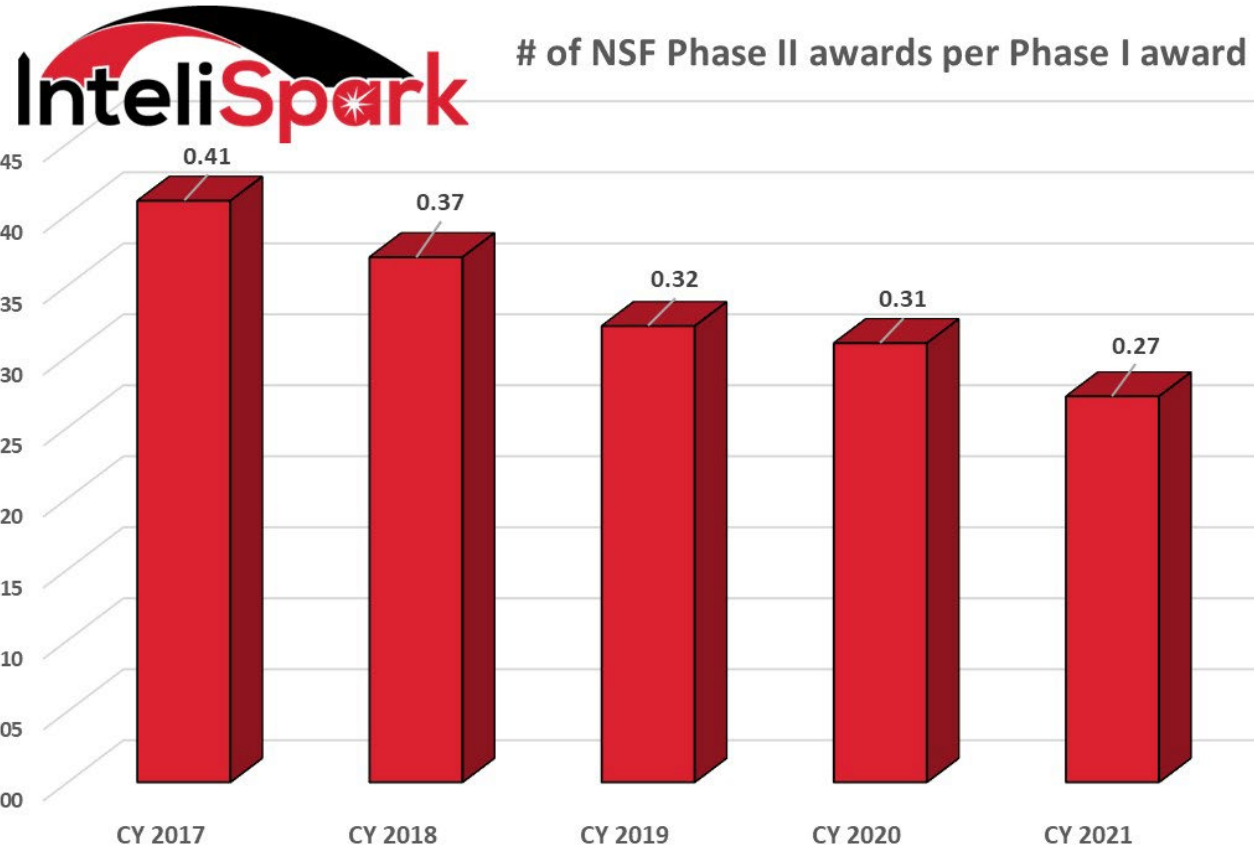
- ▶ ~ 87% of awardees had never had a prior SBIR/STTR Phase II award from any agency

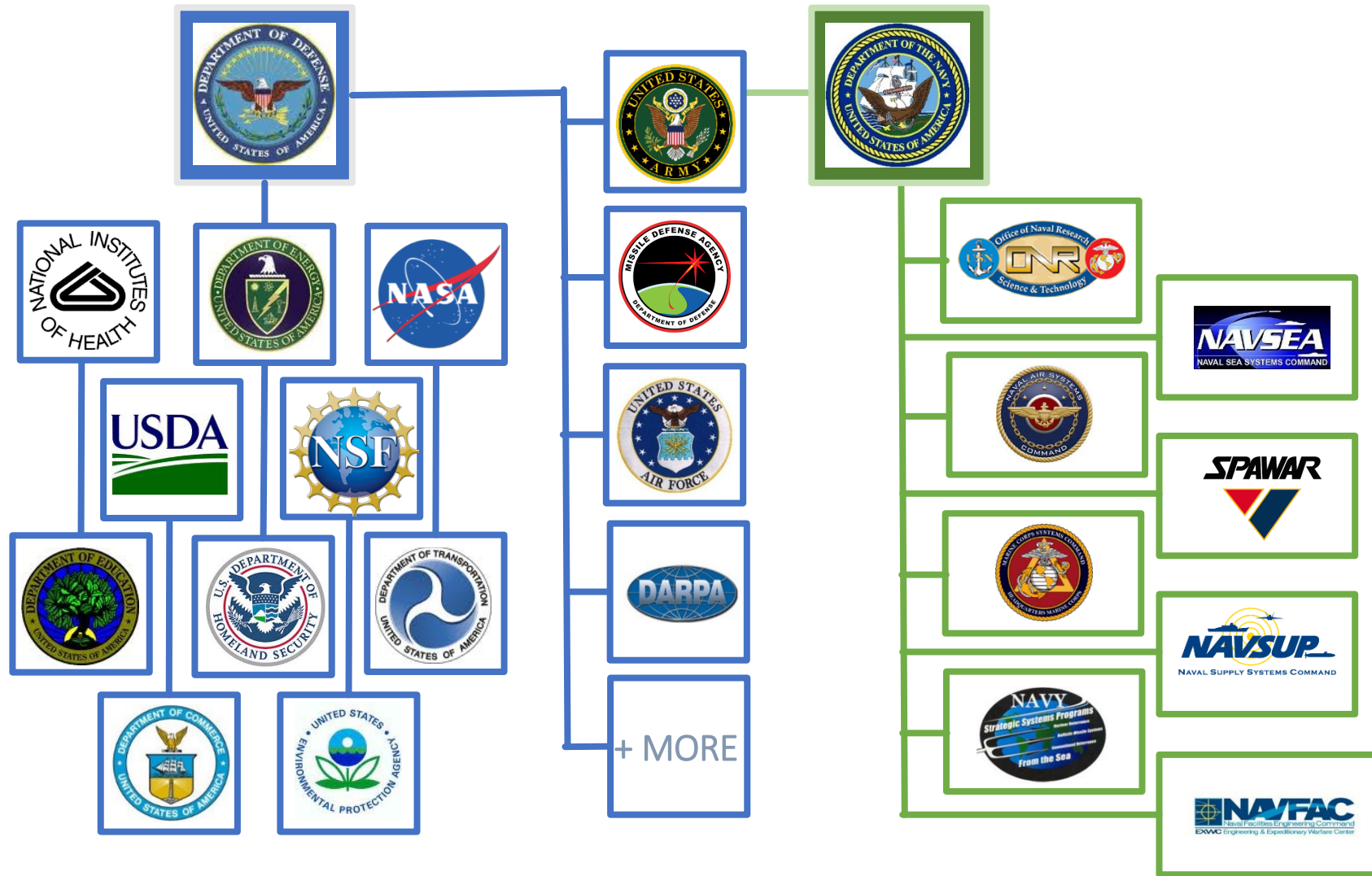
▶COMPANY AGE:

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



...BUT PHASE II TO PHASE I MIX DECLINING





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.

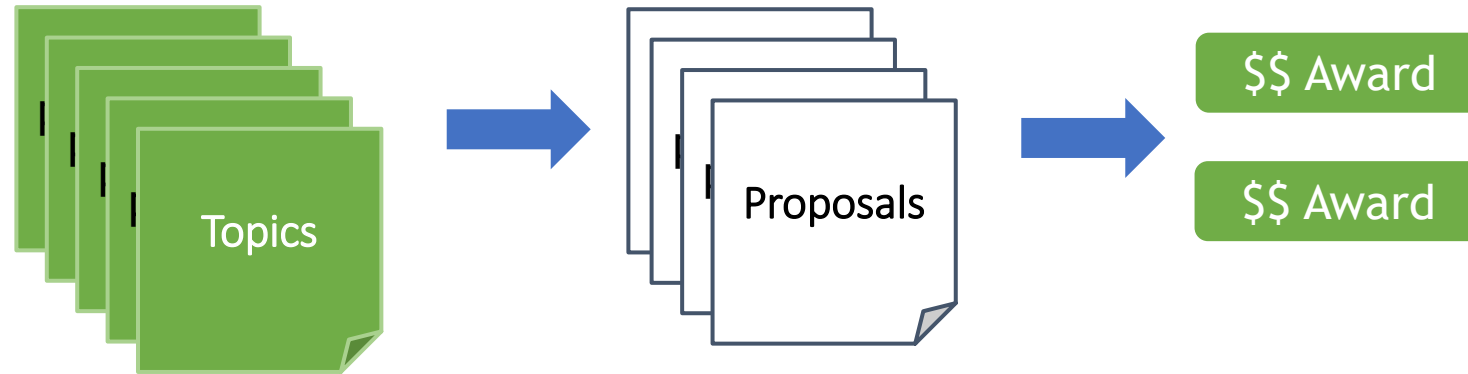
The key is to pick battles that can be won

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

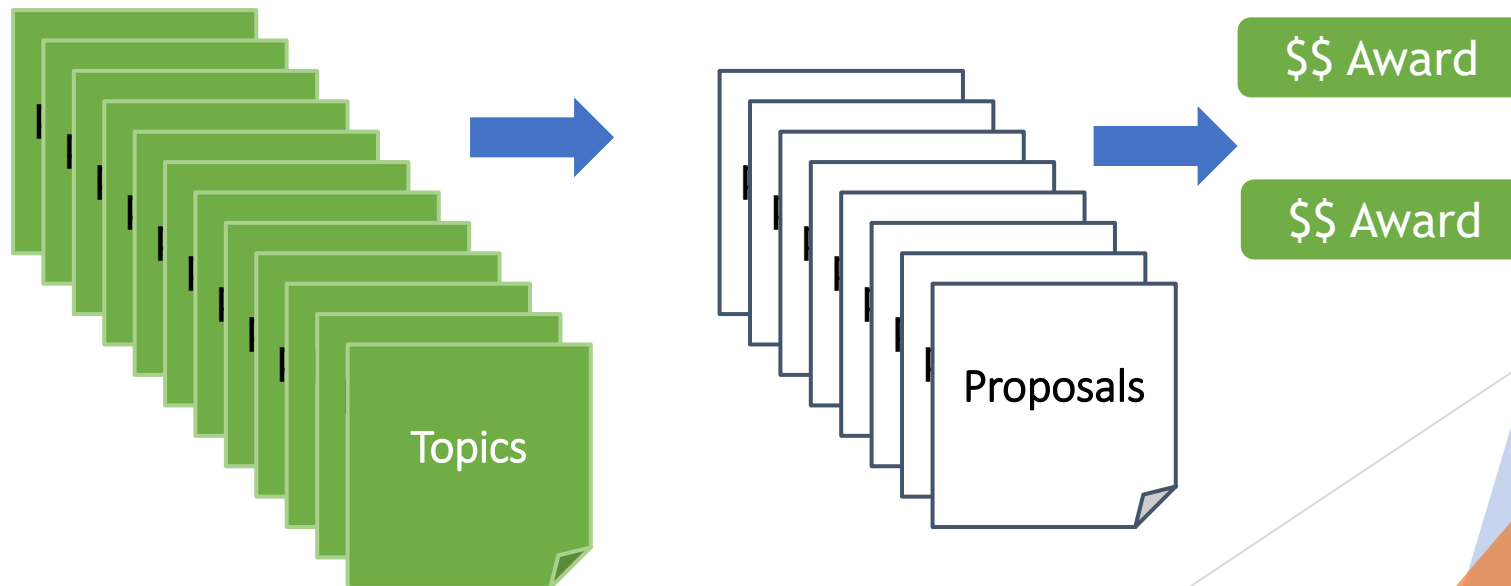


TECHNOLOGY VS. CAPABILITY APPROACH

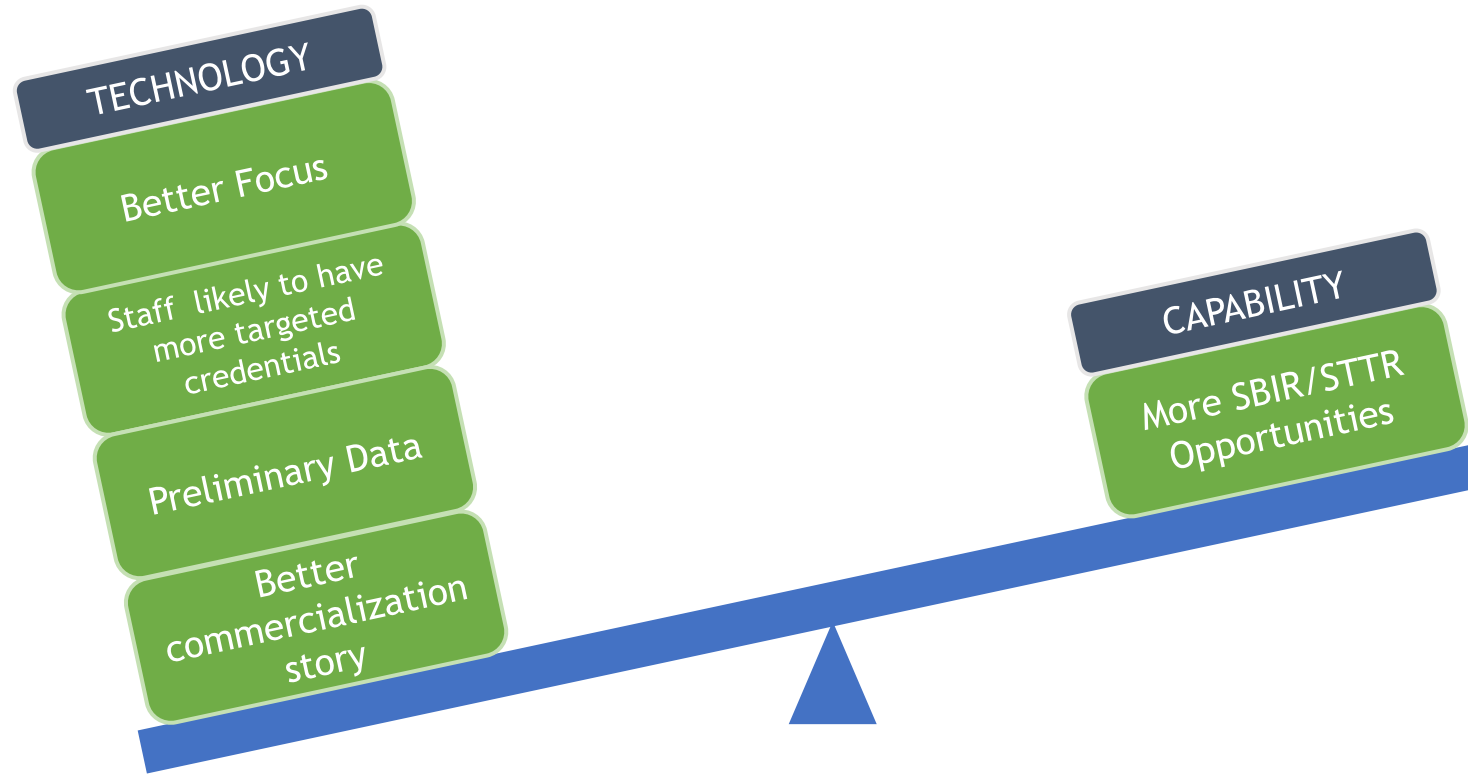
TECHNOLOGY



CAPABILITY



HEAD-TO-HEAD (TECHNOLOGY VS. CAPABILITY)

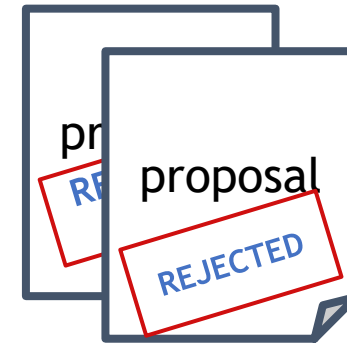


“Concentrate your energies, your thoughts and your capital.... The wise man puts all his eggs in one basket and watches the basket.”
- Andrew Carnegie

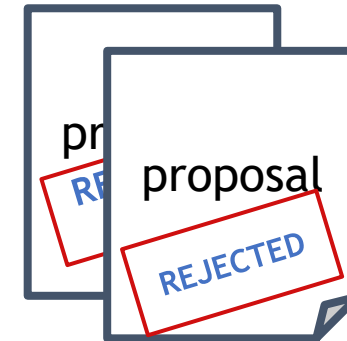
CASE STUDIES: NIH VS. NSF



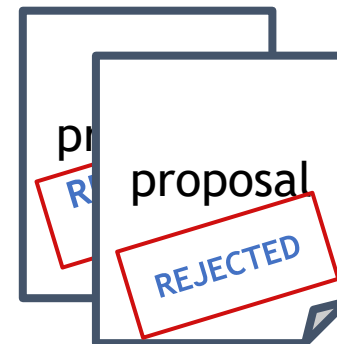
Catheter Ablation Device
for Atrial Fibrillation



Anti-Microbial Polymer for
Catheters



Reporter molecule for
DNA screening



CASE STUDIES: NIH VS. NSF



Catheter Ablation Device
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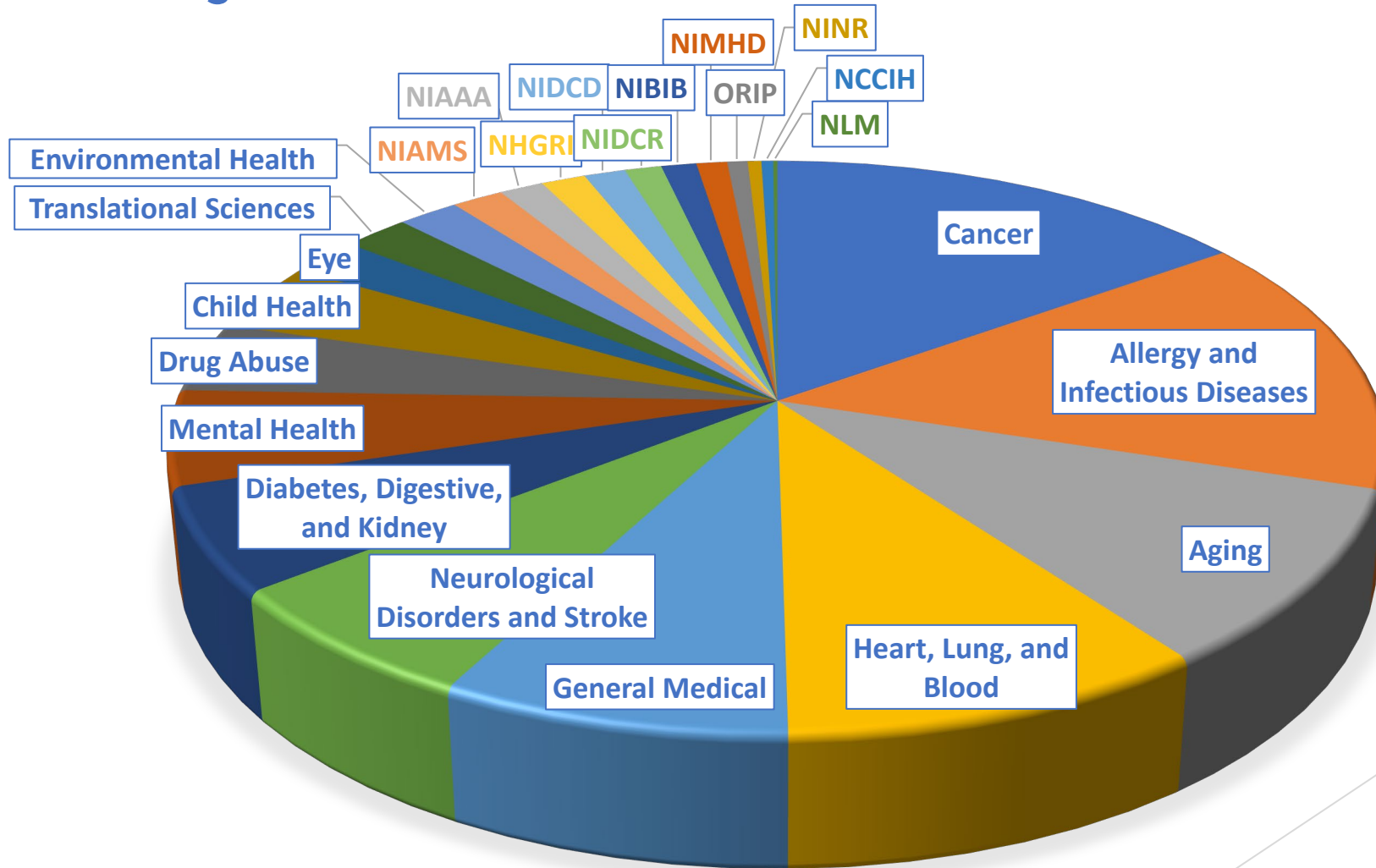


Reporter molecule
for
DNA screening

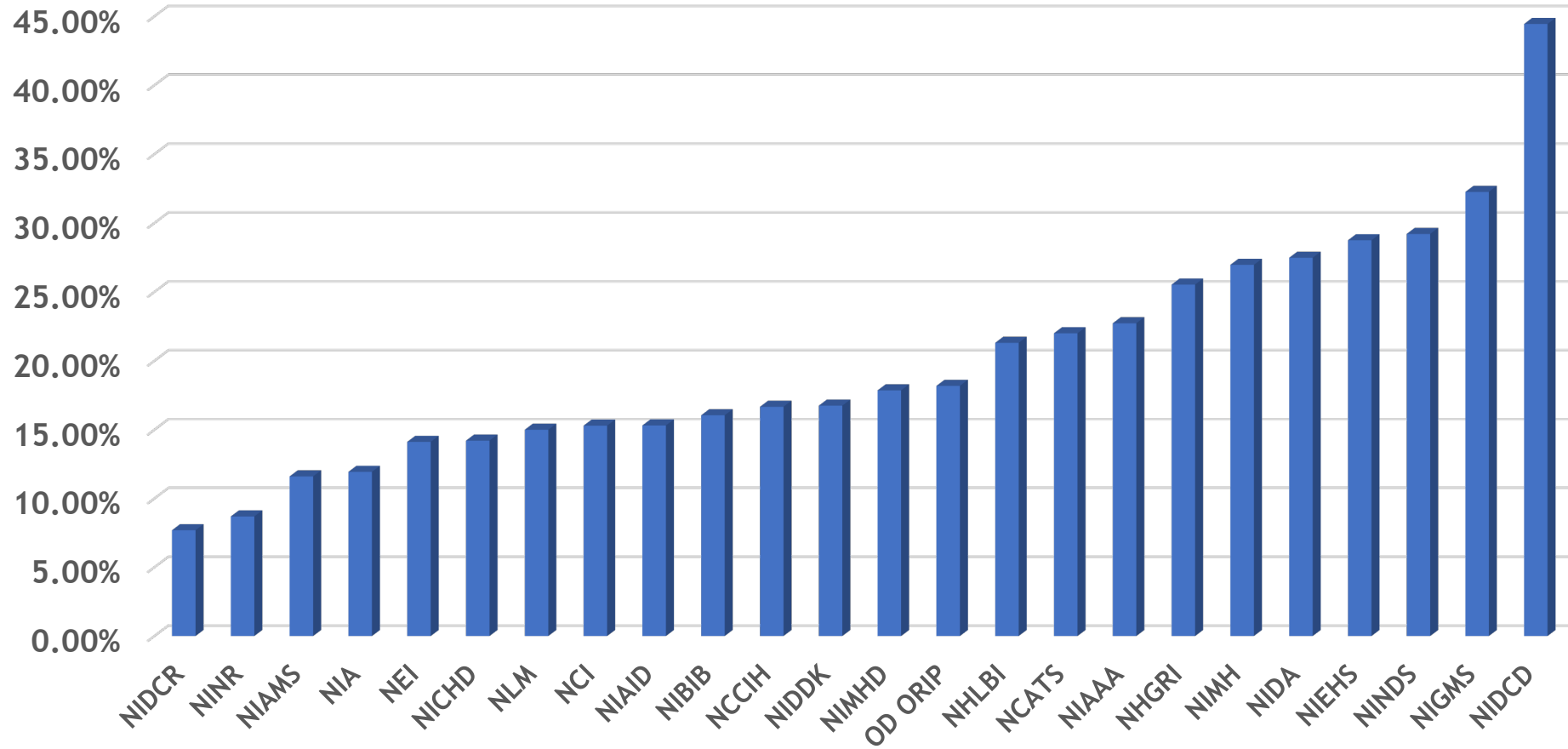


NAVIGATING NIH

SBIR/STTR Budget Allocations



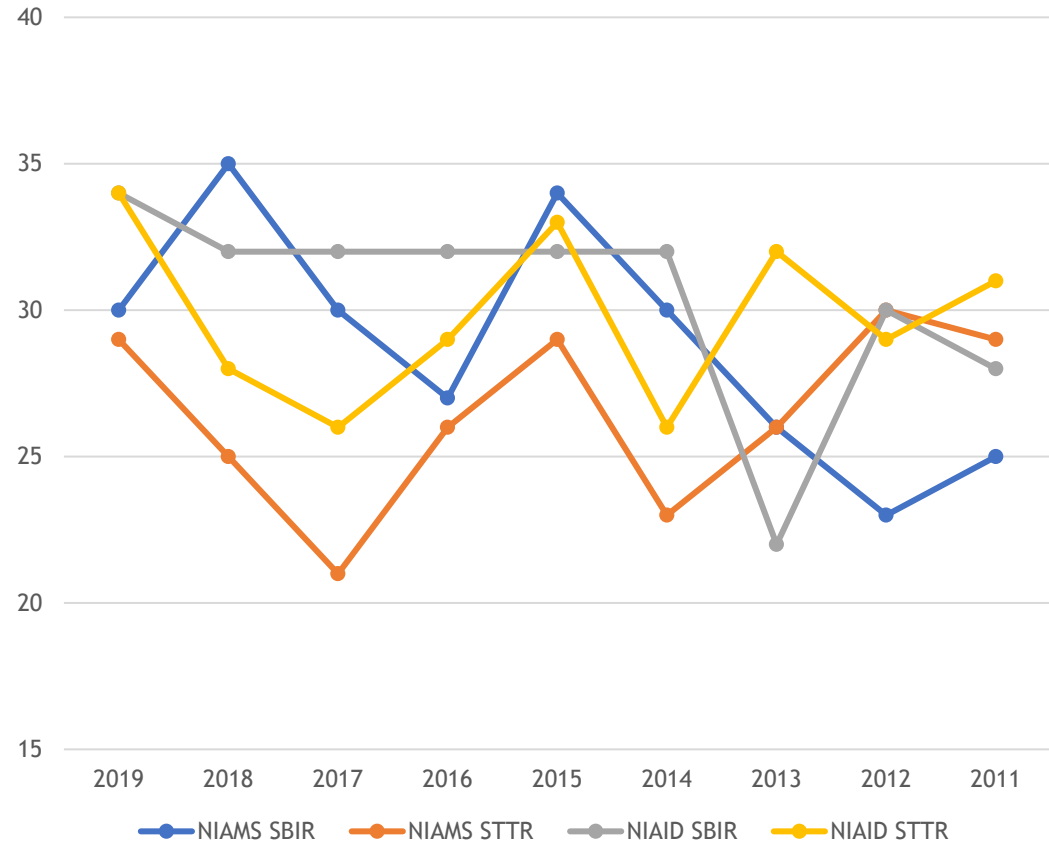
2019 NIH Phase I SBIR Success Rates



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

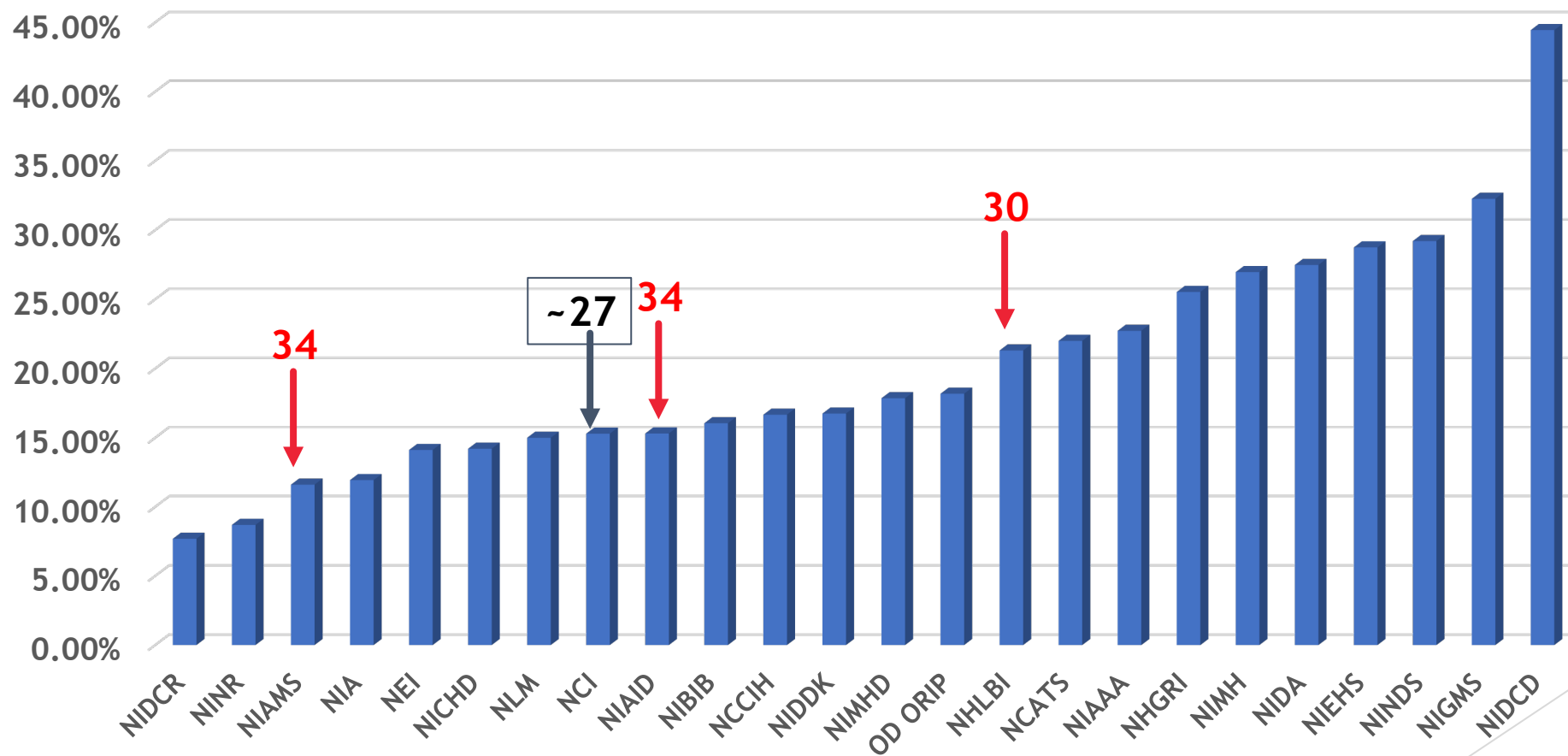
NIAID+NIAMS SBIR vs STTR Paylines



NIH STTR Success Rates and Paylines can fluctuate wildly

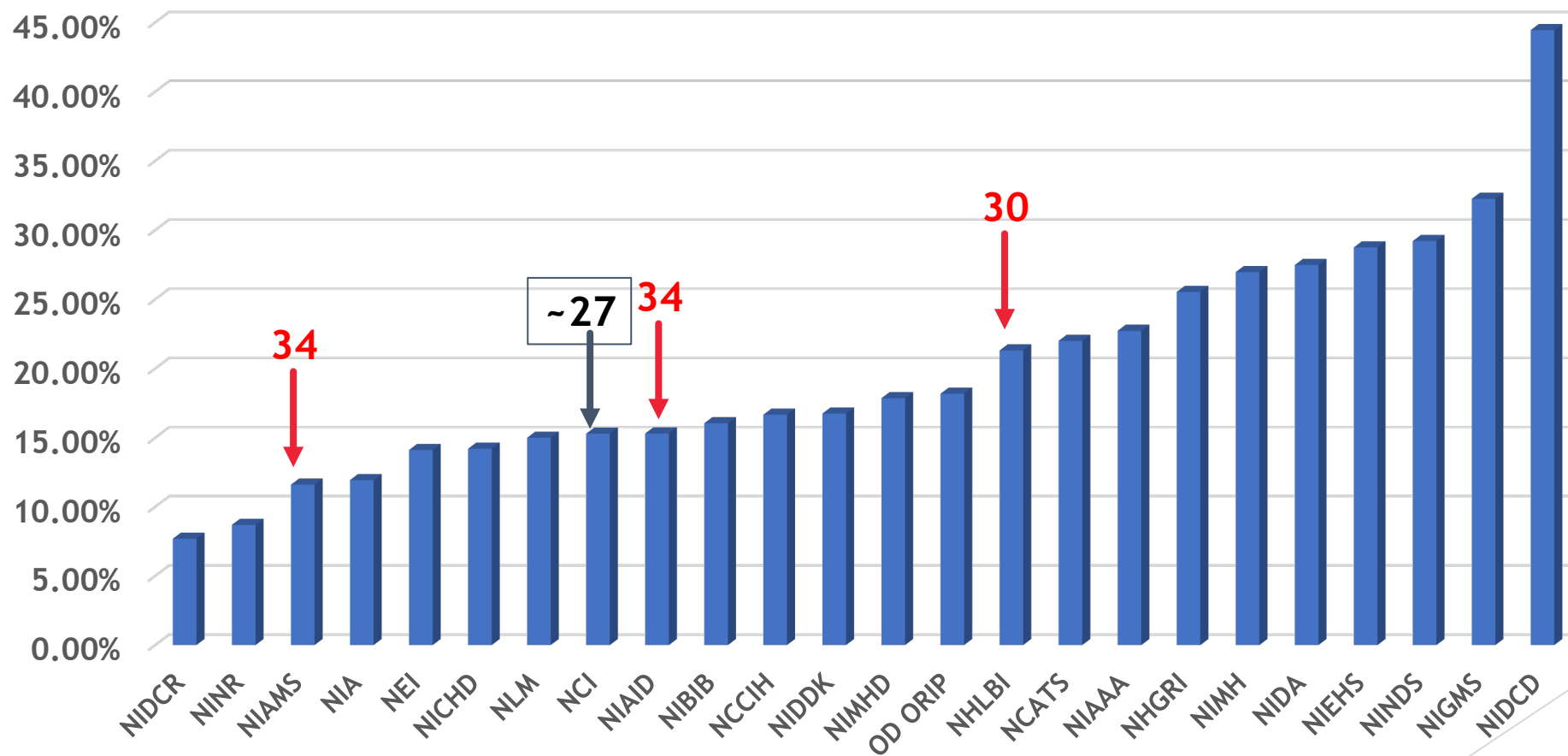
SUCCESS RATE DOES NOT EQUAL PROBABILITY

2019 NIH Phase I SBIR Success Rates



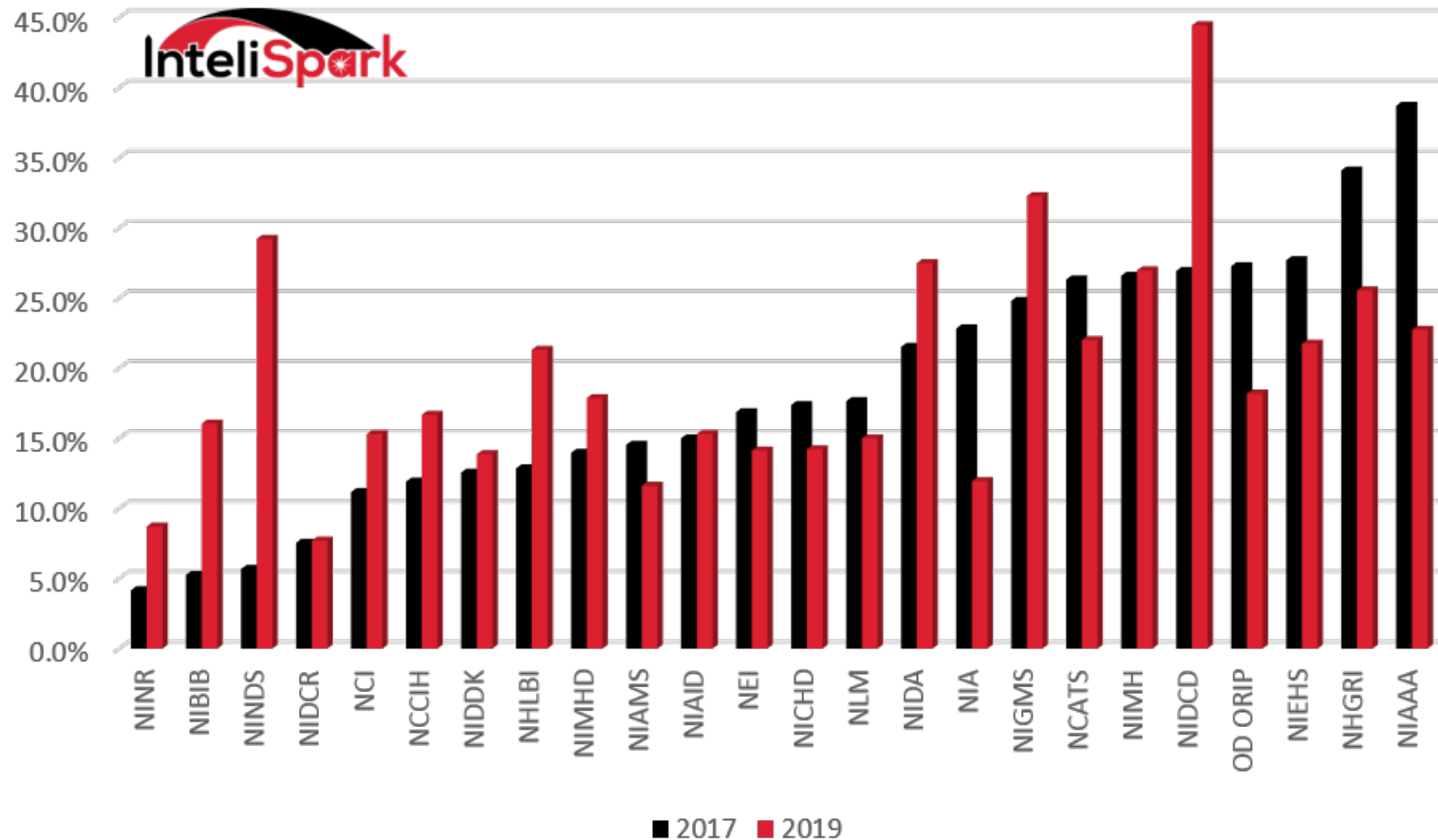
SUCCESS RATE DOES NOT EQUAL PROBABILITY

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
NIEHS	SBIR Phase I	72	22	30.6%	\$3,868,457
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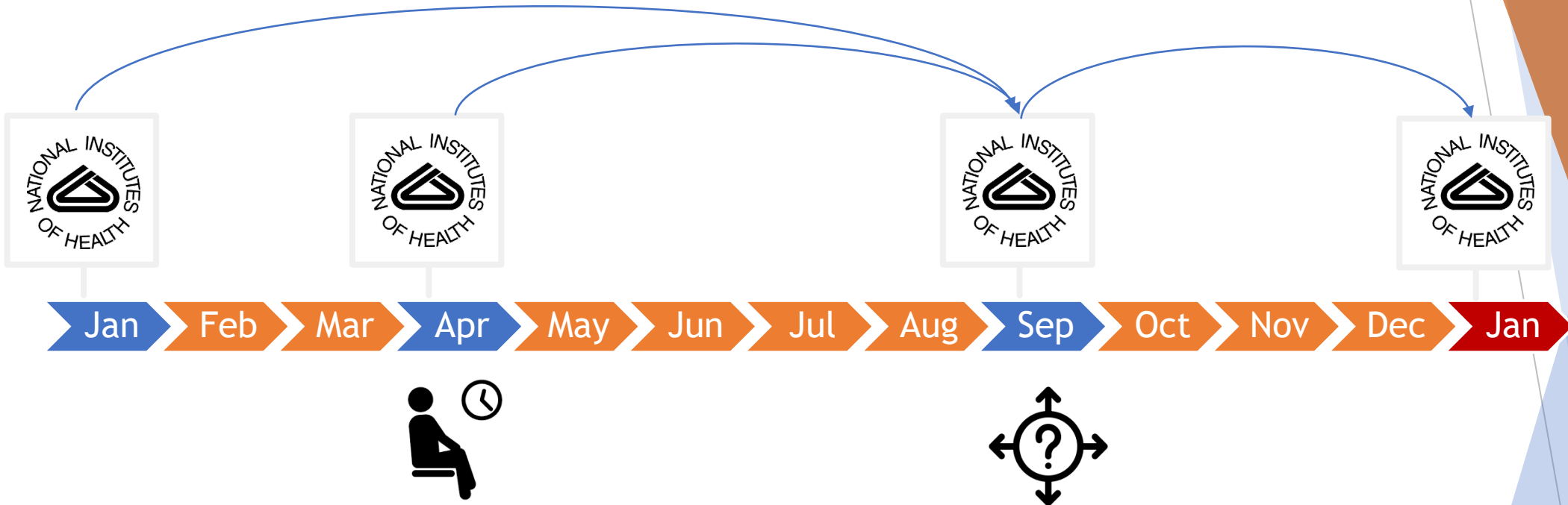
Published Data is Backward looking...project forward!!!

PHASE II APPLICATIONS

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

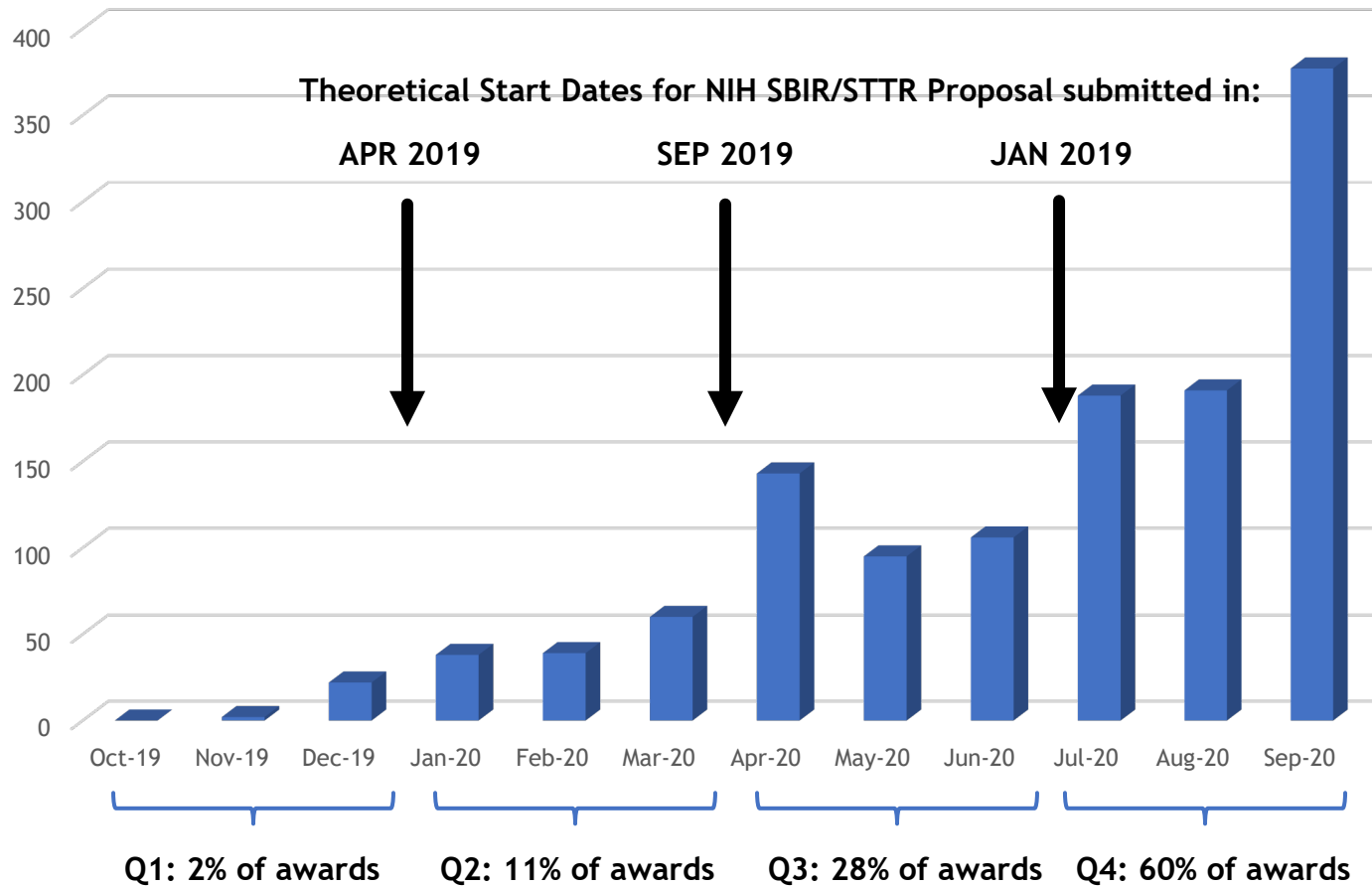
NIEHS > Last year 24 > Next Year 22 -- funding probabilities will be similar expected

IMPACT OF SOLICITATION SCHEDULES



Requested Start Dates vs. Actual start dates

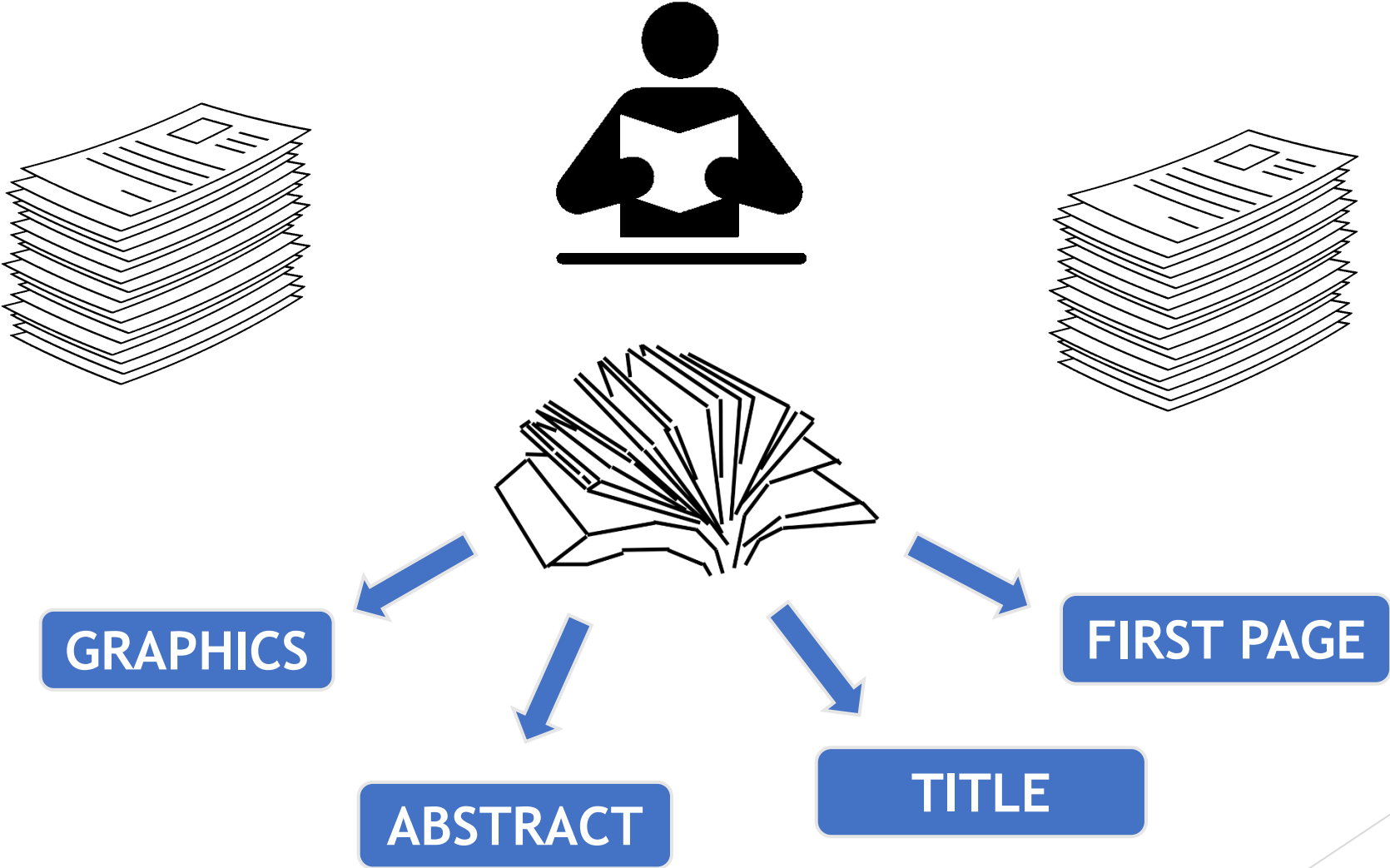
NIH SBIR/STTR Awards Issued By Month of Fiscal Year





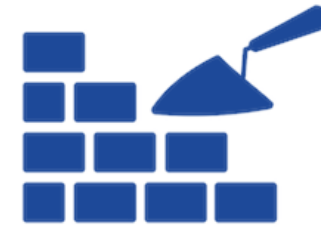
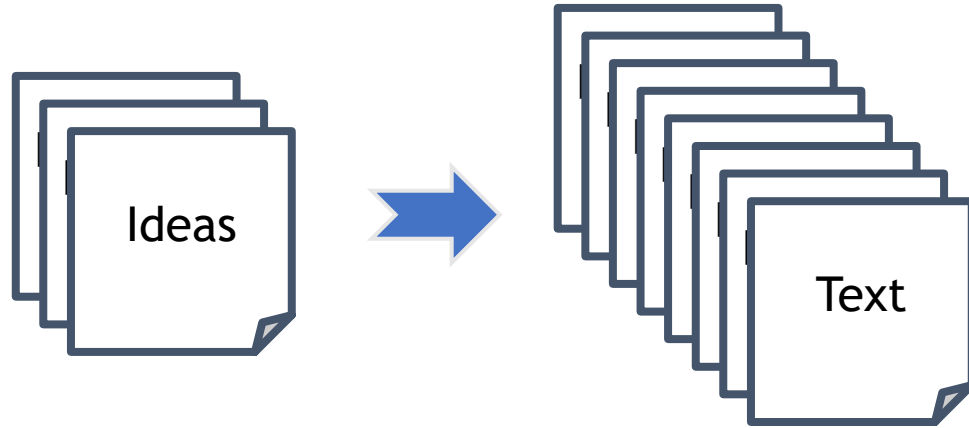
NOW WRITE | *Writing an SBIR/STTR Proposal*

UNDERSTANDING REVIEWER'S POINTS OF ENTRY

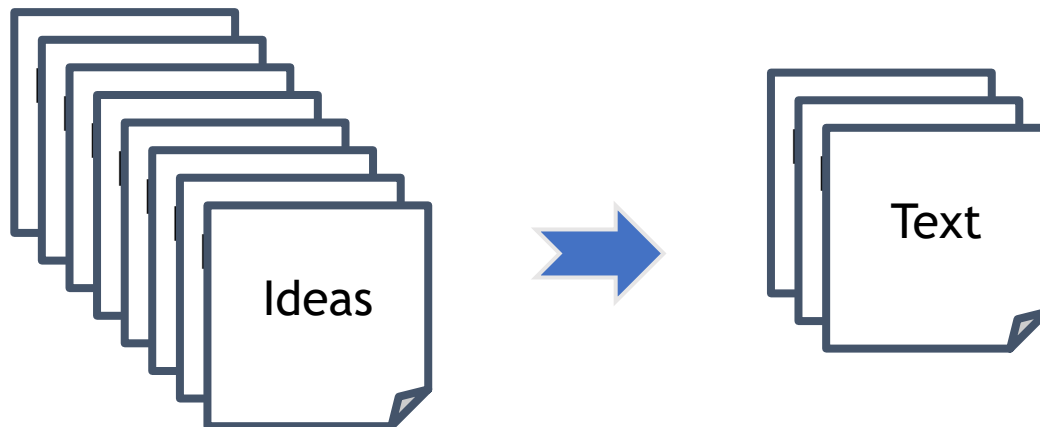


RESEARCH PROPOSAL WRITING

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

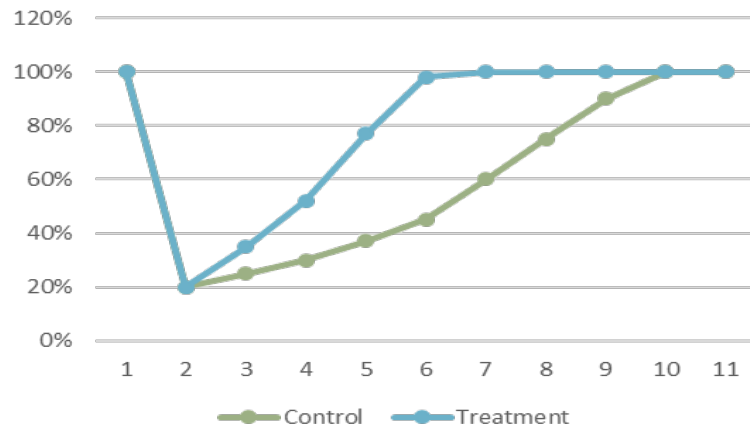
A telling example of innumeracy levels in society involves a study of clinicians (who represent a sample with education levels representative of reviewers) who were asked to consider the release of a psychiatric patient. When told that that 20 of 100 similar patients could be expected to commit an act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

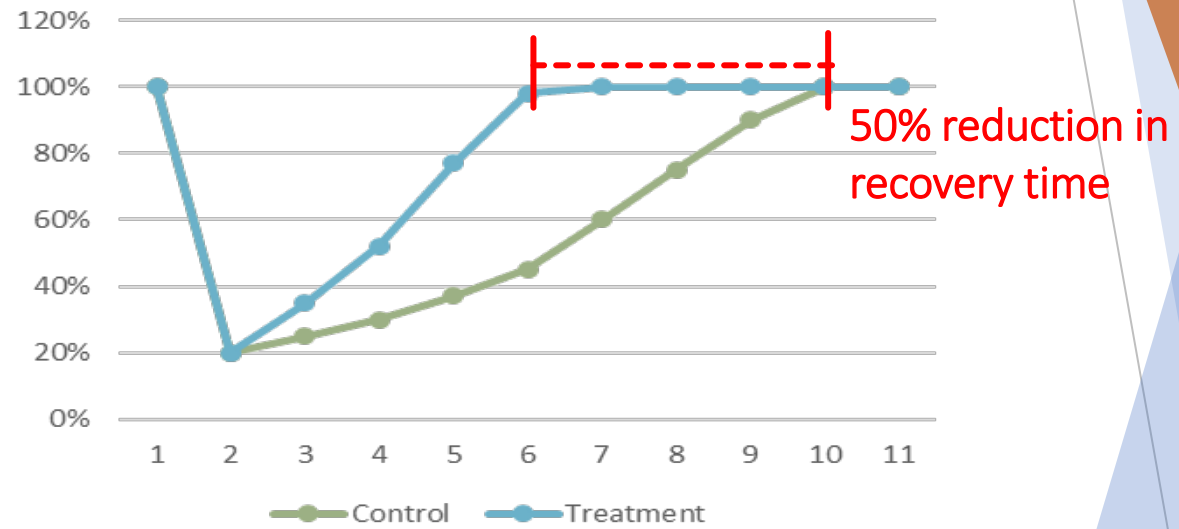


CONTROL THE NARRATIVE

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

MINIMAL

VERY



BRAND CAMP

by Tom Fishburne



COMMERCIALIZATION PLANS

Better technology is not a commercialization plan

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!

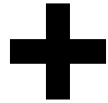
- ▶ Too risky
- ▶ Too early
- ▶ Unproven Team
- ▶ Unproven Market
- ▶ Unproven Technology
- ▶ Limited or no resources

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

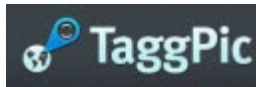
Boston
Scientific



facebook



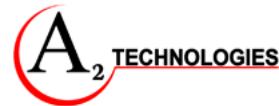
Google



الاسكو السعودية
Saudi Aramco



Agilent Technologies



Microsoft



TEH



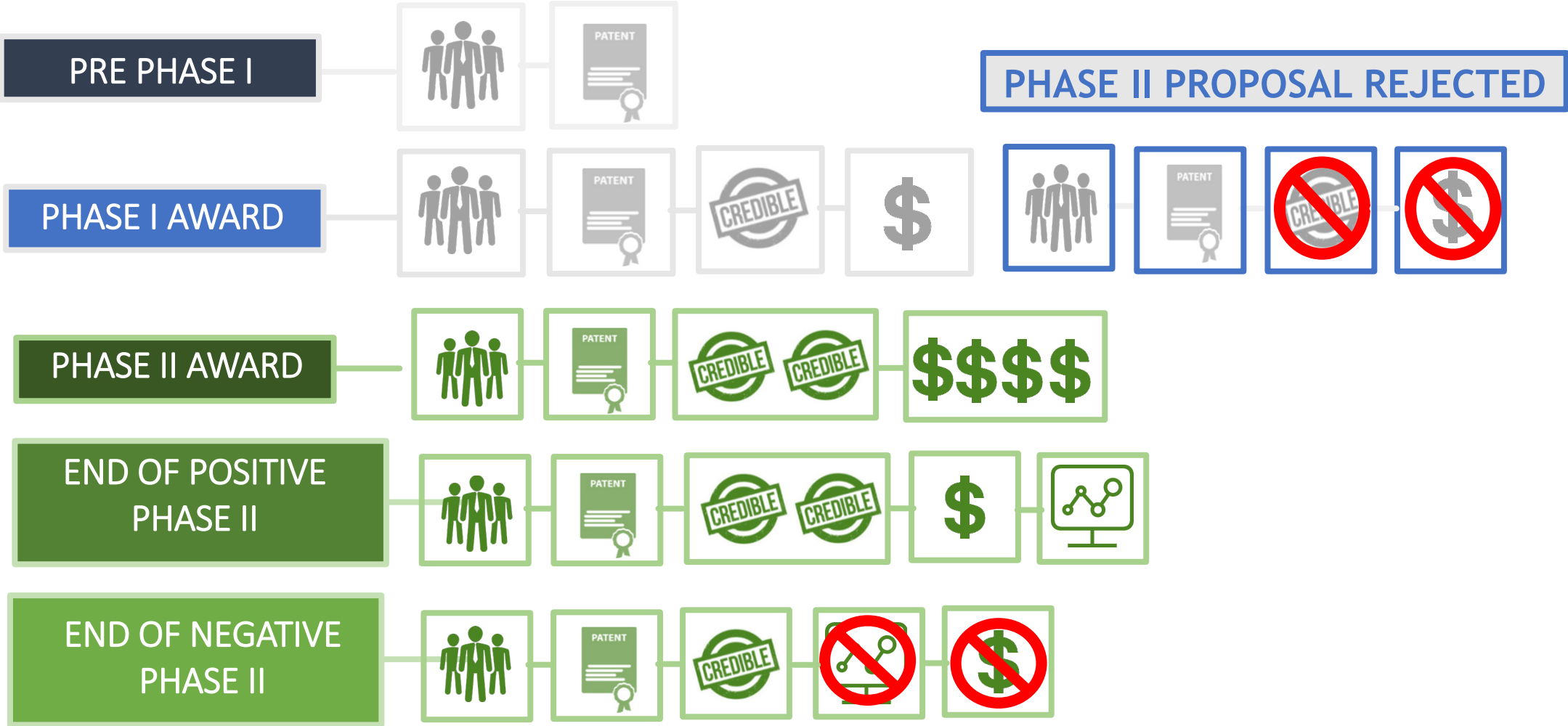
SBIR • STTR

America's Seed Fund



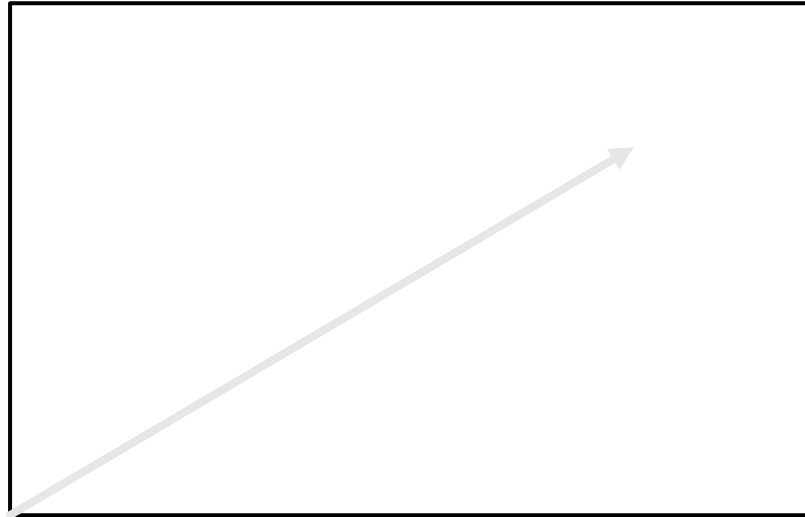
VENTURE
CAPITOL

RAISE MONEY FROM POSITION OF STRENGTH

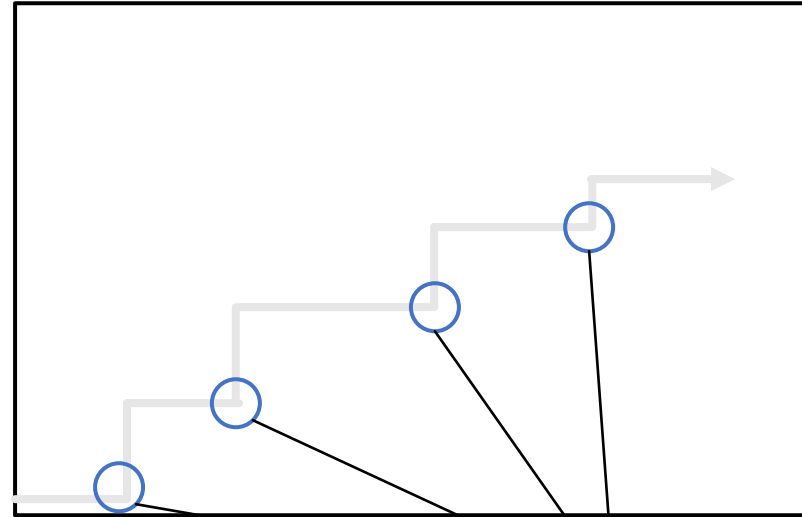


UNDERSTAND THE STEP FUNCTIONS

RARE



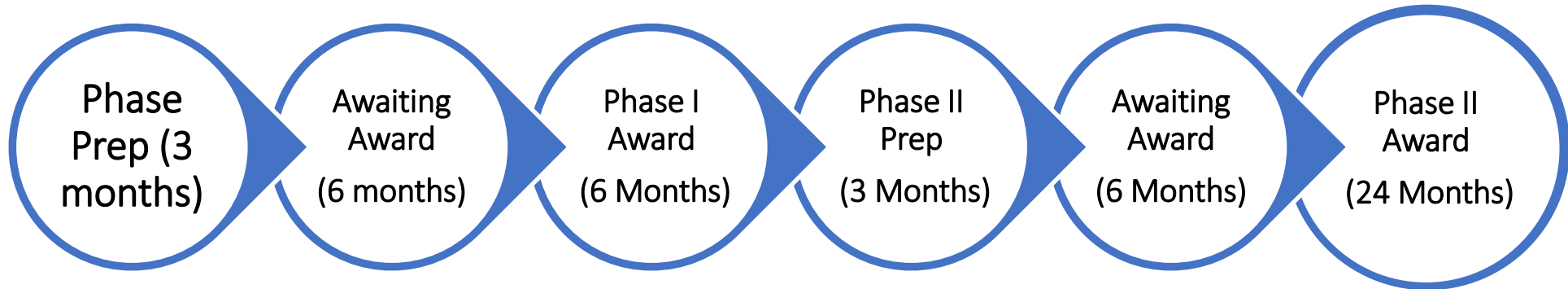
TYPICAL



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

- 
- 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>

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 29

Evaluation of the Opportunity – Patentability and Marketability Basics

Tom Ferguson and Mahfuz Miah, SUNY Research Foundation

