TTP: What Didn't Work

Anita Nikolich
UIUC

Background

- UIUC Research Scientist & Director of Research Innovation

- Former NSF PD/TTP Champion

- AI Village Organizer and Board Member

- NSF Convergence Accelerator Phase 2

- DARPA SBIR Phase 2

- 2 recent startups

Random Observations on TTP

A Guide to Academic Relationships

Same department, different field   =   "Colleague"

Same topic, different field   =   "Collaborator"

Same field, different topic   =   Conference Buddy

Different field, different topic   =   Who cares?

Same field, same topic   =   Bitter Enemy

All of the above   =   **Frenemy**

1. Confusing Messaging

- Funding Stream:
  - SaTC as a vehicle yet OAC focus and funding
  - iCorps, SBIR, Caccel – how to choose!
  - Add in Regional Innovation Engines, TIP Directorate, NSF Mid Scales, new programs

1b. Confusing Program Structure

- TTP Option – could work

- TTP as Standalone

- TTP can and should be step 1 to a larger effort. Or not.

- Role in the pipeline must be clear

2. Mixed/Unaligned Expectations

- Who is the end user?

- PI = more money! Like research, if it doesn't succeed that's part of life.
  - I can fund my students; I can just mix in the money with research

- NSF = success would be great but we're not sure what that means

- Code quality
  - Grad student vs professional

- Supportable long term
  - Patching, payments

3. Lack of NSF Buy-In

- NSF – especially SaTC - is not sold on usefulness of TTP

- Needs a champion

- Cross Agency can work well

4. Cross Agency Works Well

- NSF/DHS – multiple successes
  - Fund xfer can be challenging

- Former "TTP Roundtable" cross agency

- DARPA is overlooked
  - DARPA always looks for transition partners

5. Business Terms Scare People

- "We don't have customers, we have researchers/users/students"

- "Why would I ask users? I know what they want"

- "No one else does this. There are no competitors"

- "*Everyone* is the potential market"

6. Unwillingness to Try Very Low Risk

– Focus on Novelty

– New frameworks that might not make money
  ▪ Mitre ATT&CK
  ▪ ATLAS : https://atlas.mitre.org/
  ▪ AVID
– Governance, Risk, Compliance (GRC) tools
  ▪ NIST AI Risk Management Framework (RMF)

7. Unwillingness/Inability to Try Very High Risk – both PIs and CISOs

- Small grant to try something out
  - DARPA microgrants (Mudge)

- Some topics off limits to NSF
  - ~2017 'fake news'

8. Traditional NSF PI Culture

- Misaligned time scales
  - Proposal timeline vs hot idea

- "NSF should only do basic research!" (unless I need money)

- Use of MS students or professionals

- Unwillingness to really talk to and listen to operators/CISOs

- OAC PIs

Convergence Accelerator: (Step Forward & Sideways) Track Topics

- Phase 1 $750K Phase 2 $5M

- Teams paired with a VC coach

- Converged Research

- Structured Curriculum

- Track Integration – synergies

- Phase 1 to 2 : separate evaluations. Competition to downsize teams
  - Proposal (traditional)
  - Pitch

- Some downsides – run by researchers; code by students; team dynamics; "market notion" is unappealing to most

Panelists

- Florence Hudson – Executive Director, Northeast Big Data Hub

- Von Welch – Former Director, Trusted CI (Indiana U)