Overview

• TDIP Overview
• Why TDIP exists
• Customer Engagements
• POCs
TDIP Overview

- Tech Needs become SBIR Topics
- SBIR Topics become Phase I Projects
- Phase I projects can lead to Phase II Projects
- Phase II projects can lead to Phase III Projects
- Projects must support a bona-fide need

<table>
<thead>
<tr>
<th>TRL 1</th>
<th>TRL 2</th>
<th>TRL 3</th>
<th>TRL 4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Principles Observed</td>
<td>Concept Formulation</td>
<td>Proof of Concept</td>
<td>Breadboard in Lab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRL 5</td>
<td>TRL 6</td>
<td>TRL 7</td>
<td>TRL 8</td>
<td>TRL 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SBIR/STTR Phased Approach

• PHASE I – Feasibility Study
  – Up to $150K, 9-month performance period
  – Average 450 awards & ~5,500 proposals/year (AF wide)

• PHASE II – Full Research/R&D
  – Up to $750k, 2-year performance period
  – Enhancement/extension as warranted
  – Average 170 awards & ~550 proposals/year (AF wide)

• PHASE III – Commercialization
  – Use of non-SBIR/STTR Funds
    ▪ Rapid Innovation Fund (RIF)
    ▪ Sponsor Implementation Funding
    ▪ Capital Investment Program (CIP)
TDIP Exists for the AFSC

• TDIP exists to address AFSC Tech Needs
  – TDIP starts with AFSC Tech Needs
  – TDIP succeeds when AFSC Tech Needs are solved

• When the AFSC has a Tech Need
  – AFSC/EN manages the overall process
  – AFSC Technical POC (TPOC) oversees the technical aspects

• If the AFSC doesn’t need it, TDIP shouldn’t do it
  – Projects must support an AFSC need
  – Projects must have an AFSC champion where the need exists
  – Projects must improve the AFSC

• BOTTOM LINE
  – TDIP begins and ends with an AFSC Tech Need
Tech Needs Drive TDIP

Event Driven

Technology Development & Insertion Process

Need Driven

Technical Needs Identification & Development Process

Calendar Driven

Planning, Programming, Budgeting & Execution Process
How AFSC Identifies Tech Needs

• Engage with AFSC Senior Leaders and Tech Directors
  – Top down approach

• Meet with production and Supply-Chain engineers
  – Bottom up approach
  – S&E focused, but many others have great ideas as well

• AFSC Tech Needs start the Tech Development Insertion Process
Technology Needs & Challenges

Coatings Removal

- Current Coating Types
  - Paint/Primer
  - Cad Plating
  - Etc.

- Current Removal Methods
  - Chem-Strip
  - Plastic Media Blast
  - Water Jet
  - Grinding

- Technology Needs/Challenges
  - Need to Reduce Hazardous Waste Stream
  - Effective/Efficient Removal Processes
  - Minimization of Worker Exposure
  - Zero damage to Aircraft/Part
Technology Needs & Challenges

Coatings Replacement

• Replacement Needs/Challenges
  – Eliminate coatings that contain HazMat
  – Replacement for Brush Cd Plating
  – Better Control of FDM

• Currently Masking Parts Prior to Coating/Plating
  – Rubber Masks
  – Tape Masks
  – Wax Masks

• Technology Need - New Method of Masking
  – Robotic UV Cured Masking
  – 3D Printed Rubber Maskings
Electro-Magnetic Testing (EMP)

• Current Requirement
  – Mil-Std-3023

• Technology Need
  – High Powered, Modular Amplifier to drive load impedances from short to open circuits for Direct Drive testing
  – Currently no COTS amplifier exists to support requirements without damage or shutdown
Condition Based Maintenance (CBM) for Constant Speed Drives (CSDs)

- Wear of a CSD is a function of the number of revolutions seen at the power input to the CSD.
- Currently Requirement - “fly to fail” item replacement strategy
  - Wide range of failed conditions
  - Un-necessary parts replacement
  - Lifespan of each unit is not fulfilled
- Technology Need
  - Effective method to determine revolutions CSDs in support of CBM
## TDIP POCs & Info

<table>
<thead>
<tr>
<th>Tinker</th>
<th>Robins</th>
<th>Hill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chris Mance</td>
<td>Frank Zahiri</td>
<td>John Jusko</td>
</tr>
<tr>
<td>Kyle Taylor</td>
<td>Jon Foster</td>
<td>Tracy Mullen</td>
</tr>
<tr>
<td>Kelli Gonsalves</td>
<td>Lance Chenault</td>
<td>Val Sackman</td>
</tr>
<tr>
<td>Seth Turnipseed</td>
<td></td>
<td>Mario Rios</td>
</tr>
</tbody>
</table>

For more information look for the AFSC TDIP MilBook page on www.milsuite.mil