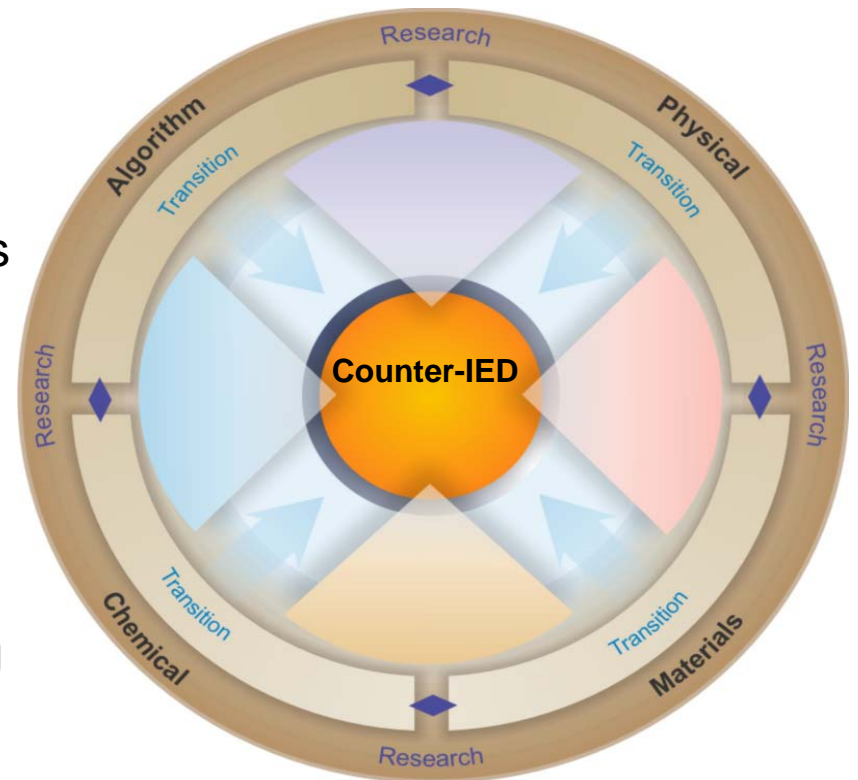# Future Vision

Mission: We are focused on developing a counter-IED basic research effort, in addition to the transition efforts being undertaken with our customers through the Capstone IPT process.
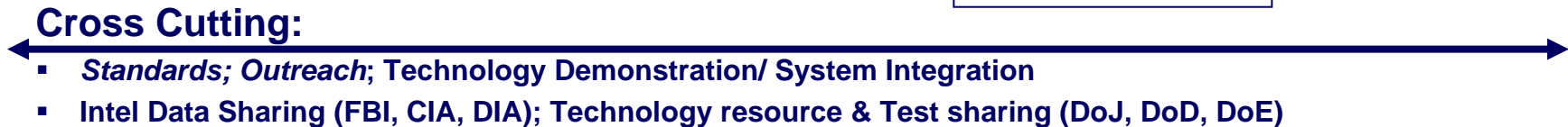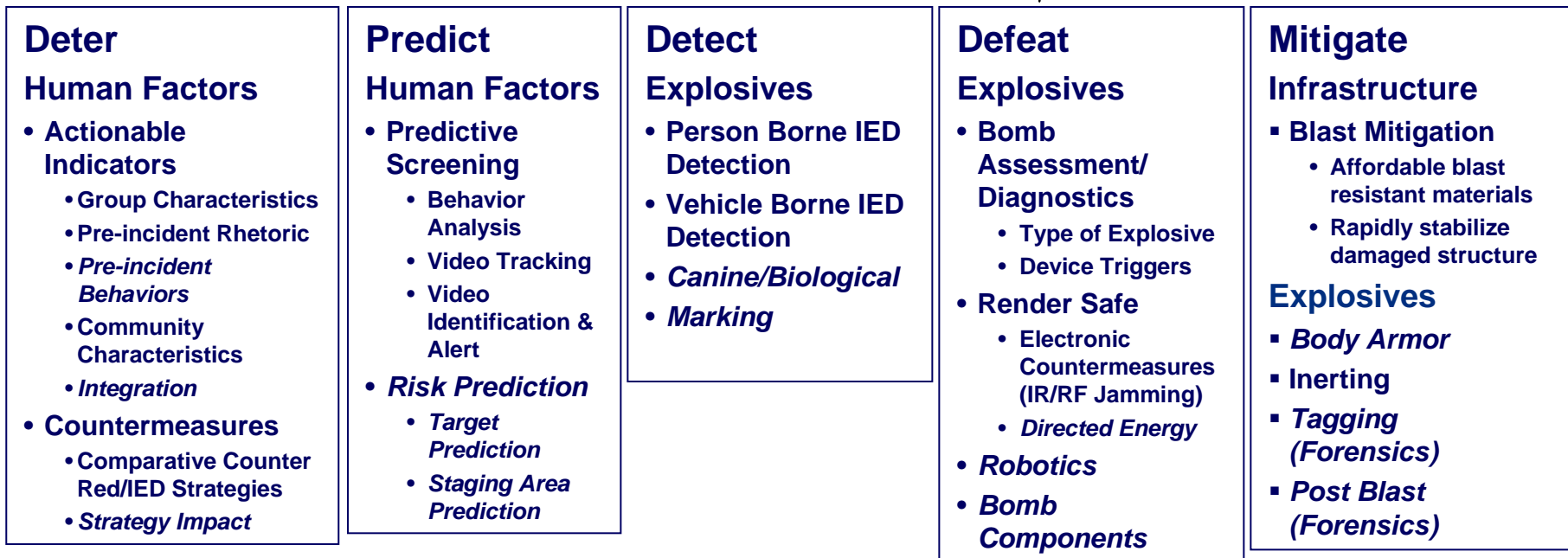
To facilitate we are:
- Developing a high-level technology roadmap
    - Supplemented by more detailed roadmaps being developed at the division level

- Collaborating with the Centers of Excellence, National Labs, Federal, state and local government partners, and industry partners

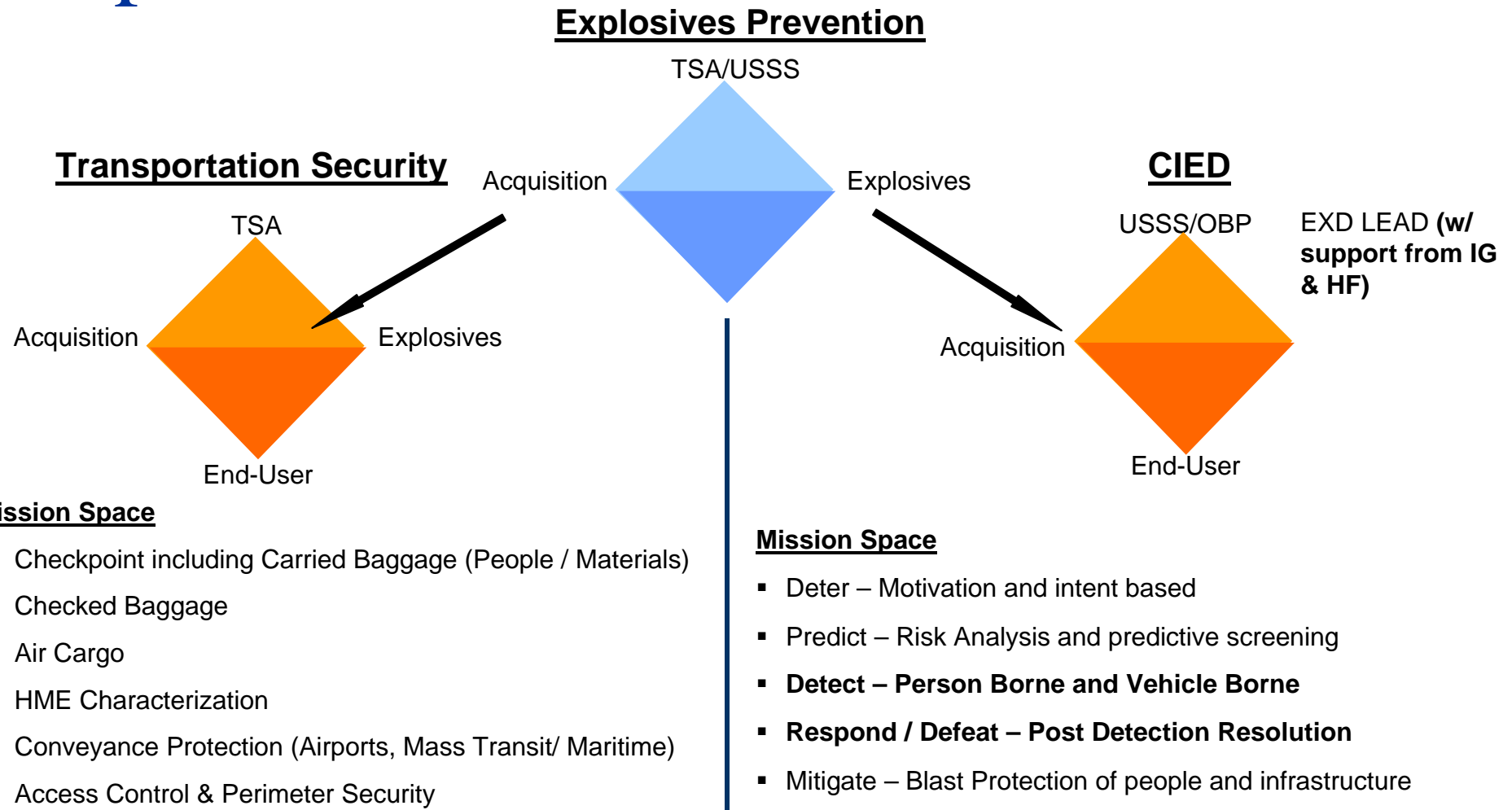- Working with our partners is key to succeeding in our mission

DHS S&T Counter-IED Program

DHS S&T has established a counter-IED program to leverage existing multi-agency research and investments to deter, predict, detect, defeat and mitigate the impact of IED attacks

Terrorist IED Attack Timeline

INTENT   INITIAL PLANNING   OBTAIN OPERATIONAL RESOURCES   CONDUCT OPERATIONS   ATTACK   IMMEDIATE EFFECTS   LONG-TERM EFFECTS

Deter
Human Factors
- **Actionable Indicators**
  - Group Characteristics
  - Pre-incident Rhetoric
  - *Pre-incident Behaviors*
  - Community Characteristics
  - *Integration*
- **Countermeasures**
  - Comparative Counter Red/IED Strategies
  - *Strategy Impact*

Predict
Human Factors
- **Predictive Screening**
  - Behavior Analysis
  - Video Tracking
  - Video Identification & Alert
- *Risk Prediction*
  - *Target Prediction*
  - *Staging Area Prediction*

Detect
Explosives
- **Person Borne IED Detection**
- **Vehicle Borne IED Detection**
- *Canine/Biological*
- *Marking*

Defeat
Explosives
- **Bomb Assessment/ Diagnostics**
  - Type of Explosive
  - Device Triggers
- **Render Safe**
  - Electronic Countermeasures (IR/RF Jamming)
  - *Directed Energy*
- *Robotics*
- *Bomb Components*

Mitigate
Infrastructure
- **Blast Mitigation**
  - Affordable blast resistant materials
  - Rapidly stabilize damaged structure

Explosives
- *Body Armor*
- Inerting
- *Tagging (Forensics)*
- *Post Blast (Forensics)*

Cross Cutting:
- *Standards; Outreach*; Technology Demonstration/ System Integration
- **Intel Data Sharing (FBI, CIA, DIA); Technology resource & Test sharing (DoJ, DoD, DoE)**

Explosives IPTs

Explosives Prevention

TSA/USSS

Transportation Security

TSA

Acquisition — Explosives

End-User

CIED

USSS/OBP

EXD LEAD **(w/ support from IG & HF)**

Acquisition

End-User

Mission Space

- Checkpoint including Carried Baggage (People / Materials)
- Checked Baggage
- Air Cargo
- HME Characterization
- Conveyance Protection (Airports, Mass Transit/ Maritime)
- Access Control & Perimeter Security

Mission Space

- Deter – Motivation and intent based
- Predict – Risk Analysis and predictive screening
- **Detect – Person Borne and Vehicle Borne**
- **Respond / Defeat – Post Detection Resolution**
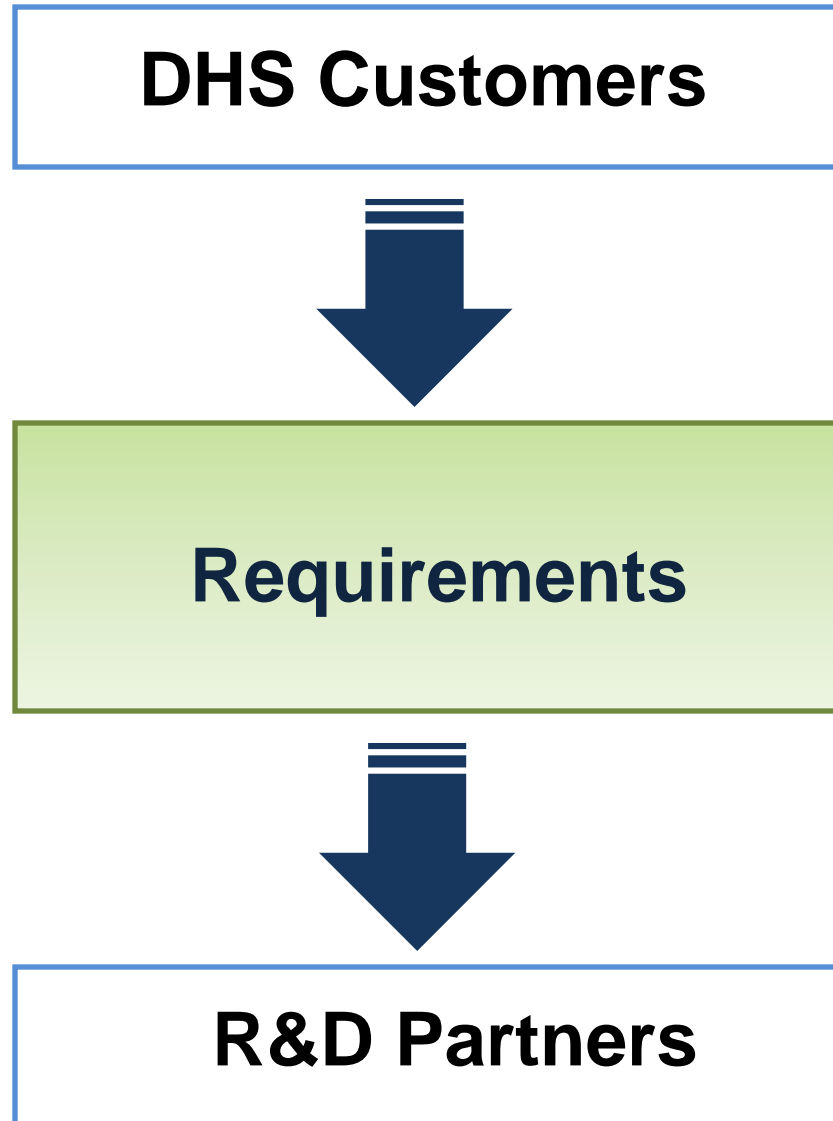- Mitigate – Blast Protection of people and infrastructure

Homeland Security

Through the IPT process technology gaps are prioritized and develop programs to fill those gaps

5

What Needs Attention

DHS Customers

Requirements

R&D Partners

Key Takeaways

- Focus on both sides of the requirements process
  - Getting requirements from our DHS partners
  - Getting requirements to those doing research and development

- Develop both performance and testing standards

- Examples of government processes to develop standards include:
  - Special Operations Command (SOCOM) experimental testing
    – Conducting experimental exercises to build requirements and develop standards
  - EU process
    – Performance standards development (what the technology should do)
    – Independent testing for industry technology advancements
    – Scenario-based testing

- Work to streamline ways for non-government groups to work with S&T, including Centers of Excellence and National Labs