

Summary and Next Steps

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What did we hear/What can we do

- Effectiveness, this community should address questions and operational issues raised
 - Definition
 - Detection vs. deterrence
 - Displacement
 - Role of human in the loop
 - What should be on the threat list
 - How much does cost matter
 - Is an empty box useful
 - How do you test
 - Is Pd/Pfa 80/30 better than 60/10?
 - Are stakeholders being satisfied

What did we hear/What can we do

- Innovation task force, this community
 - should take advantage of this opportunity
 - Provide constructive feedback
- Future lane experience (gray vs green)
 - This community can help by assessing concept of operations, video tracking, scrapping social media to assess risk, etc.
- Intellectual property issues were raised
 - This community needs to understand these issues and solve them
- Funding sources
 - $S\&T \leq TRL\ 5/6$
 - $TSA \geq TRL\ 5/6$

What did we hear/What can we do

- System of systems risk reduction, etc., this community
 - needs to work together to resolve the issues raised
 - should combine the results from the different methods. assumptions, etc. to provide better results
- Future lane experience (gray vs green), reimagining checkpoints, this community
 - can help with footprint, CONOPS, video tracking, passenger flow / throughput increase, etc.
- Innovation and third party involvement, this community needs to figure out how best to make this work
- COE ROI, this community should refine the numbers that go into the calculations

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Possible topics

- Technology transition
- What top 3-5 problems do you have,
- What 3-5 problems do you think others have
- System science for aviation security systems
- The empty box
- Red team testing
- Human in the loop
- Public and restricted datasets
- Test design
- Cyber security
- International Harmonization
- ITF sites for checked baggage and other venues
- Others?

Detailed slides follow

What Did We Hear?

- Talking about Effectiveness was useful
- It is a complex multi dimensional space
- Various examples were given
- How do we bound this space
- DHS/TSA Perspectives
 - CTs are being deployed at the checkpoint
 - Data rights issue raised
 - A partnership between TSA and the companies
 - Innovation Task Force Update
 - TSA and S&T are working on joint roadmaps, better capability, reduce redundancy, etc.
 - Future lane experience
 - Apex Screening at Speed



What Did We Hear?

Behavior

- Terrorists events, tactics, Mapping social media for security applications

Effectiveness

- Definition, optimization, security & medical perspectives

Centers of Excellence ROIs

Third Party Involvement

Advanced Technology II & III

- XRD, stationary CT, spectral detectors
- Airport risk assessment models
- Video tracking, Adaptive ATR
- DICOS update

Other venues

- School safety
- TSA & Sandia topics

What we need to hear more about

- Effectiveness
 - Still not clear is 60/10 better than 80/30
- How do we better define effectiveness
- How do we manage this at a system level
- Not clear what DHS S&T and TSA needs are
- Business Models for 3rd parties
 - IP, etc.

What Did We Hear?

Introductions:

- Welcome
- Q: Can you talk about the COE ending
- Sound the technology showcase be once a year every two years
- No matter what happens we will still be around
- Workshop ground rules
- Discussion on effectiveness

DHS/TSA Perspectives

- Mentioned administrator's intent/strategy
- Passenger's experience
- Changing workforce
- Accessible Property Screening (APS) Capability Maturation Roadmap
- Capability managers responsible for a particular vector, e.g., check pint CT or other technologies
- TSA and S&T are working on joint roadmaps, better capability, reduce redundancy, etc.
- Cyber security
- CTs are being deployed at the checkpoint



What Did We Hear?

DHS/TSA Perspectives and Initiatives

- Hardware and software is in the roadmap
- Data rights issue was raised
- There needs to be a partnership between TSA and the companies

DHS/TSA Innovation Task Force Update

- Demonstration outside the lab
- ITF is outside the process and an agitator of the process
- Moving from a box to a solution
- 2 years ago demoed CTs now buying 300 of them
- Las Vegas airport (McLerran) has ACE Advancing Checkpoint Environment an operational lab in the field...
- TSIF is a lab and is clean; LV airport is in the field and dirty also provides interfacing with TSOs and passengers, not mock scenarios

What Did We Hear?

- Future lane experience
 - A new speed lane between pre checked and standard (green and gray)
 - Trying in Boston and ??
 - Now people move around eh people why can't the equipment move around the people
 - What TSA needs from the audience:
 - Cyber security problem fixed
 - What bag goes to what passenger
 - Look at the capability managers and determine how your technology can help them
 - Submit a proposal to get into McLerran LV airport

What Did We Hear?

Apex Screening at Speed

- ITF has kept Apex involved in that Mara and Matt are doing
- S&T and ITF are working closely together
- How can S&T develop capability to go into ITF
- TRL level for S&T and TSA, it depends on funding, who is doing what, etc.
- When does S&T hand the baton to TSA, not a good question to ask, it should not be for S&T to throw over the fence to TSA
- What is the right TRL level for transitioning, again it depends on several factors
- One of S&T's role is to provide risk reduction.
- Increase throughput 300 passengers per hour while meeting the new TSA standards
- If we started today to screen passengers would we come up with a checkpoint?
- Reduce moving to soft targets
- Audience can help us on how we think what we are doing
- How does what you are developing fit into the apex concepts
- How do we get technologies to the field sooner, not 5, 10 15 years
- System of Systems
- Risk informed decisions to bring aviation security risk down
- ARAM—Airport Risk Assessment Model
- Q: How does this differ from TSA's RISA more system wide than RISA
- New LRBAAs Long range BAAs informed by the Silicon Valley Innovation program
- Testing and evaluation is also being considered on how this will be performed

What Did We Hear?

Behavior

- Why and how terrorists change tactics
- Ideological motivation of terrorism in the US
- Mapping social media for security applications
 - Is Free/Open source: https://github.com/Greenwolf/social_mapper
 - The tool provides a link to the profile, it does not pull the data...but you could do this as well
 - 80-90% accurate not clear what this means

What Did We Hear?

Effectiveness

- Effectiveness Definition
 - We need more systems of systems approaches
 - Systems science
- Defining Effectiveness of Evolv's Technologies: Is 80/20 better than 50/1?
 - Security detection in today's world
 - Balance
 - Flexibility
 - Risk-based Approach
 - Deterrent and displacement is effective
 - Evolv is a MMW and software based system company
- Optimization of future aviation security checkpoint effectiveness
 - Need requirements on the overall subsystems and the overall system
- Medical Imaging Perspective
 - Computer aided detection

What Did We Hear?

Centers of Excellence ROI

- Matt Clark: Our priorities-past, present and future. A personal perspective
 - Grants to the Lead Organization
 - Basic Ordering agreement (\$85M) mechanism for task orders
 - Northern Triangle Migrant Flow Study
 - COEs have graduates that have become part of DHS and other security areas
 - NASA is copying the COE method
 - Objective 10% of R&D gets into the field, it is not enough
 - An effective COE good plans all aspects of the supply chain
 - Cut projects early on if they are not promising
 - Intellectual property
 - Need to know the rules for acquisition and commercialization
 - Need Visionary Leaders, flexible and adaptable, humility

What Did We Hear?

Centers of Excellence ROI (continued)

- DHS COEs Effectiveness
 - Each funded at ~\$3.5M
 - R&D
 - Education of the homeland security work force
 - Congress wants 10 COEs (8 active; 2 in the works)
 - 73 Active R&D projects
 - 85+ DHS component senior officials directing R&D
 - 200+ Academic, private sectors, and international; partners w/I COE network
 - COEs are problem (not tech) based
- Effectiveness study of the COEs in UOP
 - CT datasets ROI = 2,087%
 - Ten other R&D products ROI= 856%
 - Two research products from CREATE \$45M = 12 years of OUP funding of CREATE

What Did We Hear?

Third Party Involvement

- Working with 3rd Parties
 - Nothing new manufactures have done this for years
 - It is all about blame
 - Ideas are great
 - Gartner hype cycle (valley of death, etc.)
 - Wacky idea: Open source detection code
- L-3 weapons algos and 3rd party API
 - Using the DICOS library
 - OPSL more complex and did not support Linux, etc. so did not use it
 - Will deliver a DICOS weapons ATR to TSA and they will run other system data through their DICOS ATR algo
- Speeding up the BAA process
 - ALERT should allow <10 people companies to be free members
 - SSI and suitability is a big barrier for small companies
 - Cost ~\$30-40M to get a system certified, not from scratch

What Did We Hear?

Advanced Technology II

- Update on Duke's work on XRD and other topics
- Reinforced learning for aviation security strategy
- Deep learning for CT image processing
- Test design for consumer (gov't) and producer (vendor) risk
 - Developing simulants for the field
 - Free excel software tool to help develop tests
 - Decide before hand what are the risks that you are willing to accept
 - To prevent over training on the test, no two tests should be the same
- Rapiscan's stationary CT
 - X-ray transmission, XRD, spectroscopy detectors
- Why purchase a stationary CT scanner and why a new vendor
 - X-ray transmission and backscatter

What Did We Hear?

Advanced Technology II

- The airport risk assessment model (ARAM) increasing effectiveness

What Did We Hear?

- DICOS Deployment and Open Architecture
 - To be constructed
- Trace Detection and Meta Data
 - Temporal / Environmental / Sample / operator / Instrument metrics
 - Legally save meta data?

Was ADSA20 Successful?

- It depends on the metrics you choose, examples include
 - Audience learning about where TSA is headed
 - TSA learning about new technologies/capabilities
 - Number of
 - Attendees
 - Forming partnerships
 - Developed products
 - People working together
 - Enabled DHS sponsorship
 - Increase of stakeholders' participation
 - Spin off of other ADSAs
 - Number of side bar conversations