

Perspectives on Cargo Inspection

What was heard?

What was not heard?

What's next?

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What Did We Hear

DfT, TSA (the regulators)

- Air cargo screening is a weak link / soft underbelly
 - Or a significant challenge in need of a solution?
- Regulations drive solutions
 - Selection of “most appropriate means possible”
 - Non-technical approaches often chosen
 - Lowest costs technologies most often deployed
 - Regulations may drive cost; e.g., UK requirement that trace swabs are performed on the inside of the package (time cost, liability cost)
- Commodity-driven approaches
 - e.g., EMD, RF detection, ETD, AT, EDS
 - There may be technologies that are appropriate to specific commodities and may not be appropriate elsewhere (e.g., EMD for fresh berries)

What Did We Hear

(some comments)

DfT, TSA (the regulators)

- Note about “most appropriate means” from Allan Collier:
 - There are pretty strict guidelines about what cannot be used in what situation. There is a process in which a screener’s proposed solution is evaluated (so you cannot just buy the cheapest tool and run with it, as the presenter may have implied)
 - TSA has an air-cargo-inspection toolbox
 - Are the tools being used in the right way?
 - Can the tools be improved and at what cost?
 - Are they sufficient for future threats?

What Did We Hear

Freight Forwarders (end users, stakeholders)

- “Volunteering” to help
- Screening needs to fit business model
 - Life-cycle costs need to be considered, not just initial purchase costs
 - (and DHS / TSA have recognized this as well, even if it has not been communicated clearly)
- Does this allow new opportunities?
 - Inspection paradigms that offer other business opportunities, i.e.
 - RFID tags that allow tracking and chain-of-custody verification)
 - Inspection technique that finds other items that the shipper cannot ship, e.g., aerosol cans (increase the value proposition for the shipper)

What Did We Hear

Geeks (vendors, academics, labs)

- Cool technical “solutions”
 - Parts per quadrillion limits
 - Exotic x-ray sources
 - New detectors
 - Clever algorithms – tomosynthesis, peeling of layers in radiography
 - Fake (and real) dog noses
- Risk analysis and game theory say we have it all wrong

Additional Audience Comments on “What We Heard”

- Pre-check has been touted as a big success for TSA
 - This opinion seems to be driven by less-disgruntled passengers
 - But has it been demonstrated that risk is reduced?
 - And by corollary, would a similar game in air-cargo reduce risk?
- Comment regarding the market and the future of CT at the checkpoint
- A Risk-Based screening scenario may allow the infrastructure to remain in place, but it is only “turned on” occasionally (randomly?)
- Since air-cargo screening is not done in one place, the discussion needs to consider the entire process, not just a single technology
 - This is different than the approach to EDS algorithms, e.g.

What We Did Not Hear

- Measures of Pd, PFA throughput
 - In the old days (ADSA-01), this was the problem to solve
- Technologies for commodity-specific screening approaches
 - Metal detectors (EMD), NQR, RF, & technique fusion
- How do we get the signal in & out of the box?
 - X-ray energy, penetration, contrast, ..., ?
 - Is there any vapor/particulate available?
 - We may have heard about as much of this as possible at the clearance level of the meeting

What Can Be Done

- Is there a viable “traditional” technical solution?
 - Can this be solved with AT, EDS, EDT?
 - Yes? → what should DHS invest in?
 - How to overcome the high cost?
 - No? → shall we (ADSA) abandon all hope?
- Possible path forward: similar to ADSA-01, develop surrogate problem set for this community to chew on?

What Can Be Done?

- Are there alternate solutions?
 - Vents and heaters in LD-3 (or other) containers to aid in sniffing?
 - Can the business model be flipped over
 - Tags and seals (RFID) offer customer feedback (and provide security)
- There are (were) 170 bright people in the room, whadaya got?

What Can Be Done!

- Is there a benefit to forcing a marriage between the risk, game-theory, and instrument geeks?
 - How does this play into instrument thresholds, Pd?
 - TSA has risk analysis tools that have been applied to screening regimes that they control, could they be applied at certified shipping locations?
- How can the rest of the information (manifest info, history, ...) be used?
- Do we really want high Pd?
 - Re-investigate the argument that low Pd is OK if Pfa goes to zero
- Can we measure the value of deterrence?
 - If deterrence is the objective, does the preferred

What Can Be Done!

technology change?