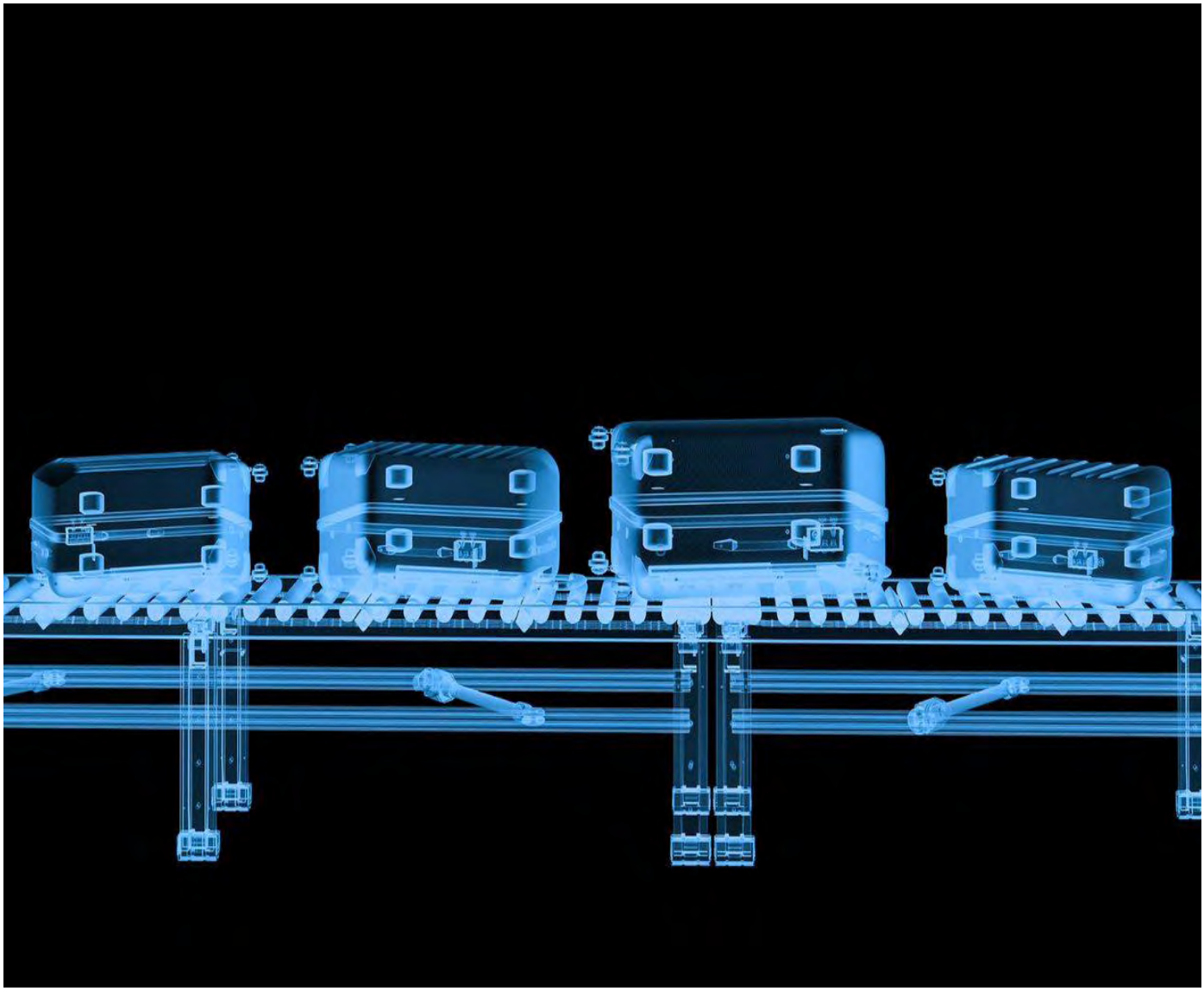
Innovation in Security

100% Hold Baggage Screening One-Stop Security (HBS OSS)



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1. Executive Summary

IATA continuously fulfils its mission to lead, support and promote best industry standards in the aviation security. Aviation security may and should become a major enabler in industry recovery after huge disruptions caused by the global pandemic. Additionally, IATA promotes recognition and implementation of agile, risk-based solutions and new technologies. As such IATA partners with its member airlines and a range of stakeholders to enhance the overall industry security resilience and attempts to reduce vulnerabilities same time simplifying security procedures through application of modern processes and technologies.

The objective of this 100% HBS OSS initiative is to **create operational added-value proposition in hold baggage operations by enabling risk- and performance-based outcomes through augmenting current security standards and practices**.

This initiative is focused on major transfer hubs (handling 85% of global transfer traffic) coupled with their feeder airports. This is where the gain from high quality and technology advancements in security can be most prominent and where risk-based outcome-focused worldwide standards encouraging best quality and advanced technological solutions can be promoted to the highest extend. Both, hubs and their feeder airports play a role in unlocking opportunities leading to the successful delivery of aspirational objectives.

1.1. Goals of the Initiative

The aspirational objective of the initiative will be achieved by reaching **following goals**:

• **Establishing the "trusted network"** of airports/airlines/authorities which could benefit in operational savings from best standards in hold baggage screening being used;

• Creating opportunities **to re-engineer existing handling procedures** to facilitate handling of transfer and unaccompanied hold baggage globally;

• Developing **global benchmarking methodology** for HBS hardware and software;

• Creating **global and industry recognized performance criteria** for security providers of HBS, at both corporate (managerial) and individual (screener) level;

• Developing **core elements of a Service Level Agreement (SLA)** in security services;

• Reinforcing use of existing and developed tools like **IATA baggage messaging standards and IATA One Source**.

1.2. Outcomes and Benefits

Outcomes of this initiative will also support and strengthen IATA traditional advocacy mission through:

• Influencing and amending ICAO Annex 17;

• Supporting ICAO and States in developing relevant guidance material;

• Contributing to ICAO Working Groups (Annex 17 and Innovation in Aviation Security);

Additional benefits of this initiative will include:

• Development of tools and methodologies allowing performance measurement of screeners and entities they work for;

• Update of relevant IATA publications.

2. Background Information

2.1. The Context of Initiative

The concept was designed at the end of 2019 as a proposal to respond to increasing passenger traffic coupled with airports infrastructural challenges and constantly evolving threats. Given the radical change of the situation, the air transport industry has faced since the beginning of the global pandemic situation, project assumptions related to traffic estimations needed to be accounted for and consequently adjusted. The very core nature of the project, however, remained valid given security has been currently increasingly perceived as one of the major enablers in the context of the industry restart. As we could see before and even now, regulations have their limits in coping with constantly evolving challenges given the global nature of air transport. A more agile approach is required in security that considers risk-based solutions supported by latest technology and highest quality.

2.2. International Legal Framework

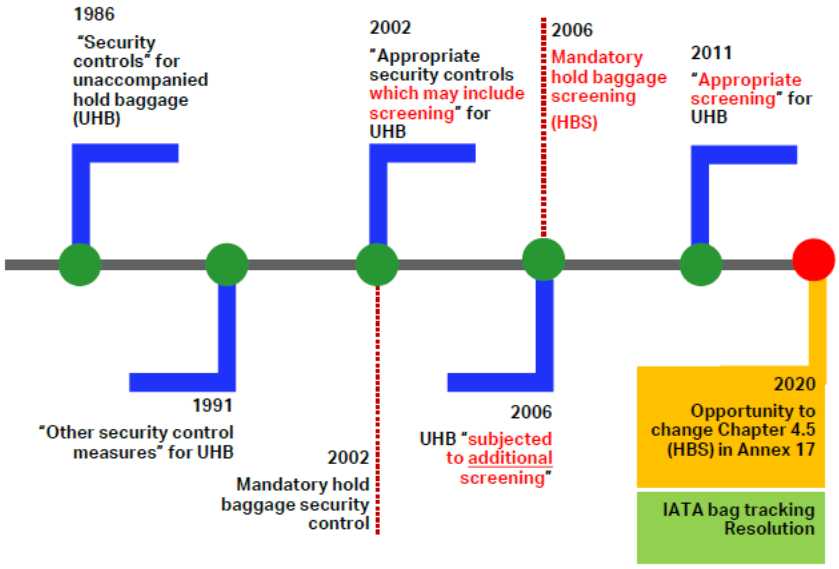
The ICAO Annex 17 provisions related to hold (or checked) baggage have been consolidated in one chapter since 1989 (previously together with cargo and other goods). Amendment 10 to Annex 17 in 2001 created chapter 4.4 - *Measures related to hold baggage* containing eight (8) Standards and two (2) Recommended Practices. Some provisions are older, such as Standard 4.5.3 approved by the ICAO Council in December 1985 after Air India 182 catastrophe (initially introduced through Amendment 6 – 1986, as 5.1.4).

Current Annex 17 chapter 4.5 (approved in 2005 as Amendment 11) imposes screening for all originating hold baggage (which was already present in Amendment 10 with a deferral date of implementation), screening for all transfer hold baggage, capability to implement differentiated screening at transfer, including no-rescreening with the recognition of equivalence concept (also known as One-Stop Security or OSS), and a reinforced "reconciliation and quality control" in Standard 4.5.5. The latter required air transport operators to confirm that hold baggage is identified as accompanied / unaccompanied, has been screened to the appropriate standard before being accepted for carriage, in addition to maintaining records.

Almost 20 years after the introduction of the standard requesting States to screen all originating hold baggage as from 1st January 2006 (4.4.8 in Amendment 10, 2001), the ICAO Universal Security Audit Programme (USAP) results show a global level of implementation of chapter 4.5 standards between 68% and 78% (2018 results).

The ICAO Annex 17 regulatory framework for hold baggage screening has not had a holistic review over the last 15 years, and the potential for any substantial reform gets affected by the pace of Annex 17 amendment mechanisms.

The diagram below illustrates major elements of the hold baggage security standards evolution



Note: *UHB – Unaccompanied Hold Baggage*

To summarize, there is no mention of "reconciliation" in Annex 17 – only mention of measures for UHB. "Reconciliation" is defined in IOSA Reference Manual and IATA Passenger Standards Conference Manual (PSCM), previously titled Passenger Services Conference Resolutions Manual, as well as in ICAO Security Manual and European Union regulations.

Security measures for UHB are linked to, but not exactly equivalent to the concept of reconciliation. ICAO requirements to identify baggage as accompanied or unaccompanied remained unchanged from the beginning (1986). ICAO Security Manual requirements for UHB haven't been adjusted since 2010.

Unaccompanied hold baggage screening requirements became ambiguous over time due to changes in hold baggage screening requirements and as the technology of the hold baggage screening improved massively.

3. Overview of Developments

3.1. Initial Stage

On 17th February 2020 IATA held a one-day Hold Baggage Security meeting to launch this initiative. The workshop covered technical, operational, and technological capabilities and opportunities to implement innovative solutions for hold baggage screening and baggage messaging. It was attended by airlines, security providers, airports, IATA Strategic Partners, the industry association, some key regulators and representatives from relevant IATA teams. More than 100 participants were originally invited, and a forum was created for all active contributors. As the initiative continued since then, substantial and consistent growth in the participation has been noted, demonstrating wide interest in working on innovative security solutions. The list of participants expanded since and currently includes 180+ individuals. Due to global circumstances, further developments continued through virtual meetings and e-mail exchanges. The interim report of the initiative was published in September 2020 and is available on this IATA website.

3.2. Workflow Design

Applying collaborative and all-encompassing approach further development phase have been structured in five (5) interlinked workstreams with the industry representatives taking the lead in most of them:

- **Workstream#1** – data – specifying the target group for the pilot phase of the concept. This initially ought to be based on passenger traffic data to inform which routes/airports could see a particular operational interest given the transfer traffic volumes.

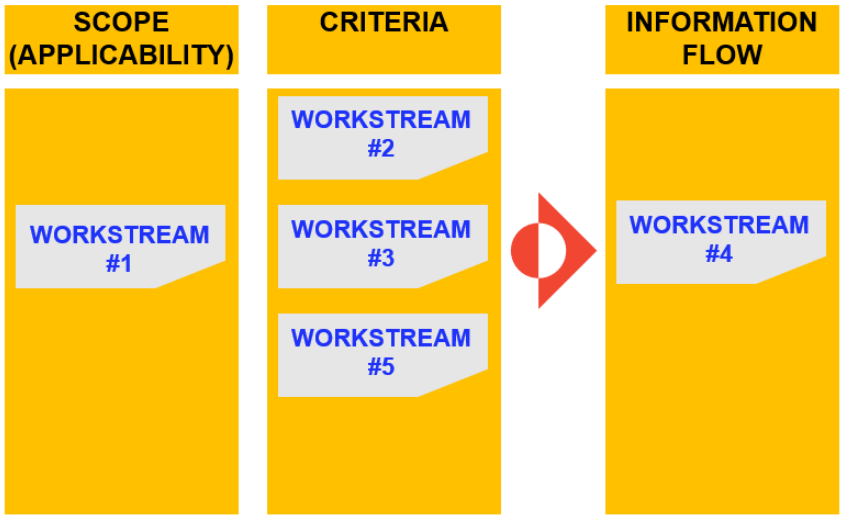
- **Workstream#2** – equipment – hold baggage screening technology stream. Focused on developing categories of Explosive Detection System (EDS) equipment that could be used as equivalence measurement confirming sufficient standard of screening at the point of origin.

- **Workstream#3** – operators of screening equipment – focuses on developing recognized best practices and standards to ensure human resources, namely screening equipment operators (screeners), including their supervisors and managers can deliver good quality screening consistently from an individual performance perspective.

- **Workstream#4** – baggage messaging – the stream focused on adjusting current (Type B) and future (.xml) baggage messaging to include adequate security-related information, enabling recognition of transfer hold baggage screening standard (transmitted from the point of origin).

- **Workstream#5** – best managerial practices – with focus on developing recognized best practices and standards to ensure entities (in this case, performing hold baggage screening) operate in a manner ensuring quality-assured and consistent delivery of services provided.

The role of every workstream is illustrated below and explained in bullet points under the diagram:



- Interested entities ("trusted network" scoped by Workstream#1) should meet criteria established by Workstreams #2, #3 and #5;
- The extent to which equipment (Workstream#2), screeners' performance (Workstream#3) and managerial best practices (Workstream#5) criteria are met is categorized as per table in section 4.1;
- Relevant information should be transferable within "trusted network" using solutions determined by Workstream#4 (IATA One Source and the baggage messaging).

Reports of all Workstreams sessions are attached to this document.

4. Next steps and 2021-2022 Roadmap

4.1. Workstreams' Developments and Deliverables

This document outlines the entire proposal and should be used for further advocacy efforts and implementation trails.

IATA will accordingly update Appendix A to AVSECP/31-WP/24 (Proposed Amendments to Annex 17 – Chapter 4.5 - Measures related to hold baggage) for the next ICAO AVSEC Panel meeting and relevant WGs meetings (2021).

- **Workstream#1**

Deliverable: **Traffic data have been collected from the internal IATA sources, need however to be re-analyzed** given the current state of the industry and COVID-19 impact. At this stage the initiative is open to any airport and authority willing to engage in trails planned for 2021 (see section 4.2 for the full Road map).

- **Workstream#2**

Deliverable: With a substantial input of major hold baggage screening manufacturers **main categories of equipment have been collated and considered agreed upon** (see table below for equipment-related criteria as well as the Attachment 5 – *5th August 2020 Workstream#2 call summary*). Side discussions that have covered concepts of the Open Architecture, as well as "Parallel screening" (e.g. Dangerous Goods, Wildlife) will continue as concluded in the summary of *21st October 2020 Workstream#2 call* (Attachment 9) while it was reiterated that any development in this scope shall not impact core screeners' and security screening function (detection of explosive devices).

- **Workstream#3**

Deliverable: Based on industry input and results of different researches **the proposal of core set of performance criteria for screeners have been endorsed** (see Attachment 7 – *3rd September 2020 Workstream #3 call summary*). Next step is, to develop and test a standardized instrument/tool (images library) allowing to determine meeting the acceptable level of performance in an objective, harmonized and standardized manner (see section 4.2 for the full Road map).

- **Workstream#4**

Deliverable: Based on industry input, in cooperation with baggage handling experts and having consulted internal IATA experts it was determined that **core elements exist in baggage messaging system. They are based on IATA Recommended Practice 1745** (IATA Passenger Standards Conference Manual). Additionally, existing **IATA One Source** could be adjusted to host information on self-declared Class-assignment for each of the categories (as per the table in section 4.1.2). According to the Road map (section 4.2) further developments will focus on exploring detailed technical solutions and amendments to IATA Recommended Practices as well as the impact on implementation (for details see the Attachment 8 – *22nd September Workstream#4 call summary* and the Attachment 10 – *3rd November, call summary*).

- **Workstream#5**

Deliverable: Proposal of the **main set of security managerial criteria has been drafted and agreed** (section 4.1.1). These will be reviewed and updated as necessary. IATA One Source solution (mentioned above) will be further adjusted and tested to determine how information related to criteria described in the table below could be best included as the evaluation and evidencing mechanism.

4.1.1 Security managerial criteria

Core element	Sub-element description	SPI	Target
1. Management structure and values	A. Security culture development and its interaction in the context of human factors	Documented and regularly reviewed policies	100% compliance Verified by certification or validation by a competent authority
	B. Corporate governance and compliance	Documented and regularly reviewed policies	
	C. Human resource management	Documented and regularly reviewed policies	

Core element	Sub-element description	SPI	Target
2. Risk Management	A. Risk management policy and procedure	Documented Corporate Risk Management policies, based on or equivalent to ISO 31000	100% compliance
		Security risk register established, regularly reviewed and maintained up to date	100% compliance
		Procedures for determining the effectiveness of corrective action	% of internal security reports attributable to documentation, procedural or supervision deficiencies as a primary/root cause (decrease of xx% calculated year-over-year–as per company policy)
	B. Threat assessment capabilities	Documented prevention strategy aiming to identify threat, determine its seriousness and develop intervention plans	100% compliance

Core element	Sub-element description	SPI	Target
3. Contract management	**A. Quality control and compliance management**	Outcome of international audits / inspections Number of identified non-conformities.	No more than one major/critical non-conformity per audit with no reoccurrence during the follow-up
		Outcome of national quality control monitoring activities. Number of identified non-conformities	
		Outcome of Client's internal quality monitoring activities. Number of identified non-conformities.	
	B. Service delivery assurance		
	B1. Operational managers are competent to identify non-conformance, as well as implement respective corrective actions and report its outcomes.	The number of rejected or not-followed security recommendations	Number of rejected or not-followed security recommendations within the X period of time. Zero tolerance.
		Number of days necessary to close security finding	Number of days necessary to close security finding (the maximum should not exceed xx days–as per company policy)
	B2. Monitoring is being undertaken throughout the regular oversight activities	The number of failed or ineffectual business unit responses to issues identified by Security as control weaknesses	X% of internally identified findings rectified completely within the internally established timeframe
	B3. Processes are in place to review the findings of performance; monitoring of amendment processes and procedures is being applied across the operation	Timely resolution of internal compliance monitoring findings	No more than one major/critical finding per internal quality control activity with no reoccurrence during the follow-up
	C. Communication and reporting	Response scenarios are identified according to pre-defined times sets	100% compliance

Core element	Sub-element description	SPI	Target
4. Training	**A. Training policy**	Documented and regularly reviewed corporate policy	100% compliance. Verified by certification or validation by a competent authority
	B. Training and coaching component in line with current threats	Documented and regularly reviewed	100% compliance.
	C. Training and coaching component in line with technological development	Documented and regularly reviewed	100% compliance.
	D. Awareness training to encourage internal reporting, advise changes to procedures, building general security awareness.	Documented and regularly reviewed	100% compliance.

Core element	Sub-element description	SPI	Target
5. Security solutions	**A. Implementation of technological solutions** whereby human skills and equipment are combined in order to optimize security performance;	Operational and financial capability to provide technological solutions	Show evidence of experience and track record in aviation security through records and / or customer references
	B. Equipment maintenance	Ensure the full operation of the equipment through the appropriate maintenance being documented and performed by authorized and qualified personnel (regardless of the entity responsible – i.e. manufacturer, airport, third-party)	100% compliance. Evidences of the service personnel qualifications (e.g. refresher training) Maintenance logs and routine tests records (embedded in the equipment, or as a separate register/service monitoring software).

4.1.2 100% HBS OSS Airports' Eligibility Classification

The content of the table below is based on developments and proposals formulated by individual Workstreams. Five categories (*Equipment, Operators' (Screeners) Performance, Contract Management, System Assurance, Quality Control and Compliance*) are reflective of developments within Workstreams#2, #3 and #5. Same with target values in the last column which could be further adjusted based on Workstreams' leads suggestions, and future trials.

This agreed categorization IATA will serve as a basis for future developments and trials. IATA has advanced in exploring use of an existing platform (IATA One Source) to host information on these categories, once necessary functional adjustments are financed and introduced. IATA One Source seems to have technical capabilities and be flexible enough to be adapted as an information source where data/ information could be securely entered, managed and shared between interested parties.

The structure of data/information hosted would ensure no security sensitive information is accidentally/inadvertently shared thus simple coding is proposed as described in the "Hold Baggage System Classification" in the table below.

Ultimately, IATA One Source has a potential to become a repository where information on self-declared assignment for each of the categories could be entered. Entities willing to further engage will be invited to participate in trials using this platform and help to improve its functionalities as outlined in the section 4.2. (Roadmap).

Categories	Hold Baggage System Classification			The category target value description
1) Equipment				
A	X			EDS Standard EU 3.2 or TSA 7.2 or its equivalent standard (A+) *) EDS Standard EU 3.1 or TSA 5.8 or its equivalent standard (A)
B		X		EDS Standard 3 or its equivalent standard
C			X	Other EDS Standards with additional equivalent measures
2) Operators' (Screeners) Performance – *see the Note below*				
A	X			Results of standardized assessment meet A level values
B		X		Results of standardized assessment meet B level values
C			X	Results of standardized assessment meet C level values
3) Contract Management (Service Level Agreement/SLA) – *see Section 4.1.1*				
A	X			Service delivery assurance criteria (B.1 – B.4, C) fully met
B		X		B.1 criteria not fully met
C			X	More than one Service delivery assurance criteria not met
4) System Assurance – *see Section 4.1.1*				
A	X			All criteria listed below are met: Management structure and values (1.A – 1.C); Risk Management (2.A and 2.B); Training (4.A – 4.D); Security solutions (5)
B		X		Security solutions (5) criteria not met
C			X	Security solutions (5) and Training (4.D) criteria not met
5) Quality Control and Compliance				
A	X			3 or more International/Airlines + National + Internal/customer validation (A+) 2 International/Airline + National + Internal/customer validation (A)
B		X		1 International/Airlines + National + Internal/customer validation
C			X	National + Internal/customer validation

**) equivalence for equipment category refers to different nomenclature regulators are using when certifying equipment with same capabilities. See Workstream#2 5th August call summary for details*

Examples:

- Airport ABC could be: 1B, 2A, 3A, 4A, 5C
- Airport XYZ could be: 1A, 2A, 3C, 4C, 5B

NOTE:

Results of the hold baggage screeners' image interpretation assessments using commonly recognized industry tool (library developed under the Workstream#3) correspond to one of the following levels:

- Level A: 90% of HBS screeners at A' > **reference a'**, Hit Rate > **reference hr%** and False Alarm Rate < **reference far%** (e.g. 20%)
- Level B: 90% of HBS screeners at A' > **reference a' - 0.1**, Hit Rate > **reference hr% - 5%** and False Alarm Rate < **reference far% + 5%**
- Level C: 90% of HBS screeners at A' > **reference a'- 0.2**, Hit Rate > **reference hr% - 10%** and False Alarm Rate < **reference far% + 10%**

Reference values will be confirmed by Workstream#3 after the tool (library) is developed and tested.

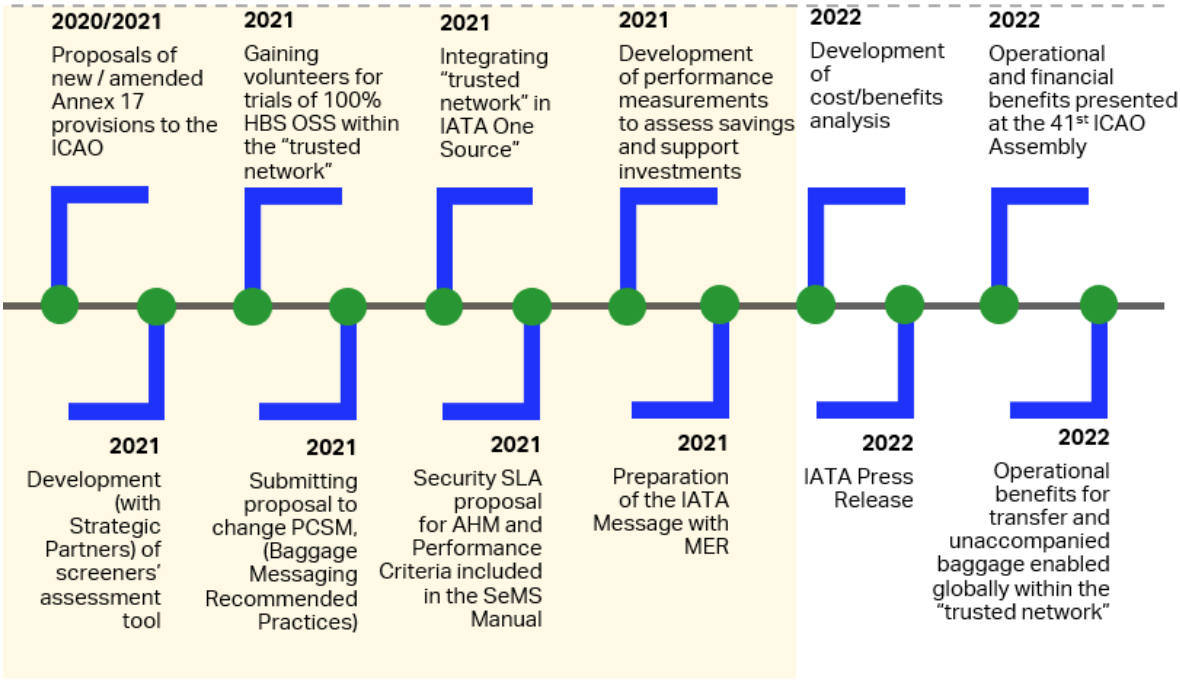
4.2. Roadmap for 2021-2022

Some major 2021 milestones include:

• Promoting the comprehensive set of criteria (sections 4.1.1 and 4.1.2)

• Gaining the industry and authorities buy-in for trials and development of the "trusted network" using existing tools like IATA One Source and Baggage Messaging protocols

• Developing and testing commonly recognized industry image interpretation and assessment tool.



5. List of attachments

1. Workshop, Geneva 17th February 2020 meeting summary
2. 19th May 2020, call summary
3. 24th June, Workstream #5 call summary
4. 24th July, Workstream #3 call summary
5. 5th August, Workstream #2 call summary
6. 26th August, Workstream #5 call summary
7. 3rd September, Workstream #3 call summary
8. 22nd September, Workstream #4 call summary
9. 21st October, Workstream #2 call summary
10. 3rd November, call summary

Innovation in Security – Processes and Technology

Workshop #1, Geneva 17th Feb 2020

Executive Summary

Introduction

IATA continuously leads, supports and promotes best industry standards in aviation security. Recognizing the value of new technologies and processes IATA partners with its member airlines and a range of stakeholders to enhance the overall industry security resilience, to reduce vulnerabilities, and simplify security procedures.

Traffic growth, evolving threats, increasing complexity are realities aviation security is and will be facing. Current regulations have their limits in coping with these challenges ahead given the changing nature of air transport. A more agile approach is required in conjunction with other IATA initiatives e.g. RFID based baggage-tracking principles and improved baggage messaging and IATA's active participation in ICAO Annex 17 continuous review process.

ICAO Annex 17

The ICAO Annex 17 provisions related to hold (or checked) baggage are regrouped in one chapter since 1989, originally together with cargo and other goods. Amendment 10 to Annex 17 in 2001 created chapter 4.4 - Measures related to hold baggage containing eight (8) Standards and two (2) Recommended Practices. Some provisions are older, such as the "famous" Standard 4.5.3 approved by the ICAO Council in December 1985 after Air India 182 disaster (as 5.1.4 in Amendment 6 - 1986).

Current Annex 17 chapter 4.5 (approved in 2005 with Amendment 11) imposes screening for all originating hold baggage (already present in Amendment 10 with a deferral date of implementation), screening for all transfer hold baggage, capability to implement differentiated screening at transfer, including no-rescreening with the recognition of equivalence concept (also known as One-Stop Security or OSS), and a reinforced "reconciliation and quality control" in Standard 4.5.5 where air transport operators are required to confirm that hold baggage is identified as accompanied / unaccompanied, has been screened to the appropriate standard before being accepted for carriage, in addition to maintaining records.

Almost 20 years after the introduction of the standard requesting States to screen all originating hold baggage as from 1st January 2006 (4.4.8 in Amendment 10, 2001), the ICAO Universal Security Audit Programme (USAP) results show a global level of implementation of chapter 4.5 standards between 68% and 78% (2018 results).

The ICAO Annex 17 regulatory framework for hold baggage screening has not evolved during the last 15 years, and the changing pace with Annex 17 is extremely slow.

In 2005, the global passenger traffic was at less than 2 billion passengers per year. In 2019, the traffic reached 4.5 billion passengers, with the same number of hold baggage. The traffic is expected to pass the 6 billion mark in 2026 and double compared to 2019 before 2040 with 9 billion.

This is why IATA is proposing changes for the next Amendment 18 to Annex 17, in particular for hold baggage screening international provisions. The applicability date of changes in Amendment 18 is 2022, meaning enough time to prepare the industry for the next operational challenges in 2027 and 2040.

Challenges in 2027 and 2040

Based on commonly shared statistics, the total volume of passengers and baggage screened since the inception of the hold baggage screening ICAO standards (2006), i.e. for the period 2007-2019, reached approximately 40 billion passengers and hold baggage. According to the forecasted growth of traffic, the very same volume of passengers and baggage will have to be screened during the period 2020-2027, meaning during a period almost twice shorter than the previous one (2007-2019). The operational challenges for current airport infrastructures and security systems will be enormous if no major re-investment or processes not re-engineered.

If nothing evolves with the international regulations and traffic growth in the next 5 to 10 years, the volume for the period 2028-2040 will be more than twice (in fact 2.5 times) higher than the periods 2007-2019 or 2020-2027 to reach the 100 billion mark for passengers and hold baggage to be screened in 13 years. Massive changes in infrastructure will be required, in addition to the introduction of drastic innovative processes and technological improvements.

If nothing evolves with the international requirements and processes for hold baggage screening at transfer, the number of baggage to be rescreened at transfer could reach 3 billion in 2040 (if a global transfer rate of 30%), and much higher for major transfer hubs currently facing up to 85% of their volume at transfer.

Staying at the macro level, less than 10% of the major worldwide airports handle more than 85% of the global transfer traffic, with all of these major hubs having massively invested in the best detection technologies and screening human resources during the past decade. In addition, the top 10% of IATA members perform most of that global transfer traffic, with all these top IATA airlines already implementing robust Safety and Security Management Systems (SMS and SeMS) for the past decade too. IATA SeMS contains strong provisions for security quality controls at the airports of origin, including protective measures with security supply chain concepts, as already implemented for cargo and mail.

Unfortunately, most of the current transfer baggage are required to be rescreened regardless of the quality of the security system at the airport of origin, the protection measures with the security supply chain implemented by the airlines, and perhaps, more sensical, the notion that the hold bag successfully completed a sector without incident. It should also be noted that no improvised explosive devices (IEDs) have been detected in hold baggage at origin or transfer during the last 15 years.

Purpose of the workshop

In this connection, IATA held a one-day Hold Baggage Security workshop that covered technical, operational, and technological capabilities and opportunities to implement innovative solutions for hold baggage screening and baggage messaging. The participants included airlines (7), security providers (2), airports (2), IATA Strategic Partners (8) and one Industry association (1), as well as some key regulators (5) and staff from relevant IATA teams. More than 100 participants were originally invited, and a forum is created for all active contributors.

The objective of the workshop was to assess the feasibility of an IATA proposed "worldwide recognized high-level performance criteria", that could be used to assess the systemic (screening equipment, quality of screening staff and entities, security culture, etc.) quality of major airport hubs enabling an outcome for a risk-based approach for transfer baggage. The aspirational operational outcome for major airlines using these high-quality hubs would result in the reduction of the need for rescreening at transfer (global HBS OSS concept for the recognized high-quality network), improvement of minimum connection time (MCT) processes, reduction of

operational disruption due to no-shows, and reduction of the risks associated with insider threat when removing human intervention at transfer.

Workstreams

In concluding this first workshop, four workstreams have been identified, including:

- WS#1 - **Data** – specifying the target group of airports, airlines and authorities for the pilot phase of the concept and developing a model for measuring the global gain if the concept is extended to all major "trusted" hubs community. Based on passenger traffic data to inform which routes/airports could see a particular operational interest given the transfer traffic volumes.

WS#1 team - IATA data specialists and data IATA SPs will be included, as well as ACI and other interested parties.

- WS#2 - **Equipment** – the hold baggage screening technology stream should focus on developing widely recognized and harmonized categories of EDS equipment based on existing regional and national certification lists. This workstream should also address the open architecture concept and interoperability challenges. All these technical criteria should help for the equivalence measurement confirming that best standards of screening equipment are deployed at the airports of origin.

WS#2 team - IATA SP manufacturers and IATA Security will monitor that workstream.

- WS#3 - **Human Performance** – this stream should develop best practices and standards in ensuring resources (i.e. screeners and managers) and security service providers are capable of delivering good quality screening consistently (from the security management and individual screener performance perspective). IATA SeMS compliance components and SeMS Maturity assessment tools will be included, as well as strong coordination with the ICAO Working Group on Training and relevant ECAC TFs.

WS#3 team - CASRA and ASSA-i will manage that stream with IATA Security.

- WS#4 - **Baggage Messaging** – this stream should confirm that current (Type B) and future (.xml) baggage messaging include sufficient security-related quality information enabling transfer hold baggage screening exemptions, as well as check which cargo best practices (manifests, XML formatting, data sharing and risk assessment) could benefit for hold baggage messaging.

WS#4 team - IATA baggage team + IATA cargo team + relevant IATA SPs.

Next Steps

1. All participants initially invited to the workshop will be included, on a voluntary basis, in each workstream, as well as any additional interested parties to be identified.

2. The development of industry best practices and guidance material based on the conclusions of the four workstreams should be completed by the end of 2020.

3. Further smaller scale workshops and conferences may be organized in 2020.

4. A second full-scale workshop will be organized in Q1 2021 to finalize the industry best practices, guidance material, and impact assessment to be shared with relevant regulators, groups, and organizations (such as the ICAO AVSEC Panel and relevant WGs).

5. IATA will seek to engage with interested parties to undertake the pilot stage in 2021 and 2022 using the same models as previous e-cargo pilots.

Innovation in Security – Processes and Technology

Conference Call, 19th May 2020

Executive summary #2

First half of 2020, with the COVID19 (C-19) crisis, showed we no longer consider the traffic growth but need to focus more on a robust and sustainable recovery phase between 2020 and 2022 or 2023. This drastic change doesn't alter the overarching concept. Even more than ever, we have the opportunity to focus on security measures that bring the genuine security value and re-consider those that do not meet any objective success criteria in a post-C19 environment.

The session held on 19th May attracted many IATA Strategic Partners, regulators, ground handling agents (ground service providers), airports, research organizations and associations. The participants list has been made available on MS Teams separately.

The objective of the workshop has been to develop commonly acceptable industry benchmark and solutions for hold baggage screening that would enable facilitation of hold baggage handling in transfer with special focus at the major transfer hubs. As a result of this initiative participating airlines and airports would be able to gain operational benefits and to promote better risk-based outcome-focused worldwide standards equally encouraging best quality and advanced technological solutions.

As an outcome of the call, the initial workstreams have been adjusted, and the brief on progress has been provided:

- WS #1 – Data – based on historical passenger traffic data and with participating entities identify which routes/airports could see a particular operational interest in proposed solutions. New statistics should be collected,

- WS#2 – Equipment – hold baggage screening technology stream. EDS EU Standards 3 (and equivalent) should be considered as the most relevant method. The WS#2 should continue to develop acceptable equivalence criteria for different EDS standardization classification. These criteria should facilitate recognition process directly between "Trusted Airports". In addition, alternative solutions (without EDS Standard 3) should be evaluated, as well as equivalence criteria in the context of this project,

- WS#3 – Human performance – developing criteria and best practices for selection, training and certification and including the re-certification. These practices should consider promotion of distance learning and distance validation tools (e.g. CBT) during the C19 phase but also for a longer post-C19 period. Security Management System component is proposed as a new workstream #5.

- WS#4 – Baggage messaging – the standardization should be based on the existing IATA RP 1745. The workstream should explore practical aspect of implementation and advocacy for those willing to participate to this project.

- WS#5 – Security management – this stream focuses on the identification of quality criteria and conditions applicable to the overall security environment including the managerial aspect (e.g. SeMS), in particular for those participating to the project.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform especially towards documentation developed by Workstreams leads.

Future calls will be organized as needed within the Workstream collaborative group(s).

The list of persons invited and those who attended

	Full Name	Company/Entity	IATA Strategic Partner (Security)	Contact (e-mail)	Response	Attendance
1	Chen Xiaofeng	First Research Institute Ministry of Public Security	X	chenxf@fiscan.cn	No	No
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19	Yves Mabbe	Cargolux		Yves.Mabbe@cargolux.com	No	No
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29	Daniel Haines	Heathrow Airport (LHR)		Daniel.Haines@heathrow.com	Yes	No
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All SPs that responded positively to the invitation attended the call (13 of 26 SPs)

Innovation in Security – Processes and Technology

Conference Call, 24th June 2020 – SeMS in HBS

Executive summary #3

The session held on 24th June focused on Security Management System (SeMS) and attracted IATA Strategic Partners, regulators, ground and security service providers, airports, research organizations and associations. The participants list is attached to this summary.

The objective of the session was to discuss content and objectives of the newly established Workstream#5 creation of which was decided at the previous call (19th May, 2020 – please refer to the Executive summary #2 for details). This stream focuses on the identification of quality criteria and conditions applicable to the managerial aspect (e.g. SeMS). The expected outcomes of this stream focus on contributing to overall project objectives and include, but are not limited to:

- Developing criteria and Security Performance Indicators (SPIs) to support continuous improvement and recognition of a "trusted airport". These shall evidence high quality of the entity performing hold baggage screening is achieved and continuously maintained;
- Improving performance and oversight by introducing quality criteria in the scope of security management for security services, including hold baggage screening subcontractors. Service Level Agreement requirements seem essential tool.

During the discussion, following subjects were raised and discussed:

- Workstream#5 workflow – creating the small subgroup with particularly interested stakeholders including United Airlines, Middle East Airlines, CAAs of France, Poland and United Kingdom, Securitas, ASSA-i and IATA;
- Identification of core elements of SeMS/managerial practices that are essential for a successful and wide recognition in terms of the 100% HBS OSS project;
- Deliverables, including creating a document which could be used for advocacy purposes (e.g. with ICAO AVSEC Panel, WGs and symposium) and as a content for IATA publications (SLA requirements);
- Validation mechanisms providing for objective assessment that could be shared for the purposes of the 100% HBS OSS recognition;
- Potential testing of such approach at airports and with security service providers, airlines and authorities.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform especially towards documentation developed by Workstreams leads.

Workstream#5 lead to develop a first draft of the document by the end of July covering agreed core SeMS elements, performance measurements (SPIs) and validation mechanisms' proposals. The draft will be shared for comments early August in preparation of the follow-up call.

Next call will be organized the week of the 24th of August.

Innovation in Security

Security Management System Workstream #5 of the 100% Hold Baggage Screening – One-Stop Security

24th June 2020

The Meeting Agenda

1) Welcome and Competition Law Guidance

2) Introduction to the lead topic of the call – SeMS in 100% HBS One-Stop-Security

3) Summary of developments

4) Open discussion and next steps

5) Any other SeMS related discussions/ ideas/topics

Housekeeping rules

1) The session is scheduled for 90 minutes

2) Participants consent to the Competition Law Guidance of IATA (attached to the meeting invite)

3) Please mute yourself when you are not speaking

4) We encourage asking questions verbally but if you prefer please use the MS Teams chat function

5) Entire documentation is available through the MS Teams (let us know if you don’t have or have issues with the access)

The lead topic – SeMS component of the 100% HBS One-Stop Security initiative

WORKSTREAM #5

GOAL

Develop quality criteria and conditions regarding the managerial aspect for entities performing the hold baggage screening

IATA SeMS

SeMS core elements described in IOSA and SeMS Manual

INDUSTRY STANDARDS

ASSA-i/CoESS – "Best Value Manual" + "Best Practices in Transport Security"

QUALITY CRITERIA FOR SCREENERS

Workstream #3

EXPECTED VALUE-ADDED

- **Reinforce** criteria for recognition of a "trusted airport" **evidencing high quality** of the entity performing hold baggage screening
- **Support decision making processes** by developing industry standard and performance benchmarking through agreed **Security Performance Indicators/SPIs**
- **Improve oversight capability** by introducing quality criteria in the scope of security management for hold baggage screening subcontractors (SLA)
- Create opportunities to **facilitate transfer of hold baggage**

Core SeMS components

IATA SeMS *)

- Senior management and Corporate Commitment
- Resource Management
- Threat Assessment and Risk Management
- Management of Incidents and Emergencies
- Quality Assurance and Quality Control

*) *IOSA Standards Manual Edition 13th*

ASSA-i / CoESS **)

- Contract Management
- Security Culture and Human Factor
- Training and Coaching reflective of current threats and technology
- Operational Services Delivery
- Quality Control and Compliance

**) *Workstream #5 paper*

How to validate / record evidences of these high quality standards for entities performing hold baggage screening?

IATA SeMS initiatives

Security/SeMS Assessment Tools

- SeMS Competency Test
- IOSA /ISAGO / Smart Facility / CEIV / ACC3
- IDX / AVSEC Insight
- SeMS Maturity Assessment

SeMS Guidance

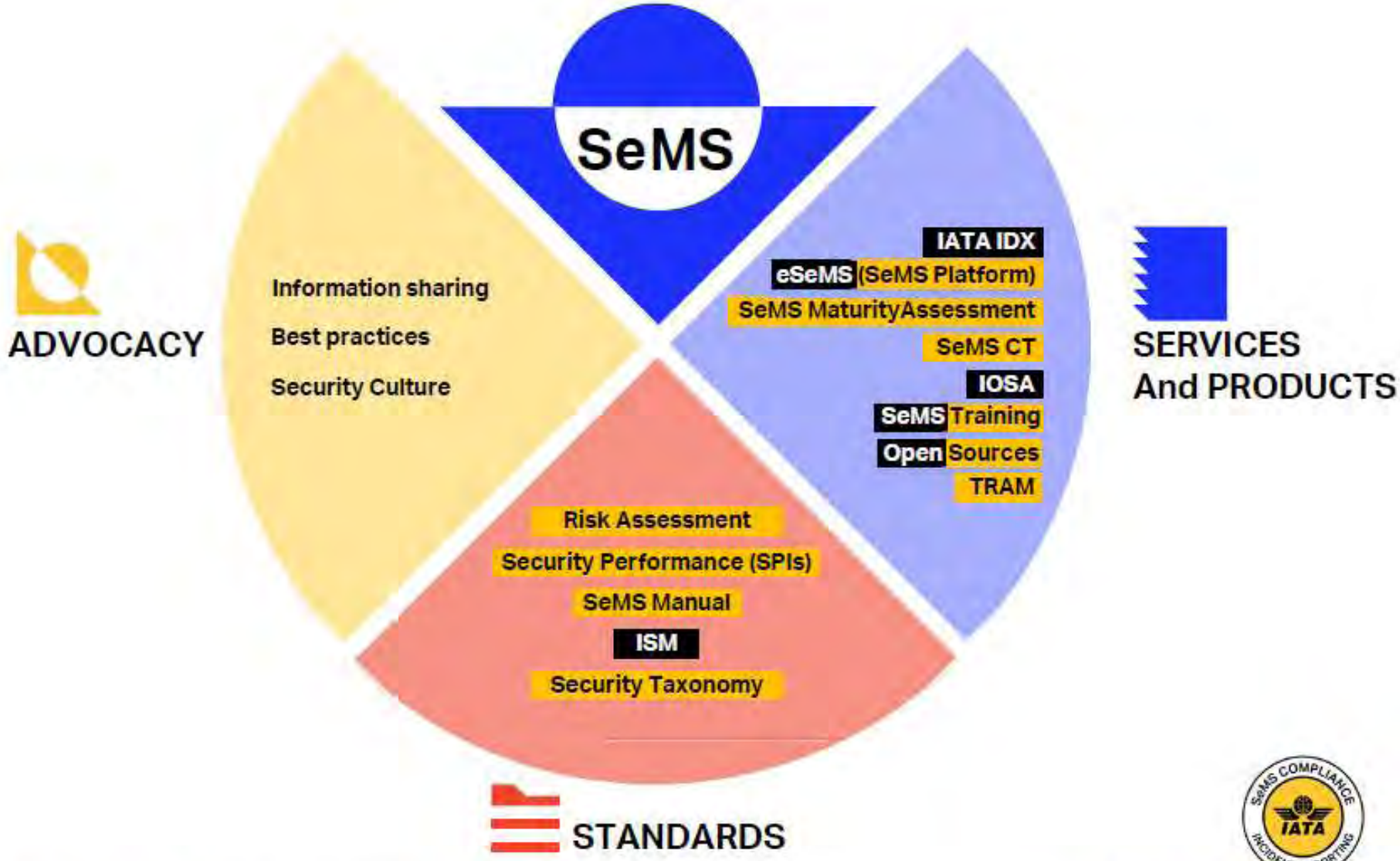
- SeMS Manual
- IOSA Standards Manual
- See It, Report It

SeMS Training & Consulting

- SeMS Training
- TRAM (Threat & Risk Audit Matrix)

Stay updated, visit IATA website:
https://www.iata.org/sems

IATA SeMS Strategy



Content in black	Priority audience – airlines
Content in orange	Priority audience – ground operators and security providers
Content in both	Priority audience – both of the above

SeMS Compliance

Discussion points

1) Call for volunteers to take the lead of Workstream#5

2) Can core SeMS components be agreed upon all stakeholders?

3) Which of them are essential for assessing best managerial practices of hold baggage screening entities and how they can be translated into SPIs?

4) What type of validation (or evidence) is required to assess these SPIs and support recognition of high standards of service? Which of existing mechanisms could be re-used?

5) Next steps + Other ideas

THANK YOU FOR JOINING

Follow us on MS Teams!

Send us an e-mail:
aviationsecurity@iata.org

Innovation in Security – 24th June 2020 Call
Participants list

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Innovation in Security – Processes and Technology

Conference Call, 24th July 2020 – Workstream #3

Executive summary #4

The session held on 24th July attracted IATA Strategic Partners, regulators, security service providers, airports, research organizations and associations. The participants list is attached to this summary.

The objective of the session was to discuss progress, alignment with objectives and next steps within the Workstream#3 which is focused on operators of screening equipment (screeners). This stream objective is to determine and agree with stakeholders how to evidence and indicate desired level of screeners' competencies and performance. The expected outcomes of this stream, as a contribution to overall project objectives, include:

- Determination of selection, training and certification (including re-certification) criteria which could evidence and indicate desired level of screeners';
- Designing processes to evidence and independently validate screener's performance, including developing Service Level Agreement proposals;
- Obtaining airports and authorities recognition and acceptance of these criteria and promote them as global best practices.

During the discussion following subjects were raised and discussed:

- Performance metrices and how they should be considered for both certification/re-certification and recurrent trainings

- Consideration for other elements like security awareness training, Dangerous Goods training, time spent on the screen (image assessment), quality assurance/control processes including managing unsatisfactory performance through rectification actions and effective supervision

- Technological solutions, including training with 2D versus 3D images, Central Image Processing and remote screening as well as additional software features (Artificial Intelligence/Machine learning especially in the scope of Dangerous Goods and Wildlife trafficking) and if/how these impact screeners' performance

- Potential impact of extraordinary conditions e.g. COVID 19 on performance

In the context of the above more links of WS#3 with WS#2 (the equipment) and #5 (managerial aspects) should be explored.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform.

Workstream leads are invited to coordinate exploring interdependencies and interlinks.

Workstream#3 lead to develop an amended draft of the document, especially adding performance measure metrices proposal, by mid-August for all participants comments.

Next call will be organized the week of 31st August.

Innovation in Security – Processes and Technology

Conference Call, 5th August 2020 – Workstream #2

Executive summary #5

The session held on 5th August attracted IATA Strategic Partners, regulators, security service providers, airports and international associations. The participants list is attached to this summary.

The objective of the session was to discuss progress, alignment with objectives and next steps within the Workstream#2 which is focused on the equipment used for hold baggage screening. The hold baggage screening technology stream focuses on developing widely recognized and harmonized criteria of Explosive Detection System (EDS) equipment based on existing regional and national certification lists. These technical criteria should help for the equivalence measurement confirming that best standards of screening equipment are deployed at the airports of origin. The expected outcomes of this stream, as a contribution to overall project objectives, include:

- Create added-value proposition for interested airports (major hubs) by creating the "trusted network" based on implementation of most advanced hold baggage screening solutions;
- Improve transfer hold baggage handling creating opportunities for facilitated recognition of hold baggage screening;
- Decouple reconciliation from additional screening requirements in case of unaccompanied hold baggage.

For detailed description of the project objectives please refer to the initial meeting executive summary (17th February 2020). See the footnote for the extract of this summary.[1]

[1] In the Executive Summary of the 17th February meeting, following was described as the project purpose:

"In this connection, IATA held a one-day Hold Baggage Security workshop that covered technical, operational, and technological capabilities and opportunities to implement innovative solutions for hold baggage screening and baggage messaging. The participants included airlines (7), security providers (2), airports (2), IATA Strategic Partners (8) and one Industry association (1), as well as some key regulators (5) and staff from relevant IATA teams. More than 100 participants were originally invited, and a forum is created for all active contributors.

The objective of the workshop was to assess the feasibility of an IATA proposed "worldwide recognized high-level performance criteria", that could be used to assess the systemic (screening equipment, quality of screening staff and entities, security culture, etc.) quality of ***major airport hubs*** *enabling an outcome for a risk-based approach for transfer baggage. The aspirational operational outcome for major airlines using these high-quality hubs would result in the reduction of the need for rescreening at transfer (global HBS OSS concept for the recognized high-quality network), improvement of minimum connection time (MCT) processes, reduction of operational disruption due to no-shows, and reduction of the risks associated with insider threat when removing human intervention at transfer."*

Full text of the Executive Summary is available through MS Teams dedicated forum or upon request (please contact us via e-mail: aviationsecurity@iata.org)

During the discussion following subjects were raised and discussed:

- Comparison and equivalence of different leading national or international standards for EDS. EDS Standard 3 (or equivalent) could be further considered as the desired way forward for airports that will elect to establish "trusted network";
- The Open Architecture concept and challenges related to interoperability (protocols for communication), certification of equipment, liability aspect and cyber safeguards. End-users are becoming more interested in exploring value-added of this concept and it slowly start to be considered in procurement requirements;
- Parallel screening – Consideration for other inspections that may use images of screened hold baggage pieces should be given according to the safety and security priorities. (to avoid diverting effort, resources and assets to a secondary, although important issues). In this regards the Dangerous Goods aspects seemed to prevail with other elements (e.g. Wildlife) included in this or separate discussion depending on their global/regional context and participants' interest.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform and Workstream leads are invited to coordinate exploring interdependencies and interlinks.

Workstream#2 lead to keep the equipment document updated.

Wildlife related presentation and documents to be shared by IATA (Jon Godson) with all participants through MS Teams.

Follow-up call will be organized separately on following topics:

- Dangerous Goods (presentation by Smiths Detection/Harald Jentsch) and Open Architecture (Jérôme Morandière/ACI-Europe)

- Wildlife (Jon Godson/IATA)

Exact dates of the calls will be shared at the later stage.

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

Worldwide Hold Baggage Screening (HBS) methods

Summary:

The intention of this document is to give a snapshot of international approaches for hold baggage screening. Some Regulators may require more stringent measures based on a country-specific risk assessment. The presented procedures for the countries and regions are general (many of them will have regional or country-wide exceptions). For example, TSA's level concept is consistent across the whole country, but in Europe there is strong variances for example between, France, Germany, and Scandinavia. There is a huge number of variations and its underlying complexity.

As a baseline, countries must apply the ICAO AVSEC SARPS for hold bags screening.

The international explosive detection standards deployed on EDS equipment for Hold Baggage Screening are:

TSA 5.8 & 7.2 (Standards could be deployed outside of the US in the US Pre-Clearance Program)

ECAC 3.0* & 3.1 (Test methods for 3.2 are under development)
(Standard 2 is also deployed, allowed until Sept 2022 in some cases)

Chinese CAAC – specific *(only deployed in China)*

Israel – specific *(only deployed in Israel and EL AL stations)*

Russia – specific

**Globally, the EU EDS standards are the most widely deployed, adopted by many countries outside the EU*

Thierry BARRIERE - RAPISCAN Systems

ICAO

ICAO Hold baggage screening

4.5 Measures relating to hold baggage

4.5.1 Each Contracting State shall establish measures to ensure that originating hold baggage is screened prior to being loaded onto an aircraft engaged in commercial air transport operations departing from a security restricted area.

4.5.2 Each Contracting State shall ensure that all hold baggage to be carried on a commercial aircraft is protected from unauthorized interference from the point it is screened or accepted into the care of the carrier, whichever is earlier, until departure of the aircraft on which it is to be carried. If the integrity of hold baggage is jeopardized, the hold baggage shall be re-screened before being placed on board an aircraft.

4.5.3 Each Contracting State shall ensure that commercial air transport operators do not transport the baggage of persons who are not on board the aircraft unless that baggage is identified as unaccompanied and subjected to appropriate screening.

4.5.4 Each Contracting State shall ensure that transfer hold baggage is screened prior to being loaded onto an aircraft engaged in commercial air transport operations, unless it has established a validation process and continuously implements procedures, in collaboration with the other Contracting State where appropriate, to ensure that such hold baggage has been screened at the point of origin and subsequently protected from unauthorized interference from the originating airport to the departing aircraft at the transfer airport.

4.5.5 Each Contracting State shall ensure that commercial air transport operators transport only items of hold baggage which have been individually identified as accompanied or unaccompanied, screened to the appropriate standard and accepted for carriage on that flight by the air carrier. All such baggage should be recorded as meeting these criteria and authorized for carriage on that flight.

4.5.6 **Recommendation.**— *Each Contracting State should establish procedures to deal with unidentified baggage in accordance with a security risk assessment carried out by the relevant national authorities.*

**ICAO SARPS do not indicate any EDS standard and associated CONOPS for Hold Baggage Screening.*

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

Location	Level 1	Level 2	Level 3	Level 4	Level 5
EMEA	**EDS Standard 2** (Extension to Sept.2022 in some circumstances) **EDS STD 3** (Compulsory from Sept. 2022) **EDS STD 3.1** (Not compulsory but some country may have a MSM (More Stringent Measure) **EDS STD 3.2** (Not compulsory, test methods under development)	**Screener** (with limited decision time) Or **EDS STD 3** (when level 1 is STD 2)	**Screener** (limited or unlimited decision time) Or **EDS STD 3 Re-screen** (if level 1 is STD 2) & unlimited decision time **or** **Hand search** **or** **X-ray** **or** **EDD** **or** **ETD**	- **Reconciliation** bag/passenger - **Bag opening** + hand search + ETD - **EDD**	

Thierry BARRIERE - RAPISCAN Systems

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

Location	Level 1	Level 2	Level 3	Level 4	Level 5
US/CAN	**EDS Standard 5.8** (compulsory) **EDS Standard 7.2** (currently being rolled-out)	**Screener** (with limited decision time)	**Operator** Image recall + opening of the bag + hand search with ETD) (a % of bags are randomly rejected with suspect bags of level 2)		

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

Location	Level 1	Level 2	Level 3	Level 4	Level 5
LATAM	**EDS Standard 2**	**Screener** (with limited decision time)	**Screener** (limited or unlimited decision time) Or - EDS STD 3 Re-screen (different machine) & unlimited decision time	**Screener** - **Reconciliation** bag/passenger - **Bag opening** + hand search + ETD - **EDD**	
	X-rays	**Screener**	**Hand search** **EDD** **ETD**		
	EDS Standard 3 (new installation)	**Screener** (with limited decision time)	- **Reconciliation** bag/passenger - **Bag opening** + hand search + ETD - **EDD**		

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

	Level 1	Level 2	Level 3	Level 4	Level 5
CHINA	**EDS** **Standard CAAC** (Multiview AT or CT) Or **Dual Tunnel X-ray**	**Screener** (with limited decision time)	**Screener** (with limited or unlimited decision time) Or **CT Re-screen** Or **ETD** Or **X-ray** Or **Hand Search**	**Reconciliation** bag/passenger with Image recall + hand search + ETD	**Reconciliation** bag/passenger

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

Location	Level 1	Level 2	Level 3	Level 4	Level 5
APAC	**EDS Standard 2** (bags screened at concourse level; bags do not enter BHS area unless cleared)	**Screener** (with limited decision time)	**Screener** (limited or unlimited decision time)	**Screener** - **Reconciliation** bag/passenger - **Bag opening** + hand search + ETD - **EDD**	**Reconciliation** bag/passenger - **Bag opening** + hand search + ETD - **EDD**
	X-rays	**Screener**	**Hand search** **EDD** **ETD**		
	EDS Standard 3 (new installation)	**Screener** (with limited decision time)	**Screener** (limited or unlimited decision time)	- **Reconciliation** bag/passenger - **Bag opening** + hand search + ETD - **EDD**	

Thierry BARRIERE - RAPISCAN Systems

IATA – 100% Hold Baggage Screening - One Stop Security – Workstream#2

Location	Level 1	Level 2	Level 3	Level 4	Level 5
AUSTRALIA/NZ	**EDS** STD 3 (compulsory from December 2020 for Tier 1 airports in AUS, June 2023 in NZ, with case by case extensions due to Covid) **EDS** STD 2 (compulsory from December 2020 for Tier 2 airports, with case by case extensions due to Covid)	**Screener** (with limited decision time)	**Screener** (limited or unlimited decision time) or **Hand search** **or** **X-ray** **or** **EDD** **or** **ETD**	- **Reconciliation** bag/passenger - **Bag opening** + hand search + ETD **EDD**	

Innovation in Security – 5th August 2020 Call
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Innovation in Security – Processes and Technology

Conference Call, 26th August 2020 – Workstream#5

Executive summary #6

The session held on 26th August attracted many airlines, IATA Strategic Partners, regulators, security service providers, research organization and associations. The participants list is attached to this summary.

The objective of the session was to discuss developments of the Workstream#5, in particular best practices and performance indicators for managerial practices and criteria that are particularly essential for successful recognition in terms of the 100% HBS OSS project. These best practices and indicators should contribute to the overall assessment of entities performing hold baggage screening and enable application of outcome-focused, risk-based approach for hold baggage security procedures (transfer and unaccompanied). They could be used for further developments of more general guidance on security Service Level Agreement (SLA).

The general approach and developments thus far within the Workstream#5, in particular regarding Security Performance Indicators (SPIs) in the scope of managerial practices, were endorsed (see the document attached to this summary). It was also suggested to explore and add an equipment related element/criteria reflective of "best practices for equipment maintenance". In this regard cooperation with and input from WS#2 should be considered.

In the context of next steps, especially evaluation and evidencing of these criteria, following points were raised:

- criteria developed by Workstream#5 supplemented by information on equipment (Worsktream#2) and screeners' performance (Workstream#3) should be provided on a voluntary basis by entities interested in participating in the "trusted network" and available in single repository;
- different levels of oversight activities (internal, airlines, customers, authority) may be suitable for evaluation of different criteria developed within above-mentioned workstreams. In this regards mechanisms/protocols for such evaluations sharing, collating, recording and accessing should be developed.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform especially towards documentation developed by Workstreams leads.

Workstream#5 to:

- cooperate with Workstream#2 to enhance the document with equipment-related criteria;
- develop evaluation and evidencing mechanism proposal.

Information about the date of the Workstream#5 next call will be provided later. In the meantime, Workstream#3 call will be organized on the 3rd of September.

IATA - Innovation in Security – Processes and Technology
White Paper on Workstream#5 – Best Managerial Practices

Catherine PIANA (ASSA-i)
Bohdan PASZUKOW (SECURITAS)

ASSA-i

AVIATION SECURITY
SERVICES ASSOCIATION
INTERNATIONAL

CUSTODIO
Airport Security Solutions

ICTS
EUROPE

KÖTTER
Security

PROSEGUR

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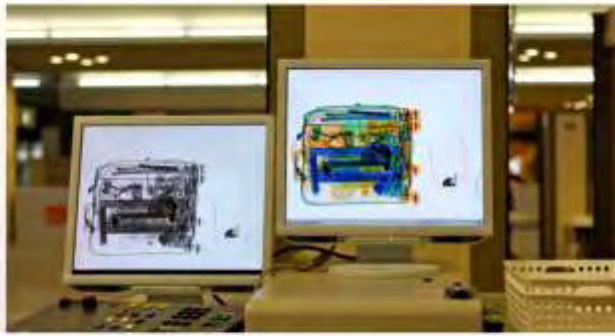
AVIATION SECURITY SERVICES ASSOCIATION INTERNATIONAL

Speaking up for Aviation Security since 2002

Delivering **professional**, **efficient** and **seamless** security services so that **people and goods** can **fly safely and securely**



About ASSA-i and its Vision

Background and Timeline

Workshop on HBS

17 Feb 2020

- Several working sessions
- 5 Workstreams
- WS#5 => ASSA-i

Vision: to present a common set of Workstreams at ICAO end 2020

To create a ww system of "Trusted Airports" on the basis of the outcome of the WS

WS#5 Good Managerial Practices – key ideas

- Screeners' performance are best when positioned in the right environment, hence the direct link and interdependency with WS#3 (Operators of Screening Equipment):
  - Company level:
    - Well-selected, well-trained, motivated
- ASSA-i have for years promoted such practices, via several documents
  - Best Value Manual
  - Standard EN 16082
- IATA has the same objective, as defined in SeMS
- Bringing the elements of ASSA-i and IATA and adding a level of measurement inspired from SeMS closes the virtuous circle

What's new in the WS#5 document

- Main new element since the previous draft is the more **detailed list of "Quality Criteria",** to put them in line with the existing EN norm 16082 on Security Providers in Aviation / Airports:
  1. Management structure and values
  2. Risk Management
  3. Contract Management
  4. Training
  5. Security Solutions

What's new in the WS#5 document

- **New table inspired from IATA SeMS Manual** and dashboard to define Security Performance Indicators (SPIs) and corresponding Targets – following the same corresponds to the same structure:
  1. Management structure and values
  2. Risk Management
  3. Contract Management
  4. Training
  5. Security Solutions

Next step

- Discuss “Evidencing and validation processes” (page 6):
  - Global, independent, and objective validation programme to effectively assess compliance with the best managerial practices

ASSA-i

AVIATION SECURITY
SERVICES ASSOCIATION
INTERNATIONAL

Discussion / Q&As

Innovation in Security – 26th August 2020 Call
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Innovation in Security – Processes and Technology

Conference Call, 3rd September 2020 – Workstream#3

Executive summary #7

The session held on 3rd September attracted many airlines, IATA Strategic Partners, regulators, airports, security service providers, research organization and associations. The participants list is attached to this summary.

The objective of the session was to discuss developments of the Workstream#3, in particular best practices and performance indicators for hold baggage x-ray screening equipment operators (screeners) necessary for successful recognition in terms of the 100% HBS OSS project. These indicators should contribute to the overall assessment of entities performing hold baggage screening and enable application of outcome-focused, risk-based approach for hold baggage security procedures (transfer and unaccompanied). They could be also used for further developments of more general guidance on security Service Level Agreement (SLA). These indicators would be used in the screeners' assessment to facilitate international comparability, providing evidence of effective training and good competency levels without aiming to replace existing (national) certifications and tests.

The general approach and developments thus far within the Workstream#3, in particular regarding the methodology and criteria for performance assessment i.e. **A', Hit Rate and False Alarm Rate (if needed)** were endorsed. It was also agreed further developments are needed to establish detailed methodology of assessment and thresholds for these criteria to determine quantifiable level of recommended performance to be met by a defined percentage of the screeners of an entity.

In the context of further developments, it was agreed criteria developed by Workstream#3 should be measured by a harmonized tool to allow most objective performance benchmarking. **Such a tool would be an image library together with a set of instructions on how to use the image library within a computer-mediated assessment environment (software).** In this regard CASRA volunteer to lead developments upon receiving contributions from other stakeholders especially in the scope of:

- images' library development (taking into consideration if only 2D or also 3D images are desired) and;
- volunteering participants (screeners) for testing phase of the tool.

Following steps would be required by CASRA in the tool development process: collecting input of images (clean and threats), building the images' library (well-correlated, difficulty-balanced set) and developing instructions, piloting one particular implementation of the tool in a particular software, testing the tool, conducting the assessment by the pool of screeners in the pilot phase, rolling out the tool by making the library available for these capable of embedding it into their own learning systems.

Ultimately, this assessment (tool) would be designed as usable with different software types and made available to stakeholders for no fee.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform especially towards documentation developed by Workstreams leads.

Workstream#3 to cooperate with IATA to encourage voluntary participation of stakeholders in the future developments especially in the scope of providing images (both, clear and threat images) and screeners' participation in the pilot.

Information about the date of the Workstream#3 next call will be provided later.

IATA: Innovation in Security – Processes and Technology: Operators of HBS Equipment (Workstream#3)

Slavtcho Groshev, PMP
Head of Project Management

2020-09-03 (Online)

Current white paper status

- Scope of work
- Purpose of the workstream
- Considerations regarding selection, training and (re-)certification of screeners
- Selection, training and (re-)certification criteria
- Further (potential) subjects
- Open discussion / Next steps

Scope of work

Leverage a **collaborative effort** of different stakeholders, including industry, associations and researchers, to:

- determine **selection, initial training, recurrent training and (re-)certification criteria** which could **evidence and indicate desired level of screeners' competencies and performance**,
- design **processes to evidence and independently validate individual screener's performance** (considering promotion of distance learning and validation tools during and after the COVID-19 period), and
- obtain **airport and authority recognition and acceptance of these criteria** and promote them as **global best practices** (ICAO and IATA guidance).

Purpose of the workstream

Identify **which criteria should be considered as "worldwide recognized high-level performance criteria"** for operators of screening equipment and enable an **outcome-focused, risk-based approach for transfer baggage** (*global HBS OSS concept for the recognized high-quality network of airports*).

The **Workstream#3 efforts prioritize screeners**, specifically security personnel responsible for analyzing images generated by screening equipment with automated explosives detection (EDS), as:

- this is the **main human-machine-interaction-related method in HBS**, especially at airports equipped with EDS equipment under the objective of the 100% OSS HBS project, and
- **well-established research** such as signal detection theory and psychometric test qualities **facilitates harmonized performance assessment**.

Considerations regarding selection, training and (re-)certification of screeners

- **Individual performance as well as collective performance and oversight must be considered**. Undoubtedly, the **performance of an individual will be strongly influenced by the environment, security culture, training regime and conditions they are operating within**. This should be considered from the **perspective of both human-equipment and human-organization interaction**, thus this Workstream recognizes **strong links and interdependencies with Workstreams #2 and #5**.
- Having established this background, the **white paper presents scientific results** with relevance for determining selection, training and certification criteria respectively to evidence and indicate desired levels of screeners' competencies and performance.

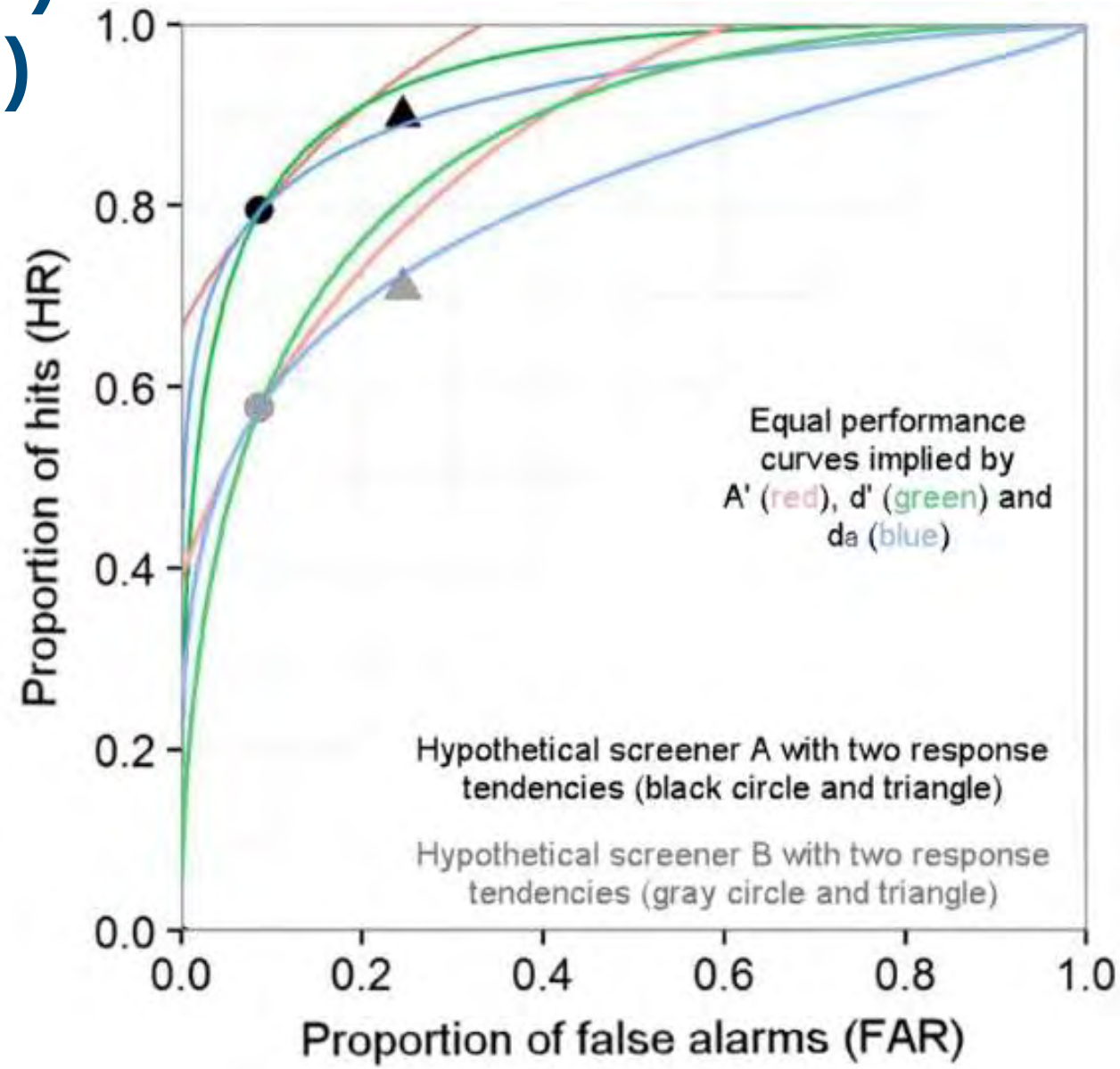
Selection, training and (re-)certification criteria

- The **selection and certification procedures for screeners** should involve **scientifically validated tests** wherever feasible (e.g. for visual abilities).
- **Motivation and vigilance maintenance activities** should be **undertaken on the job** and **their effectiveness regularly verified**.
- To **ensure that competencies are maintained and recurrent training is effective**, **screeners should undergo recurrent performance evaluation and re-certification** involving **scientifically validated tests** wherever feasible (e.g. for visual abilities).
- **Signal detection theory** provides well-defined **performance metrics** based on **four basic outcomes in a decision setting**:

	Decision	
Stimulus given	*Target absent / No signal / Bag is harmless*	*Target present / Signal / Bag requires secondary search*
Target absent / Noise / No threat present	**Correct rejection**	**False alarm**
Target present / Signal plus noise / Threat present	**Miss**	**Hit**

Selection, training and (re-) certification criteria (cont.)

- **Trade-off between hits and false alarms** for non-perfect decision makers
- **Metrics available that combine hits and false alarms** into overall detection performance
- **Performance criteria define performance areas in the figure on the right**
- **Test comparability should be established with benchmarking measures** prior to results comparison



Further (potential) subjects

- **Concrete delineation of criteria (incl. independent validation and KPIs)**
- Further screening methods (ETD, EDD, manual search)
- Security awareness and further knowledge related to security procedures
- Performance rectification actions
- Stress management
- Use of TIP
- Training equivalence (and associated certificates)
- Dangerous goods
- Time on duty (active work at the screen)
- Artificial intelligence as operator assistance

Open discussion / Next steps

New Research Put Across & Security in Practice Webinars (see the attachment)
+ Latest Newsletter

mailto:webinar@casra.ch + https://www.casra.ch/news/#newsletter

CASRA would like to support you with information activities around the latest findings of scientific studies and their integration into everyday work in the security sector– from the comfort of your own home. For this purpose, we have decided to offer webinars:

If you would like to learn about the latest results of our research and their significance for future screening, please check the topics listed in the section Research Put Across.

If you are more interested in gaining new insights into how we put scientific evidence into practice and into our applications, please check the topics listed in the section Security in Practice.

Registration deadline: September 06, 2020 at the latest
Webinar dates will be communicated by September 14, 2020 to ensure optimal group size

RESEARCH PUT ACROSS

Webinar 01/2020:
First results and learnings from 3D CT screening in CBS and HBS

In this webinar, we provide insights into the transition from 2D X-ray to 3D-CT technology in hold baggage and cabin baggage screening. We present first study results and show practical implications for security checkpoints. What do these results mean for the introduction of 3D-CT technology? What does it mean for the selection of future screeners? And - what does it mean for the training of screeners?

The aim of this webinar is to provide you with the most important insights about 3D CT screening, to give you a first glance into our 3D CT simulator and to enable an exchange with other participants around this topic.

Duration: 1 hour

Register for Webinar 01/2020 HERE

Webinar 02/2020:
Automation reliability, human-machine system performance and operator compliance

Take part in one of our webinars and learn from our study results on the topic of explosives detection systems for cabin baggage screening (EDSCB). In this webinar, we provide insights on human-machine system performance when using different automation systems. The webinar focuses especially on practical implications on how to deal with imperfect automation.

Duration: 1 hour

Register for Webinar 02/2020 HERE

SECURITY IN PRACTICE

Webinar 03/2020:
Relating Current Threats to Training and Assessment Content Updates

In this webinar we provide insights into important aspects of a successful screening performance and share with you our considerations on computer-based training. We also look into how monitoring of potential threats to aviation security may have an impact on content updates.

Duration: 1 hour

Register for Webinar 03/2020 HERE

Webinar 04/2020:
XRT4

Take part in one of our introduction courses about XRT4 and learn how administrators can configure various settings, create different

reports, upload their own images and create customized training and testing courses within XRT4 Expert.

Duration: 1 hour

Register for Webinar 04/2020 HERE

If you have any questions or the links above for registration do not work, please contact webinar@casra.ch for further information.

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Innovation in Security – 3rd September 2020 Call
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Innovation in Security – Processes and Technology

Conference Call, 22nd September 2020 – Workstream#4

Executive summary #8

The session held on 22nd September attracted airlines, IATA Strategic Partners, regulators, airports, security service providers, research organization and associations. IATA Baggage Working Group members joined the meeting given the lead topic of the call. The full list of participants is attached to this summary.

The objective of the session was to discuss developments of the Workstream#4, in particular the role and functions of hold baggage messaging in this project.

The general approach and developments thus far within the Workstream#4, especially regarding using the baggage messaging standards (Type B messages) as described in IATA Recommended Practices (RP 1745 and 1800) were endorsed. It was also agreed further developments are needed to review/update some of the baggage messaging elements for its accuracy and to include coding proposals reflective of criteria established by Workstreams#2, #3 and #5.

In the context of further developments, it was agreed Workstream#4 should focus on following:

- Review of the RP 1745 to determine which elements of baggage messaging should be updated (especially element .X) to include criteria determined by Workstreams#2, #3 and #5;
- Study and design the process and protocols of sending messages to ensure the "appropriate level of HBS (hold baggage screening) screening" is incorporated, transmitted and understandable at airports concerned and as applicable for the purposes of the project (**transfer of hold baggage within the "trusted network" and for bags that become unaccompanied/UNAR**).

Among other topics discussed, a topic of sharing images (potentially as part of the future .xml messaging) has been indicated as very challenging. Additionally, some potential hypothetical risks related to insider threats have been indicated for personnel having access to the baggage messages.

Next steps

All participants are encouraged to provide feedback through the MS Teams platform especially towards documentation developed by Workstream#4.

Workstream#4 to cooperate with IATA Baggage Working Group especially as regards:

- submitting proposals of changes to the RP 1745;
- developing a proposal for creating a repository of information regarding Hold Baggage Screening (as per criteria developed by Workstreams#2, #3 and #5) that could be used by parties involved in the "trusted network"
- supporting Baggage Working Group efforts to facilitate handling of hold bags that become unaccompanied when security criteria are met.

Workstream#4 to hold a call with Workstream#2 to discuss impact assessment of proposed solutions on baggage messaging and communication between different systems.

Information about the date of next Workstream#4 call will be provided later.

Innovation in Security

Workstream #4 of the 100% Hold Baggage Screening – One-Stop Security

22nd September 2020

The Meeting Agenda

1) Housekeeping and Competition Law Guidance

2) Update on Workstream#4 developments

3) Q&A

Housekeeping rules

1) The session is scheduled for 120 minutes

2) Participants consent to the Competition Law Guidance of IATA

3) Please mute yourself when you are not speaking

4) State your questions verbally or using chat function

5) Entire documentation available through the MS Teams

6) Help us compiling the participants' list especially if you join the first time or dial in using phone

Project recap - Interim Report *(attached to the meeting invite)*

- **IATA ADVOCACY MISSION**

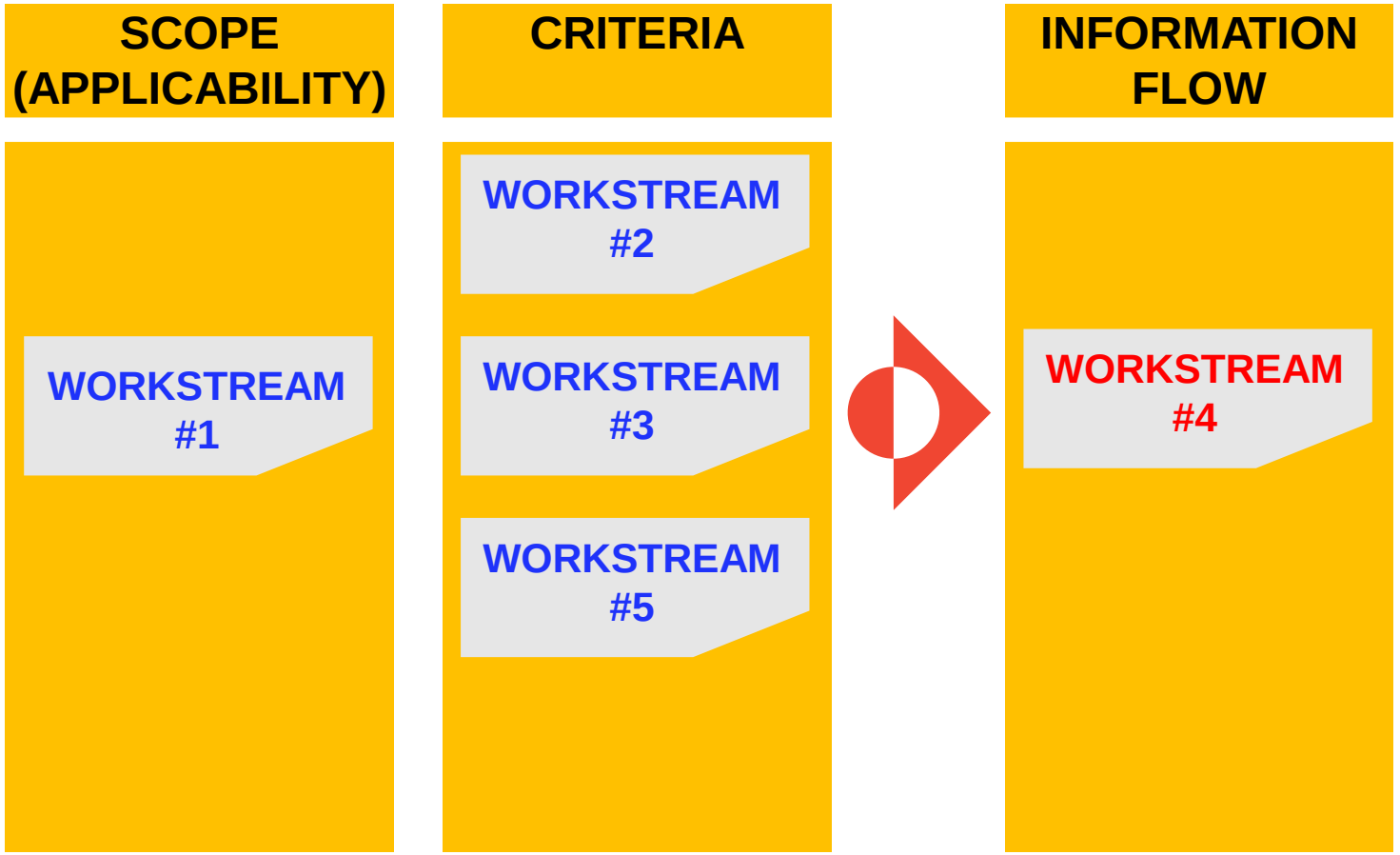
  - **Global advocacy (ICAO Aviation Security Panel and Working Groups)**
  - **European Union (EU)**

- **ENSURING ALIGNMENT**

  - **Close cooperation and coordination between security and baggage handling experts and working groups**

Workstream#4 – recap and update

WORKSTREAM #4 ROLE IN THE INITIATIVE



- Entities ("trusted network") interested in taking advantage of this initiative (scoped by Workstream#1) should meet criteria established by Workstreams #2, #3 and #5
- If equipment (Workstream#2), screeners' performance (Workstream#3) and managerial best practices (Workstream#5) are met relevant information should be transferable within "trusted network"
- Workstream#4 is instrumental in providing tools and solutions to circulate this information

Workstream#4 – recap and update

- **TOOLS AVAILABLE**

Passenger Standards Conference Manual (previously Passenger Services Conference Resolutions Manual) – IATA Standards approved by airlines

Universally agreed standards to process passengers and baggage in the international interline environment

- **Recommended Practice 1745 on creation, transmission and receiving of baggage messages**
- **Recommended Practice 1800 contains guidance for application of baggage messaging**
- **Resolution 753 on baggage tracking**

These tools allow operationalization of the initiative

Workstream#4 – recap and update

- **EXAMPLE OF SECURITY INFORMATION APPLICATION ACCORDING TO RP 1745**

2.3.28 .X Baggage Security Screening; 6 to 63 characters

	Construction	Example	Format
2.3.28.1	Element identifier: Full stop (.), 'X'	.X	.a
2.3.28.2	Separator: oblique (/)	/	/
2.3.28.3	Security Screening Instruction (3 a Characters) Instruction Codes: —SEL = Selected for increased level of screening —NON = No screening required conditional to applicable regulations (e.g. "one stop screening" for transfer baggage from an airport classified as safe or for baggage screened prior to check-in).	SEL	aaa
2.3.28.4	Separator: oblique (/)	/	/
2.3.28.5	Security Screening Result (3 a Characters) Result indicators: —CLR = cleared according to applicable regulations —REJ = rejected due to detected weapons, explosives or other dangerous devices —UCL = unclear due to indeterminate screening result	CLR	aaa
2.3.28.6	Separator: oblique (/)	/	/
2.3.28.7	Security Screening Result Reason (1 a Character) Combined with result indicator REJ: —D = dark/shield alarm—blockage of visual image —E = explosives —C = combination of dark alarm and explosives Combined with result indicator UCL: —N = no decision —T = time out	D	a
2.3.28.8	Separator: oblique (/)	/	/
2.3.28.9	Security Screening Method (2 to 4 a/n Characters) Result qualifier identifying the method and/or technique used to generate the Security Screening Result see Attachment 'A', Section 2 for list of values	XRAY	[2-4]
2.3.28.10	Separator: oblique (/)	/	/
2.3.28.11	Autograph (1 to 8 a/n Characters) Result qualifier, identifying the entity that generated the Security Screening Result	BUZZC007	m[1-8]
2.3.28.12	Separator: oblique (/)	/	/
2.3.28.13	Free text (1 to 38 a/n Characters)	Colonel M	m[1-38]
2.3.28.14	End of element delimiter		<=

Examples:

```
.X/SEL
.X/NON
.X//REJ/D/XRAY/BUZZC007/Colonel Mustard in the cellar
.X//CLR//AT/TSA123
```

Note: *If the Security Screening Instruction is omitted in the BSM (absence of the .X element), then default screening regulations apply.*

Next slide

Workstream#4 – recap and update

- **EXAMPLE OF SECURITY INFORMATION APPLICATION ACCORDING TO RP 1745**

2.4 Additional Recommended Codes for Baggage Security Screening Methods

XRAY	X-ray
AT	Advanced Technologies
HAND	Hand Search
ETD	Explosive Trace Detection
EBD	Explosive Bulk Detection

2.1 Additional Recommended Codes for Baggage Security Screening

DEF	Default level of screening applies
SEL	Selected for increased level of screening
PRE	Selected for TSA PreCheck
NON	No screening required conditional to applicable regulations (e.g., 'one stop screening' for transfer baggage from an airport classified as safe or for baggage screened prior to check-in).

2.2 Additional Recommended Codes for Baggage Security Screening Result

CLR	cleared according to applicable regulations
REJ	rejected due to detected weapons, explosives or other dangerous devices
UCL	unclear due to indeterminate screening result

2.3 Additional Recommended Codes for Baggage Security Screening Result Reason

Combined with result indicator REJ:

D	dark alarm
E	explosives
C	combination of dark alarm and explosives

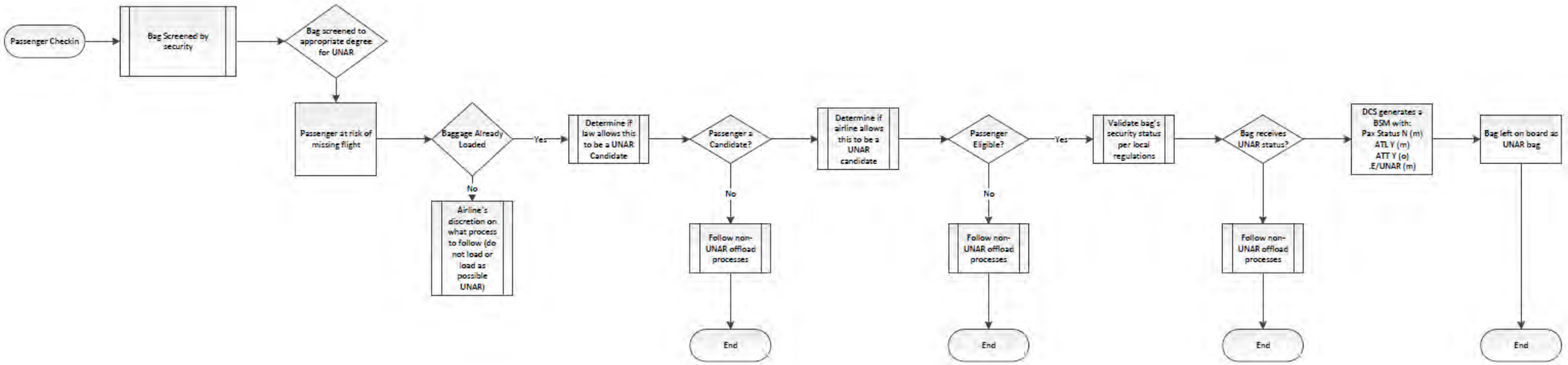
Combined with result indicator UCL:

N	no decision
T	time out

Codes to be updated to enable providing information on meeting all the criteria described by Workstreams #2, #3 and #5 in encoded and transmittable manner

Workstream#4 – recap and update

- **EXAMPLE OF SECURITY INFORMATION APPLICATION ACCORDING TO RP 1745 AND 1800**
  - **Unaccompanied baggage (UNAR)**



Discussion points

1) How widely security information is used in baggage messaging?

2) Do DCS providers/user have sufficient link/communication with security equipment manufacturers?

3) Can the messaging system be adjusted where needed (IATA documentation and system configuration)?

4) System/software limitations and operational implications?

5) Next steps + Other ideas

THANK YOU FOR JOINING

Follow us on MS Teams!

Send us an e-mail:
aviationsecurity@iata.org

Innovation in Security – 22th September 2020 Call
Participants list

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Innovation in Security – Processes and Technology

Conference Call, 21st October 2020 – Workstream#2

Executive summary #9

The session held on 21st October attracted airlines, IATA Strategic Partners, regulators, airports, security service providers, research organization and associations.

The objective of the session was to discuss further developments of the Workstream#2, in particular the topics of Open Architecture as well as "parallel screening" (Dangerous Goods and Wildlife detection).

The general approach and developments thus far were shared by invited speakers (please refer to attached presentations). It was also agreed further steps should be considered however, for purposes of this project it needs to be assured they do not impact primary purpose of the security screening (in terms of both, the equipment capabilities/certifications and security screeners' primary role).

- **Open Architecture**

  ACI-Europe in collaboration with its partners developed and published an initial framework document on Open Architecture for airport security systems. This approach is designed to explore and augment different options to potentially improve existing equipment capabilities and CONOPS. The main driver is an optimization of the communication between different systems and desired development of ability to exploit data from equipment and run specific algorithms The equipment manufacturers which (not part of the initial drafting) will be engaged at subsequent stage to propose technical solutions and input to ACI Europe and to identify opportunities as well as challenges. Among further work following aspects were mentioned: the definition of the standardization of the communication protocol, certification of multiple configuration, obsolescence management, liability, commercial agreements, regulatory requirements manufacturers must adhere to (mainly in detection performance required by the main regulators i.e. EU commission, TSA, CAAC).

- **"Parallel screening" - Dangerous Goods**

  Safety concerns – e.g. lithium batteries, pressurised gasses. Manufacturers have worked of solutions on detection of these. The challenges here are: fractioned, not consistent or lack of specified requirements and the acknowledged trade-off between detection performances and false alarms which applies to all automatic detection systems.

  Other items of concern – e.g. drugs, currencies, wildlife trafficking (discussed separately). The extend of this topic which goes well beyond the aviation security domain deserves separate conversation depending on stakeholders' needs.

- **"Parallel screening" - Wildlife trafficking**

  The relevance of wildlife trafficking and detection (although beyond aviation security) was reaffirmed as to protection of species, combating illegal trade of animals as well as considering the aspect of communicable diseases spread prevention. Further discussions are still needed to define stakeholders and entities involved in potential solutions where aviation security technology supports objectives of wildlife trafficking detection. Among challenges, data privacy management was indicated to enable the exchange of the data.

There was a general agreement aviation security equipment (technology) could be further developed to enable detection of these items through new solutions (e.g. Artificial Intelligence, deep learning, etc.) however none of these "parallel screening" should interfere with aviation security screening or have impact on its primary purpose. Aspirational objective could be to

enable full automation of detection in such “parallel screening” for now however the process still requires human intervention (presence of the operator to review the image). Technology is offering more an assistance to the operator to indicate the potential items of concern. For example, in this case, operators involved in “parallel screening” could be coming from different entities (customs, law enforcement, airlines, airports, other authorities etc.)

Next steps

All participants are encouraged to provide feedback through the MS Teams platform especially towards documentation developed by Workstream#2.

- In the scope of Open Architecture further discussion will be led by ACI-Europe with all stakeholders aiming at defining a roadmap (priorities) and assigning appropriate stakeholders to future working group. Interested entities should contact ACI-Europe.
- In the scope of Dangerous Goods IATA Aviation Security will liaise internally (safety/dangerous goods) and continue to facilitate discussions between equipment manufacturers, appropriate authorities, airlines and other stakeholders to consolidate and prioritize safety and security risks with the aim of developing basic best practices/guidance/requirements which could be expanded further.
- In the scope of Wildlife entities interested in further works should contact IATA Environment Best Practices (Jon Godson) to establish contacts and join relevant discussion platforms/forums.

Information about the date of next Workstream#2 call will be provided later.

Innovation in Security

Workstream #2 of the
100% Hold Baggage Screening –
One-Stop Security

21st October 2020

The Meeting Agenda

1) Housekeeping and Competition Law Guidance

2) Open Architecture *(Richard Dempers / LHR, Eugene Kramer / LHR, John Christian Paulshus / AVINOR)*

3) “Parallel screening” Dangerous Goods (*Harald Jentsch / Smiths Detection*)

4) “Parallel screening” Wildlife Trafficking (*Jon Godson* / IATA)

5) Open discussion

Housekeeping rules

1) The session is scheduled for 90 minutes

2) Participants consent to the Competition Law Guidance of IATA

3) Please mute yourself when you are not speaking

4) State your questions verbally or using chat function

5) Entire documentation available through the MS Teams

6) Help us compiling the participants' list especially if you join the first time or dial in using phone

THANK YOU FOR JOINING

Follow us on MS Teams!

Send us an e-mail:
aviationsecurity@iata.org

John Christian Paulshus
Richard Dempers
Eugene Kramer

Open Architecture for Airport Security Systems

21/10/2020

Open Architecture for Airport Security Systems – an introduction

For public dissemination

What is Open Architecture for Airport Security Systems?

Open Architecture is an approach facilitating:

- Standardisation, interoperability and data sharing in order to cover existing and future airport requirements
- Adding, replacing and updating modules without unreasonable difficulties (commercial barriers, proprietary protocols etc)
- New solutions independent of vendor or location

Open Architecture will set standards in the following areas:

- **Security Equipment** - the devices or hardware
- **Algorithms** - enhanced detection for more than explosives
- **Data Sharing** - images, interfaces, communication and ownership
- **Equipment Control and Monitoring**
- **User Administration**
- **Cybersecurity** - 18 guidelines
- **Accountability**

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Why Open Architecture?

Security systems and the airport security situation have increased in complexity.

With today's connected world, with many sources of information and new ways to handle and act on this data, e.g. with AI/ML, biometric data and so one, there is a huge untapped potential for new solutions. However, today there are limitations on availability of real-time data and available interfaces to create cross-vendor solutions.

Open Architecture is a solution to prevent data lock-in, vendor lock-in and costly integration.

Open Architecture provides:

- More efficient and flexible means of adapting and responding to emerging threats and technological advances.
- Improved operational, business and procurement efficiencies;
- Foundations for data and outputs to become more easily accessible.
- All airport operators a framework around which they can build their security implementations.

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Integration versus Interoperability

Integrated Systems

- Co-ordinated or blended into a functioning, unified whole
- Any software can be integrated at cost
- Difficult to maintain when components change
- Interoperability is NOT guaranteed

Versus

Interoperable Systems

- Provide or accept services from other systems
- Connect multiple components from different vendors without changing components
- Agnostic to changes
- Interoperability guaranteed

- A key requirement is understanding the benefits of an Interoperable approach, rather than an Integration approach.
- A clear objective for the industry is to move away from proprietary end-to-end systems integration, and instead favour interoperability across interfaces and system boundaries

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Scope

Open Architecture for Airport Security Equipment covers 7 topics:

1. **Security Equipment** - the devices or hardware
2. **Algorithms** - enhanced detection for more than explosives
3. **Data Sharing** - images, interfaces, communication and ownership
4. **Equipment Control and Monitoring** - performance and equipment data, SCADA, IIoT and predictive maintenance
5. **User Administration** - integration with enterprise identity management capabilities, consider opportunities for single sign-on
6. **Cybersecurity** - foundation upon which OA sits, fundamental to data sharing, user administration and effective use of algorithms and assuring integrity
7. **Accountability** - ensure changes due to OA do not invalidate certifications and warranties
and to clearly articulate the airport/regulator is not accountable for changes to the algorithms, hardware and software

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Benefits - Technology

Open Architecture will:

- Support collection of data in standardised formats and communication mechanisms - support business need for targeted near real-time information
- Support integration of new security equipment with new back-office applications
  - The points above provide data and information to enable previously unavailable key insights
- Integrate with an ID management platform for increased security and access control e.g. card based, biometrics or conventional login
- Support interchanging of detection algorithms and operational compatibility with OEM equipment
- Adherence to cybersecurity guidelines, increased monitoring and event reporting

Roughly 80% of software costs occur after initial deployment - airports will save money by making support and enhancements easier

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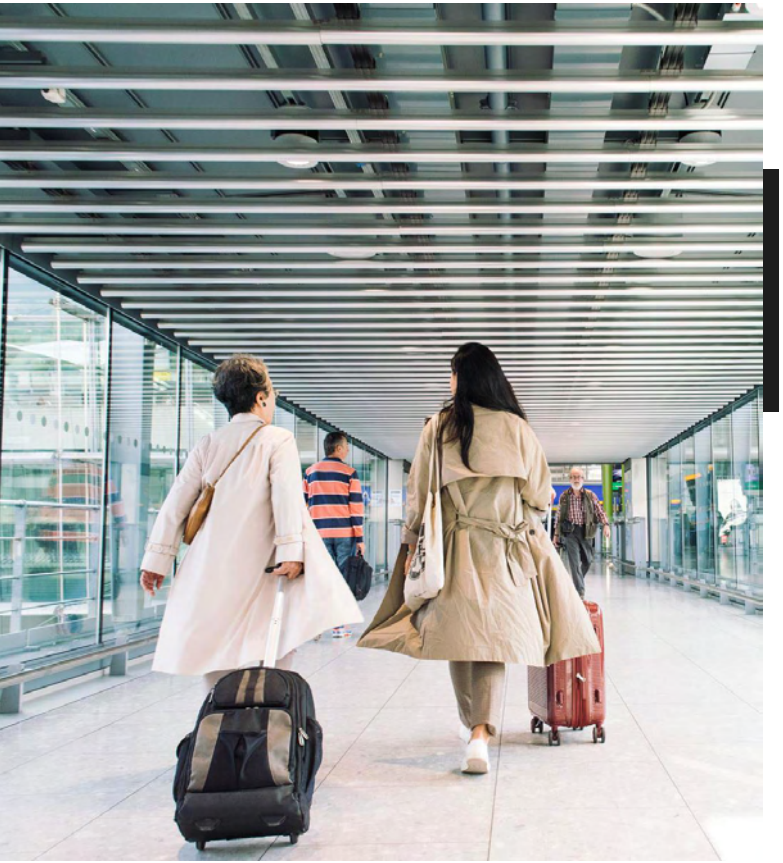

Benefits - Security

Open Architecture will:

- Simplify CIP solutions. We can have one CIP system for all the security platforms.
- Enable TIP library to be standardised
- Ensure equipment from different vendors is interoperable.
- Support multiple algorithms and algorithm swapping
  - Explosives detection algorithms from the vendor and algorithms for forbidden items (firearms, sharps, illegal wildlife) and dangerous goods (lithium batteries) from 3rd party vendors.
- Improve training and support management of certifications.
- Enable more cost-effective processing and better optimisation of staff resources.
- Allow introduction of one file per individual containing all screening results - means there must be a method to identify the passenger, or boarding card ID in the security control.

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Benefits – Maintenance and Monitoring

Open Architecture will:

- Enable reduced stock of spare parts - fewer life-limited components
- Optimise equipment downtime - reduce corrective maintenance and increase the efficiency of planned maintenance
- Reduce training costs due to commonality
- Support collection of data in standardised formats and communication mechanisms - enables effective Condition Based Monitoring and ultimately Predictive Maintenance - faults based on consistent data rather than human interpretation

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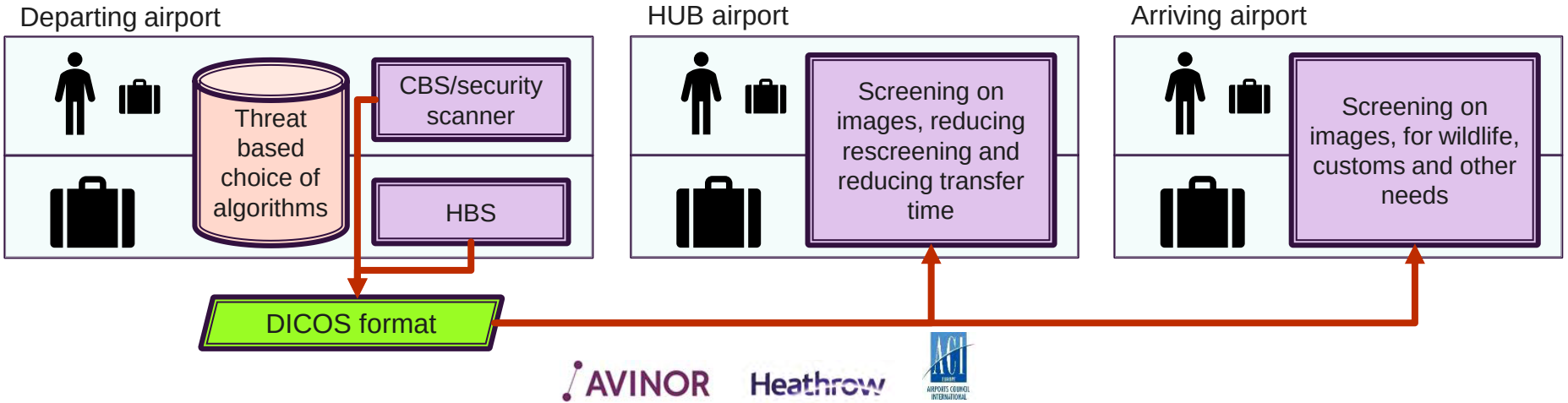
Use case - examples

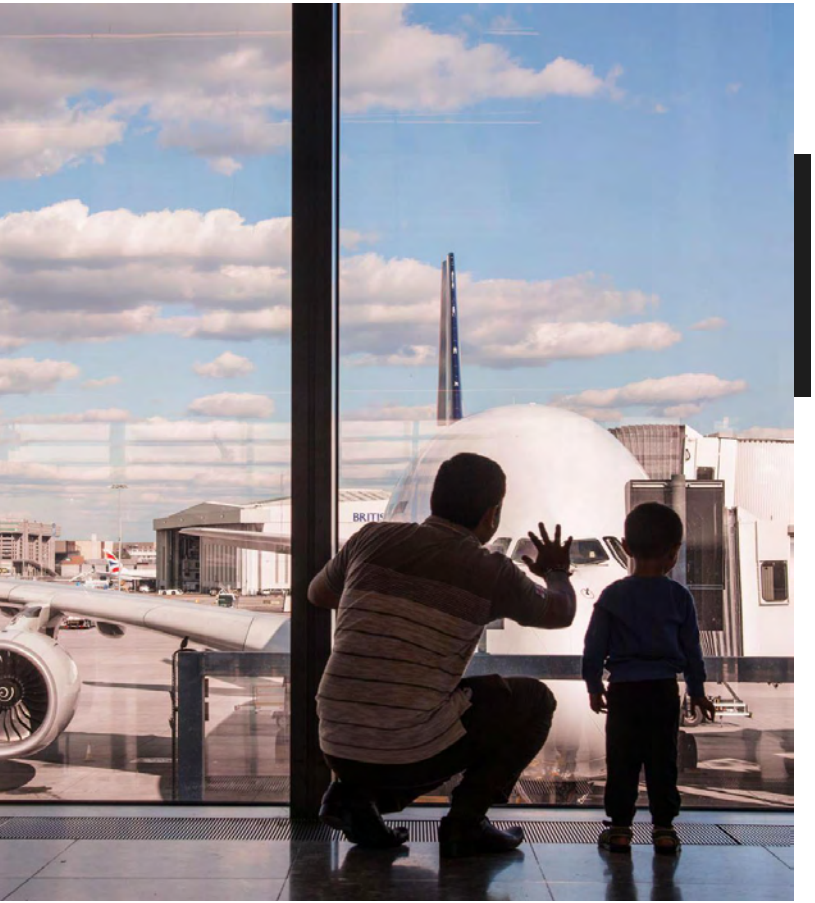
- Remote screening
- Dashboards/KPI
- Freedom of choice to use threat recognisation software, also from 3rd parties
- Sharing standard format images and security equipment data using the DICOS* standard and other tools

*Digital Imaging and Communications in Security
https://www.nema.org/Standards/view/Digital-Imaging-and-Communications-in-Security-Information-Object-Definitions



Benefits - Build Back Better

- Long haul air traffic reduction due to Cov-19
- Reduction in business travel may be permanently reduced due to increased acceptance of video conferencing and digital meetings replacing many face-to-face meetings
- Need to ensure the right investment decisions are made - long-term
- Future development across security equipment may involve more software changes than hardware changes
  - New challenges may be overcome with new algorithms on existing hardware
- Fewer passengers means higher cost per passenger or more efficient systems
- Self-service/touchless solutions require data sharing
  - We expect DICOS to be one of several tools to collect and distribute data about individual passengers



Suggested path to get there?

Awareness:

Airports must explore the benefits of Open Architecture - work with vendors to ensure interoperability

Competence:

Airports and vendors must gain knowledge of Open Architecture

Tenders:

Airports add Open Architecture requirements when purchasing new systems

Vendor communication:

Airports need to be aware of vendor compliance with (or lack of) Open Architecture

What is the status of the vendors on Open Architecture?

None have a complete solution. Look at their roadmap and talk to them about your business needs and how the concepts of Open Architecture will produce benefits.

AVINOR Heathrow

Open Architecture for Airport Security Systems

Prepared by:

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Contributions from:

Heathrow Airport Limited, Avinor AS, Amsterdam Schiphol, ACI EUROPE, daa (Dublin Airport Authority), UK CAA, UK DfT, AVSEC New Zealand, Copenhagen Airports A/S and TSA.

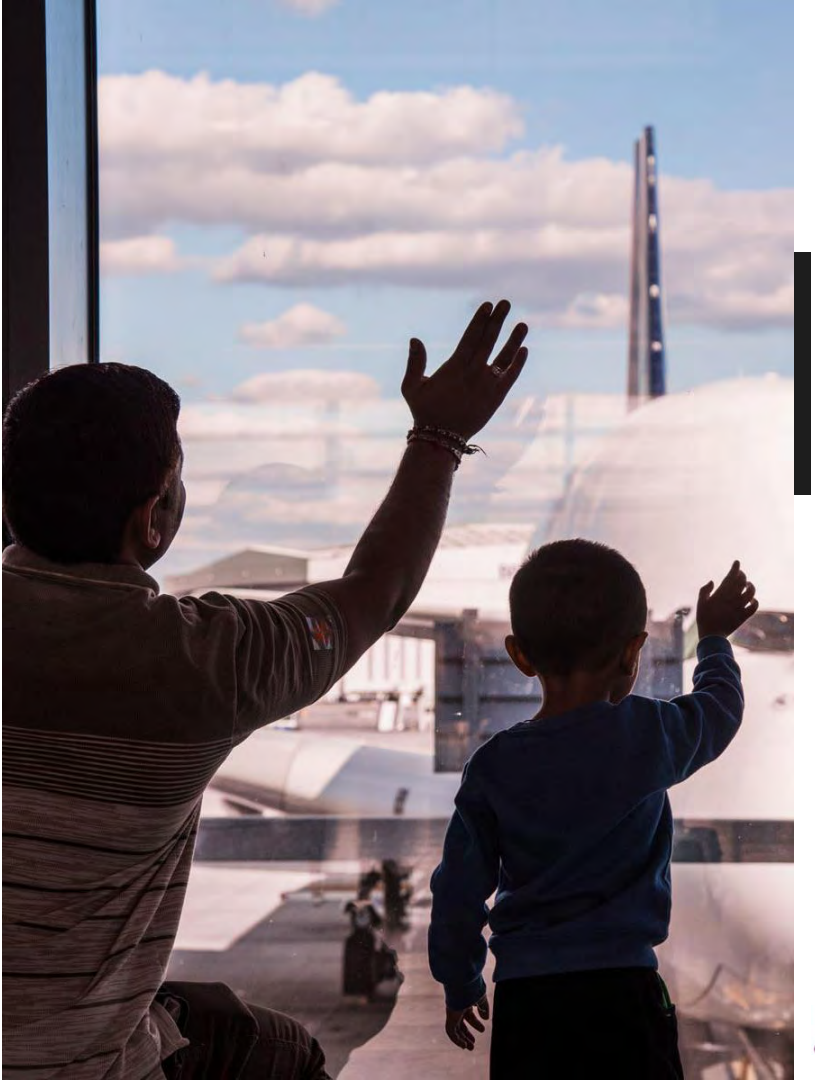
Status of Open Architecture today

Initiated by Heathrow and Avinor late 2019, a joint industry group, managed by ACI, had by July 2020 published the first version of Open Architecture for Airport Security Systems.

Open Architecture definition endorsed by regulators and major airport operators across Europe, North America, Asia Pacific and the Middle East.

Co-signed by TSA Administrator, CEO Heathrow and Director General ACI EUROPE.

Open Architecture will mature as experience and knowledge develop.



Further information

Download the Open Architecture documentation:

https://www.aci-europe.org/media-room/268-regulators-and-airport-operators-join-forces-to-promote-open-architecture-in-airport-security-systems.html

https://www.aci-europe.org/downloads/resources/Open%20Architecture%20for%20Airport%20Security%20Systems_1st%20Edition.pdf

Thank you and goodbye!

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IATA – Innovation in Security

Dangerous Goods in Hold Baggage Screening

smiths detection

bringing technology to life

Explosives Detection in Hold Baggage is …

Classic Detection of typical explosives

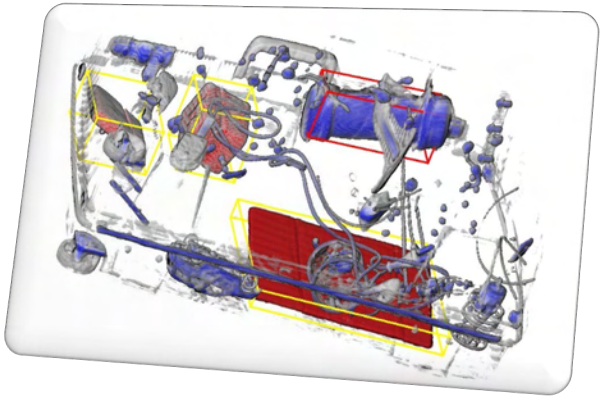
Masses and materials will be defined from testing authorities and is generally ‚classified‘

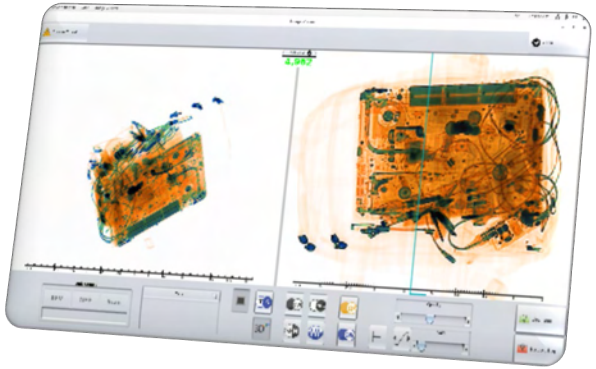
Operators need to be trained

to find the components for Improvised Explosive Devices (IED) (cable, detonator, energy source)

Strongly regulated

from EU/ECAC, TSA, CAAC, IPMO and a number of other authorities (e.g. regional EU)



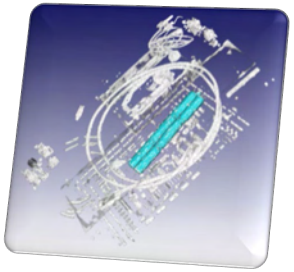


DG algorithms should work in parallel to certified/approved detection!!

Dangerous Goods …

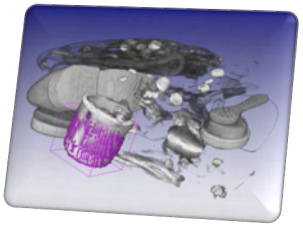
Safety
for example Lithium Batteries, Pressurized Gases, Flamable Liquids/Solids

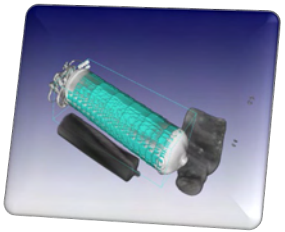
(Substances that might have an impact on airline safety, supply chain, insurance costs, etc)



Contrabands / Prohibited Items (not really DG‘s)
Drugs, Weapons, Currencies, Counterfeit Products, Animal Trafficking, Agriculture Goods, etc.

(Substances relevant for customs, quarantine, environmental protection, police, etc)

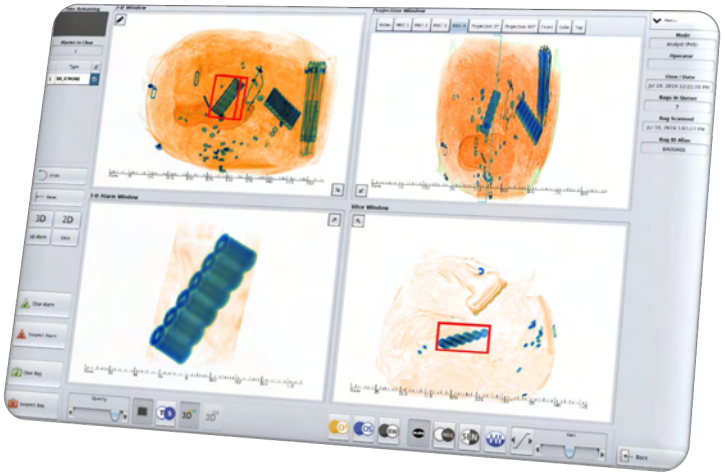




Technology

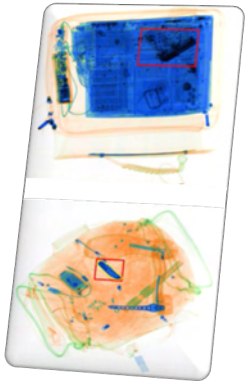
Classic Detection
by evaluation of density and material‘s Z_{eff} in X-ray images

Very common for certified / approved detection technologies



AI / Machine- / Deep Learning
Technologies based on shapes or other visual characteristics of images

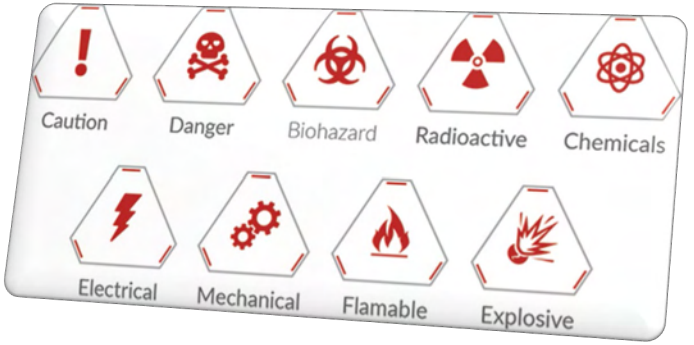
Relevant/working on classic 2D images, but improves in 3D



The perfect idea is …

Dangerous Goods Detection

- Identifies all kinds of items the industry is looking for
- Is an easy, self-learning software add-on
- Doesn‘t create false alarms
- Improves capabilities over time
- Does not require human operators for verification



The reality is …

Dangerous Goods Detection

- Has strong capabilities to detect numerous ‚contrabands' but
  - needs development of algorithms
  - needs specifications from the market
  - needs qualified people to train alg's
- Needs potentially additional/improved technology
- Still has some weaknesses compared to conventional security screening
- Needs adaptation in alarm resolution protocols (CONOPs)

Parallel Screening: Illegal Wildlife Trade (IWT)

Presentation was based on 3 main aspects: drivers for IWT autodetection; overview of the pilot projects and the need to coordinate.

1. Drivers for engagement on IWT Autodetection

Enforcement is losing the battle against wildlife traffickers.

Initial focus of engagement by the airlines sector was:

1. **Conservation** (IWT is worth up to $23 billion and affects more than 7,000 species every year);
2. **Sustainable tourism;**
3. **Aviation Security** (recognition that IWT can represent a secondary threat to aviation security – engagement with enforcement has provided examples of coercion and corruption within the sector;
4. **Public health,** new driver.

COVID-19 has demonstrated aviation's extreme vulnerability to pandemics. There are 800,000 pathogens and microorganisms linked to emerging infectious diseases identified in animals including 500 new coronavirus strains in bats alone[1]. Science tells us that climate change, wildlife trafficking, mass travel and habitat loss will lead to increased pandemics in the future. Paradoxically, the increasingly interconnected world created by aviation contributes to our own vulnerability.

Whilst the business drive to recommence flight operations is intense, the prospect of future pandemics should not be lost. In fact, airlines and their stakeholders will need to develop rigorous contingency plans to prevent or slow the progress of future pandemics and limit their impact on employees, investors, shareholders, partners, consumers, and communities. Early action by airlines will also mitigate a potential surge in enhanced border and health regulatory controls.

Unlike other sectors, airlines can contribute to pandemic risk reduction by discouraging the illegal smuggling of wildlife products by passengers and in cargo shipments. The nature and scale of wild-caught animal product (bushmeat) smuggling by passengers is not well known. In the period 2009 to 2017, the US Fish and Wildlife Service seized over 28,000 pieces of bushmeat at airports and surveys at European Airports (CDG – 260t, BRU – 40t, GVA and ZUR – 1000-1500t pa) indicate that hundreds of tonnes are illegally imported in baggage each year. Although not all concealed bushmeat is sourced from protected species, it is often poorly preserved and avoids sanitary checks. Airlines can work with enforcement authorities to discourage passenger participation, focused on high risk routes. In addition, airlines can partner with other aviation stakeholders and regulators to develop and rollout autodetection systems that make a significantly dent in wildlife traffickers profits.

2. Pilot IWT Autodetection Projects

As we discussed back in August, a number of organizations have recognized that the scanning technology used in aviation security can be mirrored for combatting illicit trades including IWT and that the huge volumes of AVSEC scanning image data could be reused for this purpose. Machine-learning algorithms can use security scanning data and images to identify suspicious items concealed in baggage or cargo consignments without compromising the integrity of the scanning equipment nor placing any burden on the scanner operator. A move to open-source architecture also means that images and their underlying raw data can be shared from equipment produced by different manufacturers, allowing the potential for remote processing/analysis.

[1] **https://www.wbur.org/hereandnow/2020/02/13/new-coronavirus-origins-deaths**

We are aware of at least 3 projects that are working on this technology and the aim of this webinar is to identify if there is a need to coordinate this research, develop common standards and protocols and agree a global development and roll-out program.

(a) Project Vikela (South Africa): IATA is working on project with the South African Department of Env, Fisheries and Forestry on the auto-detection of concealed rhino horns in baggage using AVSEC images. We have collected 2000 rhino images and 10,000 streams of commerce from dual view scanners at OR Tambo and an agreement has been reached with USAID to fund the algorithm development, through Sandia National Laboratories. The next phase will be the collection of additional test images for lab scale trials. It is hoped that field trials will commence in the Autumn with roll-out and integration at the end of year. The key characteristics of the project: agnostic as to OEM; “plug and play” with no equipment re-certification requirements; and, free software for end-user (Customs/DEFF).
(b) Project Seeker (Microsoft and London Heathrow)**:** LHR is undertaking a similar project in Partnership with Microsoft using CT images. Their development work has been impressive and they have identified 5 other international airports that maybe interested in piloting. We understand that the concept is based on the use of Azur Stack Edge equipment and Azure cloudspace and has the potential to detect multiple illicit products and weapons.
(c) China: China Customs has initiated an IWT autodetect project at Chengdu Shuangliu International Airport (CTU) based on computed tomography (CT) technology. The initial target specimens is ivory and they have built a streams of commerce data set of over 1 million scanned images. It has been estimated that the average time of the automatic check of one piece of luggage using AI technology is 3 sec, 50 times more efficient those that being done by human. They have plans to enhance the scope of the illegal products database and synchronize them into the system. A similar project has also been initiated at Baiyun International Airport in Guangzhou (CAN). MER North Asia team is engaging with China Customs to find out more.

3. Need for Coordination

There is a clear need to coordinate and share information on these projects to promote synergies, avoid duplication and ensure that cost-effective solutions that make a positive contribution to AVSEC are developed and rolled-out.

In response, a coordination webinar was held on 15 Sept with IATA, WCO, INTERPOL, TSA, USAID, UFW and ACI World. The following areas were discussed:

a) **Coordination Criteria**: although the benefits of autodetection of IWT seem obvious, different stakeholder will have differing perspectives and key red lines;
b) Global Coordination of IWT Image Collection;
c) Technology Coordination;
d) Algorithm funding, legal criteria (IP, data confidentiality, etc.) and development pathways;
e) **Working Group**: Terms of Reference (TOR) development and need for OEM and Systems Engineering subgroup.

Innovation in Security – 21st October 2020 Call
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Innovation in Security – Processes and Technology

Conference Call, 3rd November 2020

Executive summary #10

The session held on 3rd November attracted airlines, IATA Strategic Partners, regulators, airports, security service providers and associations.

The objective of the session was to discuss final developments of Workstreams (especially Workstream #2, #3 and #5) organized in the single document (shared together with the meeting invite).

The general approach and developments thus far have been supported by participants and no objections were raised. Some feedback on proposed document was related to further clarification of the wording and the structure of the table, as well as sanity check for protection of security sensitive information. The group was requested to provide any additional comments and feedback before end of the working week (6th November 2020).

Next steps

IATA to collate all feedback received into the final version of the table and share it with participants of this initiative (the latest version attached). The content will be included in the general document summarizing the initiative and proposals.

All participants are encouraged to further engage through the MS Teams platform or via e-mails in further developments within Workstreams (e.g. providing images for the library, volunteering for trails in 2021) or with other proposals (e.g. Dangerous Goods).

Information about the date of next call will be provided as necessary.

Innovation in Security – Processes and Technology

The categorization of Hold Baggage Screening capabilities

Overview and proposal

Within the initiative started in February 2020 developments have been assigned to five (5) Workstreams. This has been done to facilitate and focus discussions with input from airlines, airports, regulators, IATA Strategic Partners (including security equipment providers, research organizations and ground handling entities) and associations. Currently, as work has been almost completed outcomes are being collated and consolidated across all 5 Workstreams. This document constitutes a proposal within the agreed objective of this initiative, namely:

"worldwide recognized high-level performance criteria", that could be used to assess the systemic (screening equipment, quality of screening staff and entities, security culture, etc.) quality of major airport hubs enabling an outcome for a risk-based approach for transfer (hold) baggage. [1]

Currently, IATA has advanced in exploring use of an existing platform (IATA One Source) to host information on these criteria, once necessary functional adjustments are financed and introduced. IATA One Source seems to have technical capabilities and be flexible enough to be adapted as an information source where data/ information could be securely entered, managed and shared between interested parties.

The structure of data/information hosted would ensure no security sensitive information is accidentally/inadvertently shared thus simple coding is proposed as described in the "Hold Baggage System Classification" in the table below.

The content of the table is based on developments and proposals formulated by individual Workstreams. Five categories (*Equipment, Operators' (Screeners) Performance, Contract Management, System Assurance, Quality Control and Compliance*) are reflective of developments within Workstreams#2, #3 and #5. Same with target values in the last column which could be further adjusted based on Workstreams' leads suggestions, and future trials.

Upon agreement on this categorization IATA will proceed with adapting One Source as a repository where information on self-declared Class-assignment for each of the categories will be entered. Entities willing to further engage will be invited to participate in trials using this platform and help to improve its functionalities as planned for 2021.

[1] *Executive summary of the first meeting (17th February 2020), Section "Purpose of the workshop", page 3*

Categories	Hold Baggage System Classification			The category target value description
1) Equipment				
A	X			EDS Standard EU 3.2 or TSA 7.2 or its equivalent standard (A+) *) EDS Standard EU 3.1 or TSA 5.8 or its equivalent standard (A)
B		X		EDS Standard 3 or its equivalent standard
C			X	Other EDS Standards with additional equivalent measures
2) Operators' (Screeners) Performance – *see Attachment 1*				
A	X			Results of standardized assessment meet A level values
B		X		Results of standardized assessment meet B level values
C			X	Results of standardized assessment meet C level values
3) Contract Management (Service Level Agreement/SLA) – *see Attachment 2*				
A	X			Service delivery assurance criteria (B.1 – B.4, C) fully met
B		X		B.1 criteria not fully met
C			X	More than one Service delivery assurance criteria not met
4) System Assurance – *see Attachment 2*				
A	X			All criteria listed below are met: Management structure and values (1.A – 1.C); Risk Management (2.A and 2.B); Training (4.A – 4.D); Security solutions (5)
B		X		Security solutions (5) criteria not met
C			X	Security solutions (5) and Training (4.D) criteria not met
5) Quality Control and Compliance				
A	X			3 or more International/Airlines + National + Internal/customer validation (A+) 2 International/Airline + National + Internal/customer validation (A)
B		X		1 International/Airlines + National + Internal/customer validation
C			X	National + Internal/customer validation

**) equivalence for equipment category refers to different nomenclature regulators are using when certifying equipment with same capabilities. See Workstream#2 5th August call summary for details*

Examples:

- Airport ABC could be: 1B, 2A, 3A, 4A, 5C
- Airport XYZ could be: 1A, 2A, 3C, 4C, 5B

ATTACHMENT 1 – CATEGORY 2 CRITERIA DEVELOPED BY WORKSTREAM#3

Results of the hold baggage screeners' image interpretation assessments using commonly recognized industry tool (library developed under the Workstream#3) correspond to one of the following levels:

- Level A: 90% of HBS screeners at A' > **reference a'**, Hit Rate > **reference hr%** and False Alarm Rate < **reference far%** (e.g. 20%)
- Level B: 90% of HBS screeners at A' > **reference a' - 0.1**, Hit Rate > **reference hr% - 5%** and False Alarm Rate < **reference far% + 5%**
- Level C: 90% of HBS screeners at A' > **reference a'- 0.2**, Hit Rate > **reference hr% - 10%** and False Alarm Rate < **reference far% + 10%**

Reference values will be confirmed by Workstream#3 after the tool (library) is developed and tested.

ATTACHMENT 2 – CATEGORY 3 AND 4 CRITERIA DEVELOPED BY WORKSTREAM#5

Core element	Sub-element description	SPI	Target
1. Management structure and values	A. Security culture development and its interaction in the context of human factors	Documented and regularly reviewed policies	100% compliance Verified by certification or validation by a competent authority
	B. Corporate governance and compliance	Documented and regularly reviewed policies	
	C. Human resource management	Documented and regularly reviewed policies	

Core element	Sub-element description	SPI	Target
2. Risk Management	A. Risk management policy and procedure	Documented Corporate Risk Management policies, based on or equivalent to ISO 31000	100% compliance
		Security risk register established, regularly reviewed and maintained up to date	100% compliance
		Procedures for determining the effectiveness of corrective action	% of internal security reports attributable to documentation, procedural or supervision deficiencies as a primary/root cause (decrease of xx% calculated year-over-year–as per company policy)
	B. Threat assessment capabilities	Documented prevention strategy aiming to identify threat, determine its seriousness and develop intervention plans	100% compliance

Core element	Sub-element description	SPI	Target
3. Contract management	**A. Quality control and compliance management**	Outcome of international audits / inspections Number of identified non-conformities.	No more than one major/critical non-conformity per audit with no reoccurrence during the follow-up
		Outcome of national quality control monitoring activities. Number of identified non-conformities	
		Outcome of Client's internal quality monitoring activities. Number of identified non-conformities.	
	B. Service delivery assurance		
	B1. Operational managers are competent to identify non-conformance, as well as implement respective corrective actions and report its outcomes.	The number of rejected or not-followed security recommendations	Number of rejected or not-followed security recommendations within the X period of time. Zero tolerance.
		Number of days necessary to close security finding	Number of days necessary to close security finding (the maximum should not exceed xx days–as per company policy)
	B2. Monitoring is being undertaken throughout the regular oversight activities	The number of failed or ineffectual business unit responses to issues identified by Security as control weaknesses	X% of internally identified findings rectified completely within the internally established timeframe
	B3. Processes are in place to review the findings of performance; monitoring of amendment processes and procedures is being applied across the operation	Timely resolution of internal compliance monitoring findings	No more than one major/critical finding per internal quality control activity with no reoccurrence during the follow-up
	C. Communication and reporting	Response scenarios are identified according to pre-defined times sets	100% compliance

Core element	Sub-element description	SPI	Target
4. Training	**A. Training policy**	Documented and regularly reviewed corporate policy	100% compliance. Verified by certification or validation by a competent authority
	B. Training and coaching component in line with current threats	Documented and regularly reviewed	100% compliance.
	C. Training and coaching component in line with technological development	Documented and regularly reviewed	100% compliance.
	D. Awareness training to encourage internal reporting, advise changes to procedures, building general security awareness.	Documented and regularly reviewed	100% compliance.

Core element	Sub-element description	SPI	Target
5. Security solutions	**A. Implementation of technological solutions** whereby human skills and equipment are combined in order to optimize security performance;	Operational and financial capability to provide technological solutions	Show evidence of experience and track record in aviation security through records and / or customer references
	B. Equipment maintenance	Ensure the full operation of the equipment through the appropriate maintenance being documented and performed by authorized and qualified personnel (regardless of the entity responsible – i.e. manufacturer, airport, third-party)	100% compliance. Evidences of the service personnel qualifications (e.g. refresher training) Maintenance logs and routine tests records (embedded in the equipment, or as a separate register/service monitoring software).

Innovation in Security – 3rd November 2020 Call
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