IATA Technologies and Innovations to Counter Aviation Security Threats

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Blue Skies 2040

Air Transport Security
2040 and Beyond
June 2019 Blue Skies Forum

• In June 2019, IATA hosted a Blue Skies industry forum at the EUROCONTROL headquarters in Brussels that brought IATA’s security Strategic Partners, member airlines, airports, regulators, manufacturers, industry experts and academics together to discuss the future of broad aviation security strategies, as well as the types of threats and new challenges that may be faced in the coming years.

• The outcomes of the forum culminated in the production of a White Paper.

• The White Paper will evolve along with industry’s thinking in the coming years.

• Its aim is to stimulate discussion within and across the sector and all its actors, ideally to facilitate further development and innovation to help industry and wider stakeholders better prepare and respond to the known threats of today and the unknown, evolving or emerging threats of tomorrow.
# Three Key Questions

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<td>What will the future look like?</td>
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<td>What will be happening in our world in 2040 – politically, economically, socially – and how will this have impacted the growth and development of the aviation sector?</td>
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Vision for Future

Changing geopolitical dominance and increased societal engagement.

Increasingly connected, driven by data, new technologies and rising service expectations.

Sustainable, seamless, multimodal transport will be the norm for many and the aspiration for the rest.

Traditional threats such as cyber, insider, and terrorism will remain.

Activism, mental illness, unmanned vehicles and biological threats and infectious disease will be an increasing focus for the security sector.

Agility, trust, standards, capacity building, strategic use of human resources and sensible regulation will be central to mitigation strategies.

Targeted, threat specific measures will also be important.
Future Outlook

• Data Protection, Privacy and Cyber
  • Increased reliance on data and connectivity

• Changing Nature of Air Transport
  • Multimodal
  • Aircraft design
  • Airport Development

• Nationalism, Geopolitical and Policy Evolution
Future Outlook

• Widening Capability Gaps
• Environment and Sustainability
• Terrorism
• Activism
• Health and Disability
What does this mean for the way people, baggage and cargo travel?

• The generally held 2040 industry vision (for both passengers and cargo) is one of personalized, seamless, non-intrusive, integrated journeys facilitated by digital identification, self-service options, automation and rapid technology development.

• Intelligence based decision making, data, connectivity and harmonization are all central to this vision.

• There is a level of consensus that the capacity and technology already exist to deliver this end to end seamless experience.
Critical Uncertainties for Change

• **Regulatory, policy, privacy issues** – to what extent and at what pace will national and international regulatory bodies be able to develop robust and comprehensive regulatory frameworks?

• **Geopolitical issues and collaboration between states** – will the world be increasingly fragmented/multipolar, or will the pendulum swing back towards international collaboration?

• **Data availability** – to what extent will states/stakeholders/individuals be willing to share data?
Threats to AVSEC in 2040

What will the threats to aviation security be in 2040?
Vulnerabilities

- Heavy reliance on data, connectivity and automation;
- Increasing passenger numbers;
- Delayed roll out or development of critical technologies;
- Public Space;
- Automation;
- Activism and disruptions at airports or targeting aviation; and
- Mental health issues.
Actors

• Many of the actors that pose a threat today will do so in the future – terrorist organizations, insiders, lone wolves.

• However, activists and state actors may play a more widespread role in the future.
Threats

It is expected that eight key threats will dominate the 2040 landscape:

- Cyber
- Insider
- Terrorism
- Activism
- Autonomous/Unmanned Vehicles
- Air Cargo and Supply Chain
- Mental Illness
- Biological and Infectious Diseases
Mitigating the Risks

• Improving Agility
• Developing Standards
• Capacity Building
• Sensible Regulation
Mitigations

- **Cyber and Insider Threat**
  - Integration of Security and IT
  - Systems Testing
  - Contingency Planning
  - Security Culture and Training
  - Security by Design
  - Professionalization of the Industry

- **Cargo**
  - Ability to Track and Trace cargo
  - Screening Technologies
  - Cross Border Compliance and Information Sharing
Mitigations

- **Autonomous/Unmanned Vehicles /Drones**
  - Research for detection and defeat technologies
  - Capability to intercept
  - Contingency planning
  - Integration of such vehicles into existing airspace

- **Mental Illness**
  - Response and mitigation strategies for staff/crew and passengers
  - For staff and crew, improved awareness, detection and support
  - For passengers, staff within the sector should receive appropriate training so that they are better able to identify possible problems

- **Exploitation of Disruption**
  - Improved situational awareness and inter agency cooperation
What Next?

• In 2020, IATA will host a second Blue Skies forum.
• This forum will bring together aviation security stakeholders, as well as innovative thinkers from all generations, disruptors, academics and manufactures from around the globe to answer these questions.
• These key stakeholders will help us think about what we have and what we need to develop in the coming years to mitigate both the known and unknown security threats our sector will face.
• To be held in Dubai in June 2020.
One ID Updates

IATA One ID
Passenger number to double by 2037: the Industry to cope, with current infrastructure

Global passengers (billion, O-D basis)

- Constant policies scenario
- A Pick-up in Protectionism
- Policy stimulus and market liberalization

Source: IATA/Tourism Economics
Airlines

More passengers, More problems

Airports

Gosvs.
A collaborative identity management solution spanning across all stakeholders using biometric recognition.
Key elements of One ID

**Trusted Digital Identity**
- A validated digital identity token to be created.
- Can take different forms.
- Injected as early as possible in the process.

**Identity Management Platform**
- To share, use and update data by different stakeholders.
- Stakeholders can only have access to passenger data on a "need-to-know" and "authorized-to-know" basis.
- Privacy and data protection regulations are strictly adhered to.
- Privacy by Design principle.

**Operational Framework**
- To govern a multi-party collaboration.
- Set of specifications, rules, and agreements and bound by a common set of requirements.
- Local level but as well international level.

**Biometric Recognition**
- Instant identity verification at each touchpoint.
- Only one token is needed.
Challenges the industry is facing

- Solely domestic, bilateral, siloed processes
- Pax numbers to double in 20 years
- Lack of interoperability, loss of facilitation benefits
- Having a multitude of pax processes prevents intuitiveness for passengers
- Complex & costly for the Industry
Solutions for such challenges

Trust & Collaboration through greater Public-Private partnerships

Standards & recommended practices for harmonization

Interoperability
Initiatives must be scalable and interoperable with other initiatives
Benefits

• **Seamless**
  Improvements in passenger experience. Elimination of repetitive processes and reduction in the number of touchpoints.

• **Efficient**
  Improvements in productivity, capacity and cost savings. Improved space efficiency and opportunities to defer or avoid infrastructure expansion. Staffing efficiencies and increased capacity by reducing time spent on manual ID checks.

• **Secure**
  Improvements in border, aviation and airport infrastructure security
One ID project aims to

Help build Industry Capability

- Develop Guidance, provide support for implementation
- Identify, develop, support Recommended Practice(s) and/or Standard(s)

Facilitate and drive Industry Adoption

- Support exchanges within different stakeholders
- Raise awareness, Removing roadblocks
Our Role & Actions

- Help build **Industry Capability**
  - Guidance material
  - Recommended Practice(s) and/or Standard(s)
  - Privacy-by-design!

- Facilitate and drive **Industry adoption**
  - Bringing stakeholders together
  - Raising awareness
  - Removing roadblocks
Deliverables to date

- One ID End State and Key Principles (complement Concept Paper)
- Benefits Analysis

One ID End State and Key Principles

The Current State and Why It Isn’t Sustainable

As described in the One ID Concept paper, today’s reality is far from the ideal of a common identity document that is universally accepted, trusted, and recognized.

The Desired End State

The One ID program will align with a trajectory to protect the existing and future value of face to face verification as a necessary part of the journey. The program is based on a series of assumptions surrounding: current, existing, and future technologies and processes that can be leveraged to this end.

Key principles describing the desired end state:

- The system is public and private validated/trusted identity statement with one another
- The passenger is made aware that their personal data is necessary, as it
  - enhances the passenger’s trust in the system, which will ultimately benefit the system as a whole
- The quality of the system is handled in such a way as to be trusted by the обществ as a whole

Benefits Analysis

1. Background

The One ID program is designed to address the need for a common identity document that is widely accepted and trusted by governments, airlines, and other organizations.

2. Overview of Benefits and Costs

Full implementation of this technology is expected to result in significant benefits for the entire industry, including increased efficiency, cost savings, and improved security. It is estimated that the One ID program will result in a net benefit to the industry of approximately $X billion per year. The program is expected to reduce costs associated with traditional identification methods, such as the use of passports and identity cards, which will result in significant savings for airlines and other organizations. Additionally, the program will increase customer satisfaction and reduce the incidence of fraud, resulting in further cost savings. The overall cost of implementing the One ID program is estimated to be approximately $Y billion, with expected benefits beginning to accrue after the initial implementation phase.
Deliverables to date

- **One ID Process Document**, version 1
- **One ID Technology Document**, version 1 (focus on Identity Management Platform)

**Guidance**
- Operational Frameworks
- Privacy Impact Assessments
- Recognized Biometric Standards
- Privacy Key Talking points
One ID Project Deliverables

### 2018
- Business Case
  - Develop an airline industry business case
  - KPI’s to measure impact on industry
- Industry Guidance
  - Initial guidance documentation on key One ID components
- Standard & Recommended Practices
  - Initial identification of possible Standards and/or Recommended Practices
- Webinars/Workshops
  - Delivery of workshops and/or webinars as appropriate to key stakeholders around the globe

### 2019
- KPI’s measured at airports where One ID has been implemented
- Produce guidance documentation on full One ID concept
- Draft Standard(s) and/or Recommended Practice(s) as appropriate
- Delivery of workshops and/or webinars as appropriate to key stakeholders around the globe

### 2020
- KPI’s measured at airports where One ID has been implemented
- Guidance documentation endorsed
- Appropriate Standard(s) and/or Recommended Practice(s) approved by standard-setting authority/ies
- Delivery of workshops and/or webinars as appropriate to key stakeholders around the globe
More information

• IATA Website
  https://www.iata.org/oneid

• PEMG One ID Extranet if you are a PEMG member
Key Drivers for NEXTT

- **Growing** demand for air travel
- **Technology** could increase capacity and efficiency
- **Industry** desire to improve customer experience
- **Infrastructure** that already exists may be able to accommodate more
The NEXTT vision

Moving more off-airport

Using advanced processing technology

Harnessing interactive decision-making
Passenger journey

Our vision: a seamless, secure and efficient walking pace journey that is highly personalized throughout
Screening equipment will dynamically adjust so that passengers and carry-on baggage are screened according to their individual risk score for that day/trip:

- Passengers’ belongings will pass through an advanced carry-on baggage screening system

...  
- Passenger will proceed at walking pace through a walk-through scanner
Baggage journey

Our vision: convenient and hassle free handling and tracking of baggage for passengers, with greater choice of services offerings
Baggage

• At the airport remote processing facility, the bag will be security screened ready for the journey.

• Risk based alerts based on both security screening combined with Bag ID data may trigger a higher level security process.

• A single bag record from the origin is used for security and customs clearance of the bag throughout the journey including all transfer points and at the final destination.
Cargo journey

Our vision: efficient operations and modern technologies support easier, smarter and faster movement of cargo
Cargo

- Security screening uses supply chain risk analysis.
- Screening technology performs multiple actions in a single fluid, touchless process.
- Screening may have been performed at an earlier stage in the transportation chain in dedicated off-airport locations using qualified equipment and secured transport routes.
- Any facility is a secured area with appropriate access controls and vetting of facility staff and others interacting with the facility.
Aircraft journey

Our vision: predictable, safe and fully coordinated aircraft turnaround processes every time
Aircraft

- These communication networks have the appropriate resilience, redundancy, security, prioritizing capabilities and 24/7 reliability for mission-critical systems to maintain safe and efficient operations.
How are we delivering NEXTT
Work with ICAO

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<td>informal briefing</td>
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Key security concepts within NEXTT

- **Off-airport handling**
  - Less intrusive and quicker

- **Passenger focus**
  - Secured routes beyond traditional airport boundaries

- **Whole-of-airport security**
  - No need for physical separation of specific higher risk elements

- **Advanced tech**

- **Adaptive Screening**
  - Algorithms dynamically adjust
  - Combined security screening for customs

- **Mutual recognition**
  - Sharing of screening images or outcomes

- **Risk assessments**

* Also ref: Vision for Aviation Security ICAO HLCAS/2
First steps to the NEXTT vision

10 areas being explored... ... to determine possible themes for further investigation

1. Airport Development
2. Security
3. Passenger
4. Cargo
5. Ground Operations
6. Baggage
7. Financial Systems
8. Information and Technology
9. Safety and Flight Operations
10. Environment

What may the longer term hold?

What can be accelerated with synergy?

What could we see implemented over the next 20 years?

Where are the gaps / overlooked opportunities?

What's already happening now?
NEXTT: a compelling case for transformation

- **Strong Net Benefit**
  - benefits in excess of an uncoordinated, disparate approach
  - all key stakeholders can realize significant benefits

- **Reduced airport infrastructure investment**
  - tangible reduction in additional terminal investments
  - an increased capacity of existing infrastructure

- **Commonalities in digital transformations unlock the greatest efficiencies**
  - creates a essential need for a collective approach
  - common nomenclature required
  - interoperability essential
Thank you

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