



Concept Paper

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1. One ID – a revolution in passenger processing

IATA's vision of an "end-to-end passenger experience that is seamless, efficient and secure" aims at offering passengers a frictionless airport process allowing the possibility to walk through the airport without breaking stride.

Today's reality is that the combination of increasing passenger numbers, limited physical infrastructure, enhanced security requirements and legacy processes results in more friction and a complicated, unpleasant experience for passengers.

Over the past decade, IATA has launched a number of initiatives to improve the passenger process, such as Fast Travel, Smart Security and Automated Border Control – often in close collaboration with ACI and other key stakeholders. While these initiatives are certainly delivering significant value for the passengers and the industry, their benefits remain limited within their own scope.

Individual stakeholders take steps to ensure their own obligations are met, but with little or no coordination between them. This fragmented approach results in a multitude of tokens (boarding passes, passports and other forms of ID) to be presented – by themselves or in combination with one another – in a repetitive manner to various stakeholders and for different purposes. The industry has not yet managed to fully break these silos and needs to collaborate towards a solution that would apply horizontally across the whole process.

One ID seeks to introduce a streamlined, friction-free and passenger-centric process that allows an individual to assert their identity, online or in person, to the required level at every process step, while maintaining the privacy of personal data. This will allow for a more personalized customer experience to be delivered, cost-efficiency to be improved, security benefits to be gained, and the opportunity to generate enhanced ancillary revenue. Enabling faster ways of establishing a trusted identity can break the traditional paradigm where security and passenger facilitation come at the expense of one another, allowing both to be enhanced simultaneously.

The concept relies on early validation of the passenger's identity, and controlled access to this information by the various public and private stakeholders involved on a need-to-know and authorized-to-know basis, so that the passenger can be recognized and attended to in the most efficient way in subsequent process steps

The scope extends across international and domestic travel scenarios, and across departure, transfer and arrival processes.

With the increased maturity and continued advancement of biometric recognition systems, identity management platforms, mobile technologies, data security and other technological developments, the tools are there to enable this revolution in passenger processing. These innovations may also support the industry's direction of off-airport processing, allowing passengers to arrive at the airport "ready to fly".

Nevertheless, real progress can only be achieved through collaboration between airlines, airports, border agencies, screening authorities and potentially other stakeholders – all of which have ultimately as much to gain from a coordinated approach as the passenger. IATA is uniquely positioned to help facilitate this change by bringing together all stakeholders within the air travel continuum, including governments.

Standardization and harmonization of frameworks, processes, data models, and data interchange protocols will be crucial to expedite and maximize the benefits for all.

The objective of the One ID initiative then is to bring industry and government stakeholders around to table to establish a common vision and roadmap, and pursue the development and adoption of standards and recommended practices.

The need for and benefits of robust identity management are not unique to the aviation industry, and thus the One ID program of work shall consider progress made and lessons learned in other industries – financial services and healthcare to name a few – and seek collaboration with other initiatives such as, for instance, work undertaken by the World Economic Forum.



2. Concept

One ID introduces robust, integrated identity management across the end-to-end passenger process, from the time of booking, throughout the various pre-departure, departure, transfer and arrivals processes, including the return trip – both in international and domestic travel scenarios.

The basic principle is that passenger data is collected, admissibility is assessed, and identity is confirmed as early as possible in the process, and is subsequently shared, used and amended by all stakeholders across the end-to-end journey (departure, transfer, arrival, and return trip).

The following table, though simplified and non-exhaustive, describes how this approach fundamentally differs from the legacy process:

	Description	Legacy process	One ID
Ready to fly ¹	<ul style="list-style-type: none"> Joe Bloggs commences his trip 	<ul style="list-style-type: none"> Admissibility: is Joe Bloggs authorized to travel to destination? Identity may be checked depending on location and travel scenario: is this Joe Bloggs? 	<ul style="list-style-type: none"> Identity check: is this Joe Bloggs? Admissibility: is Joe Bloggs authorized to travel to destination? Store information for later use
Bag drop	<ul style="list-style-type: none"> Joe Bloggs wants to check bags 	<ul style="list-style-type: none"> Identity may be checked depending on location and travel scenario: is this Joe Bloggs? 	<ul style="list-style-type: none"> This is Joe Bloggs; he is ready to check bags
Security screening and access to the security restricted area	<ul style="list-style-type: none"> Joe Bloggs wants to go through security and proceed to the security restricted area 	<ul style="list-style-type: none"> Admissibility: is Joe Bloggs authorized to enter? Identity may be checked depending on location and travel scenario: is this Joe Bloggs? 	<ul style="list-style-type: none"> This is Joe Bloggs; he is authorized to go through security and proceed to the security restricted area; please use security screening protocol "A"
Outbound border controls	<ul style="list-style-type: none"> Joe Bloggs wants to cross the border and leave the country 	<ul style="list-style-type: none"> Admissibility: is Joe Bloggs authorized to cross the border? Identity check: is this Joe Bloggs? 	<ul style="list-style-type: none"> This is Joe Bloggs; background checks have already been performed and he is authorized to cross the border and leave the country
Boarding	<ul style="list-style-type: none"> Joe Bloggs wants to board the aircraft 	<ul style="list-style-type: none"> Admissibility: is Joe Bloggs authorized to board? Identity may be checked depending on location and travel scenario: is this Joe Bloggs? 	<ul style="list-style-type: none"> This is Joe Bloggs; he is authorized to board the aircraft

¹ For the purpose of this paper, we make abstraction of the "check-in" process, a legacy process that will be eliminated over time as its constituent elements are integrated into other process steps and touchpoints.



Inbound border controls	<ul style="list-style-type: none"> • Joe Bloggs wants to cross the border and enter the country 	<ul style="list-style-type: none"> • Admissibility: is Joe Bloggs authorized to cross the border? • Identity check: is this Joe Bloggs? 	<ul style="list-style-type: none"> • This is Joe Bloggs; background checks have already been performed, and he is authorized to cross the border and enter the country
Return trip – ready to fly	<ul style="list-style-type: none"> • Joe Bloggs is traveling back home 	<ul style="list-style-type: none"> • Admissibility: is Joe Bloggs authorized to travel? • Identity may be checked depending on location and travel scenario: is this Joe Bloggs? 	<ul style="list-style-type: none"> • This is Joe Bloggs; he is authorized to travel

In order to achieve this in the most effective, efficient and secure manner, the following four elements need to be in place: a trusted, digital identity; an identity management platform; identity verification through biometric recognition; and a trust framework.

2.1. Trusted, digital identity

Identity checks imply ascertaining that the passenger is who they say they are (and not an imposter) and require 1-to-1 matching of the passenger against a verifiable source. This may be done manually by comparing the passenger's features against a picture ID (such as a conventional passport), or by matching the passenger's biometrics against those stored in a biometric ID (such as the e-passport).

Even if the addition of machine readable zones (MRZ) and the introduction of biometric passports have improved data accuracy and the security of passports, as long as we rely on the use of physical IDs little progress will be made in improving speed and ease with which identity can be authenticated and verified.

The use of a trusted, digital identity will not only facilitate real progress in terms of speed and ease of identity authentication and verification, it will also allow passengers to assert their identity online and in off-airport situations, thereby opening the possibility to move more processes off-airport and have passengers arriving at the airport "ready to fly". Ideally, digital travel authorizations will be associated with the digital identity, removing in the longer term the need for passengers to carry physical ID and travel documents with them.

The digital identity could be (temporarily) stored on a cloud-based digital platform; the Indian Aadhaar biometric system is a good example of this. Alternatively, the digital identity could be stored on a mobile device or physical token; the availability of biometric sensors on customer mobile devices could present an opportunity to make use of these smart devices instead of expensive, static airport infrastructure.

To further enhance the identity assertion process and the trust placed in the digital identity, a federated approach could be considered, leveraging information from partners to help assess the passenger's identity.

2.2. Identity Management Platform (IMP)

The One ID concept relies entirely on a collaborative approach between stakeholders. In order for this to work, an environment needs to be created in which they can store, share, reuse and amend passenger information in a collaborative and trusted manner – managing a data envelope that follows that passenger throughout the journey. This is what we refer to as an identity management platform (IMP), the operation of which is governed by a trust framework that is in place between the participating stakeholders (see below).

The IMPs' data envelope contains passenger identity data and signals for passenger processing, not with the aim to replace other systems such as airlines' departure control systems (DCS) or control



authorities' border management systems, but with the aim to connect these systems and enable a more efficient, streamlined and non-repetitive process.

The IMP is conceived according to the “privacy by design” principle, ensuring that 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.

The inclusion of process information in the IMP data envelope will provide real-time visibility of where passengers are in the airport process. This will allow for a more personalized customer experience to be delivered, further efficiencies to be made, and the opportunity to generate enhanced ancillary revenue.

In order to link departure, transfer and arrival processes for a truly seamless passenger experience, IMPs operated in different air travel ecosystems will need to be interoperable.

2.3. Identity verification through biometric recognition

Once the passenger is enrolled in the IMP, 1-to-N biometric recognition is used for instant identity verification throughout the various process steps, removing the need to physically present documents and credentials at every touchpoint.

To the extent possible, and with the passenger’s consent, biometric enrollment is persistent for a certain period of time, and does not need to be repeated for every trip.

2.4. Trust framework

In generic terms, a trust framework is a legally enforceable set of specifications, rules, and agreements that govern a multi-party system established for a common purpose, designed for conducting specific types of transactions among a community of participants, and bound by a common set of requirements.²

In order for stakeholders to trust one another, trust the data, and co-operate on a common identity management platform, a trust framework will have to be established among them. It will describe their respective roles, rights, responsibilities and obligations, incorporate business and technical requirements and specifications, identify applicable laws and regulations, specify financial arrangements, and describe how the trust framework will be governed – including policies related to compliance and quality assurance.

Such trust frameworks can exist at the level of a local air travel ecosystem – for instance an airport plus a number of airlines and control authorities – but to enable broader collaboration across the end-to-end passenger journey and in various travel scenarios, rules will also have to be established at national and international levels; which could, for instance, take the form of mutual recognition and harmonization of standards.

² See [white paper](#) published by Open Identity Exchange (OIX) in June 2017.



3. One ID will simplify and enhance the passenger process

One ID will remove the need for passengers to physically present documents in various combinations at various touchpoints, as this will be replaced by instant biometric recognition. This will deliver significant efficiencies and improvements to almost every step in the end-to-end process. For instance, it will allow for near universal self-service boarding.

These simplifications in individual process steps will, in turn, allow for physical touchpoints to be combined, removed or moved off-airport where possible, bringing us closer to our vision of a truly seamless ground process where all interactions with the passenger are simple and intuitive.

As such, One ID will be one of the contributing factors that could spell the end of the legacy check-in process, as its constituent elements are either obsolete or integrated into other process steps and touchpoints.

Another example is how access to the security checkpoint and outbound border control could, arguably, be combined into a single touchpoint. Or, alternatively, how outbound border control could be integrated into the boarding process.

With One ID, the increased real-time visibility of where passengers are in the airport process, will not only allow for a more personalized customer experience to be delivered, but also help to achieve other efficiencies – for instance, locating passengers who may delay a flight and start identifying their checked baggage for possible off-load.

This will also greatly facilitate the transfer process, with the ability to reconcile arrivals and departures of transferring passengers, identifying passengers with short connection times for expedited processing, and offering increased opportunities for passenger engagement and ancillary sales. Interoperability between local air travel eco systems will be essential to incorporate the transfer process in One ID.

One ID, through its principle of capturing and validating passenger data as early as possible in the process, ideally at the time of booking or shortly thereafter, will also have a beneficial impact on the timeliness and quality of passenger data that airlines are required to submit to governments. This will allow control authorities to perform more robust advance risk analysis and keep inadmissible passengers off the airline. Using advanced passenger information and electronic visas would enable the vast majority of passengers to be cleared for expedited travel in advance of departure and would mean they may not need to queue to see an official at the border. Additionally, this would allow for processing to be done in off-peak periods and for the option to focus efforts on higher border control risks.

The use of robust identity management will equally allow for a more targeted approach at the security checkpoint and enable true risk-based differentiated screening of passengers and their belongings – one of the pillars of Smart Security, a joint initiative of IATA and ACI, the Airports Council International.

It should be noted that, while the majority of passengers will benefit from expedited processing, local regulations may require that passenger consent be obtained and that an alternative process is foreseen for those passengers who opt out. Facilities will also need to be carefully planned for those passengers that need additional checks or who can't use the automated system – for instance, infants, passengers requiring special assistance – and for cases where biometric matching fails.

Finally, One ID will be an enabler for IATA's ONE Order concept which intends to replace the multiple and rigid booking, ticketing, delivery and accounting methods by a single customer order record, holding all data elements obtained and required for order fulfilment across the air travel cycle. Linking the order to the passenger's digital identity will facilitate order management and fulfillment processes, allowing for services and goods to be seamlessly ordered and delivered throughout the journey.



4. Stakeholder benefits: a seamless, efficient and secure passenger process

4.1. “Seamless” – improvements in passenger experience

The simplifications and process efficiencies that One ID brings to nearly every step in the end-to-end passenger journey will result in the elimination of repetitive processes and reduction in the number of touchpoints, and thus shorter queues and reduced waiting times. Ultimately, it will enable passengers to arrive at the airport ready to fly in nearly every travel scenario.

Improvements in passenger experience can be measured through surveys such as IATA’s [Global Passenger Survey](#), its [Airs@t satisfaction survey](#), and [ACI’s Airport Service Quality survey](#).

Increased attractiveness of air travel is likely to increase demand and, as a consequence, aviation industry revenues, with satisfied customers traveling more often and more likely to select air travel over alternative modes of transportation.

Airports may also see an increase in non-aeronautical revenues (NAR) as passengers will be more relaxed and spend more time airside. As per an [ACI research report](#) published in 2016, an increase in 1% in the global passenger satisfaction (as defined by ASQ survey) generates, on average, NAR growth of 1.5% -- i.e. when the passenger perceives an improvement in airport service quality, this results in a more than proportional growth of the airport’s NAR.

4.2. “Efficient” –improved productivity, capacity and cost savings

Instant identity verification through biometric recognition at various touchpoints will reduce the time spent on manual ID checks, leading to staffing efficiencies and increased capacity. Airlines for instance may experience significant efficiency gains at bag drop and especially at boarding, with the possibility of near universal self-service boarding.

Border control agencies will equally experience staffing efficiencies as primary inspection is automated. Furthermore, cooperation among border control agencies (such as Customs, Immigration, Police, Quarantine, Health and Safety, Agriculture etc.) will improve due to sharing of information and the associated process efficiencies, allowing for harmonization of passenger processing systems, sharing of resources, and reducing unnecessary costs.

Improved real-time visibility of where passengers are in the airport process will help to better anticipate demand and allocate staff accordingly at the right time and the right place, leading to further staffing efficiencies and higher productivity for security agencies and border control agencies. For airlines, it offers the opportunity to identify late passengers more accurately and anticipate whether or not their checked baggage should be off-loaded, thus contributing to better on-time performance.

The combination of the increased real-time visibility of where passengers are in the airport process and more robust advance risk analysis can allow for smart queuing where travelers can be efficiently directed to the processes required by airline, aviation security, governments. By identifying, smartly routing, and potentially scheduling travelers who need specific processing, resources could be deployed more optimally and travelers would no longer need to wait in lines.

Floor space is a valuable asset for airports. The capacity gains associated with the ability to process more passengers faster, will lead to improved space efficiency and opportunities to defer or avoid infrastructure expansion.

4.3. “Secure” – improvements in border, aviation and airport infrastructure security

In addition to the many self-service options that are available today, One ID will help further eliminate queues and crowds in airport landside areas, making them less vulnerable to acts of terrorism.



One ID will allow for a consistent verification of a travelers' identity throughout the journey and possibly across borders, thereby reducing the possibilities for individuals to cross borders under a false identity, and thus helping to combat human trafficking and other cross-border criminal activities.

The IMP's data envelope contains signals and attributes about a passenger that can improve the risk based assessment for the authorities responsible for border control. This will benefit border security where, as primary inspection is automated, immigration officers can focus their efforts on higher risk passengers. In jurisdictions where physical interviews continue to be required, the officers will be able to dedicate their attention to questioning and behavior detection rather than spending their time checking the passenger's ID and data.

Similar benefits will be achieved at the security checkpoint, where robust identity management is a key prerequisite for risk-based differentiated screening of passengers and their belongings. Screening measures and protocols can be applied according to the risk category the passenger is assigned to, allowing resources to be focused where they are most needed – a targeted approach that delivers improved security outcomes.

4.4. Other notable benefits

Where airlines are required to send advance passenger information (API) to governments, and where the information is incomplete or incorrect, governments may impose fines on airlines. Furthermore, when a passenger is denied entry at port of entry, the airline is required to repatriate the passenger at its own expense and is often also fined for the inadmissible passenger. One ID, through its principle of capturing and validating passenger data as early as possible in the process, will have a beneficial impact on the timeliness of submission and the quality of the data, thus helping to reduce or avoid these costs.

For any further questions on the IATA One ID initiative, please contact the team at: OneID@iata.org