



Airports & Aviation

Re-imagined for Recovery



WHY IT MATTERS?

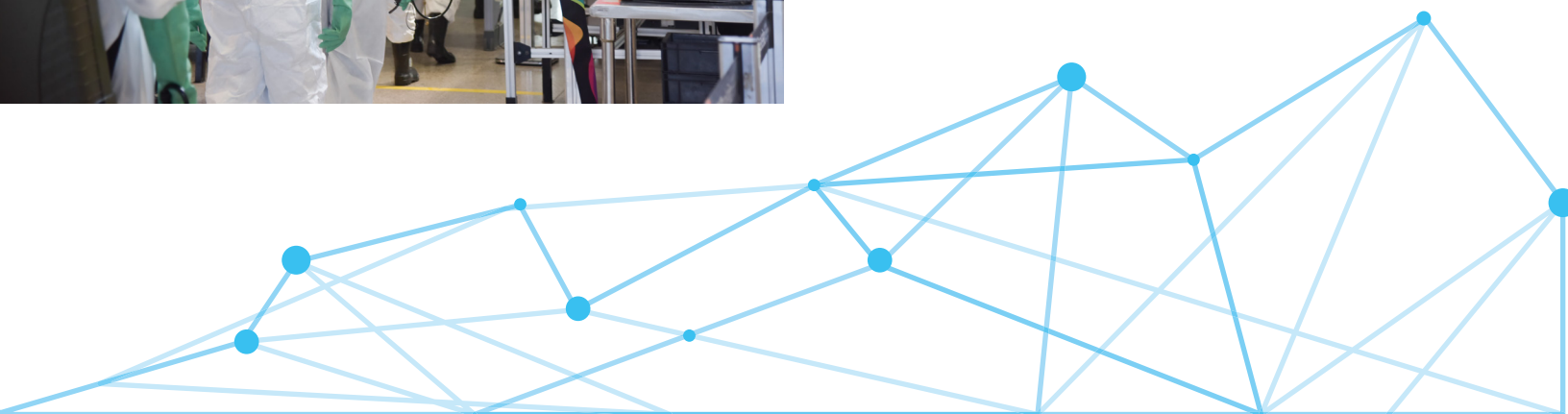
The COVID-19 pandemic has swiftly altered our socio-economic landscape; norms of human interaction have been redefined and **the crisis has emphasised our capacity for adaptation and the importance of cooperation and compassion.** The pandemic has also laid bare the human vulnerability in air travel, globally. As of the week of April 20th, scheduled flights worldwide were down 66 percent and industry revenue losses were estimated at \$581bn USD for 2020. The crisis has forced a global pause.

We are at a unique point in time where behavioural willingness to adapt and cooperate with new solutions may be greater than at any other time in history. A new paradigm for airport passenger processing is critical in order to regain the passenger confidence required to rebuild the industry. Processes will need to allow passengers to seamlessly advance through the terminal, having minimal interaction with airport staff assigned based on risk and optimization of facility capabilities. The recognition that safety and security is a shared priority of the industry and its customers provides an opportunity to unite the aligned interests and improve aviation security, without compromising the safety of global aviation and the privacy of its customers. Overall, reducing current costs and processing inefficiencies.



The industry must respond to the COVID-19 crisis by re-imagining how an airport operates in order to pivot from being a pandemic's most effective transmission system to being a critical partner in identifying and controlling future outbreaks.

To properly explain the new paradigm, we should review and understand the origin and evolution of today's aviation screening approach in response to world crisis.

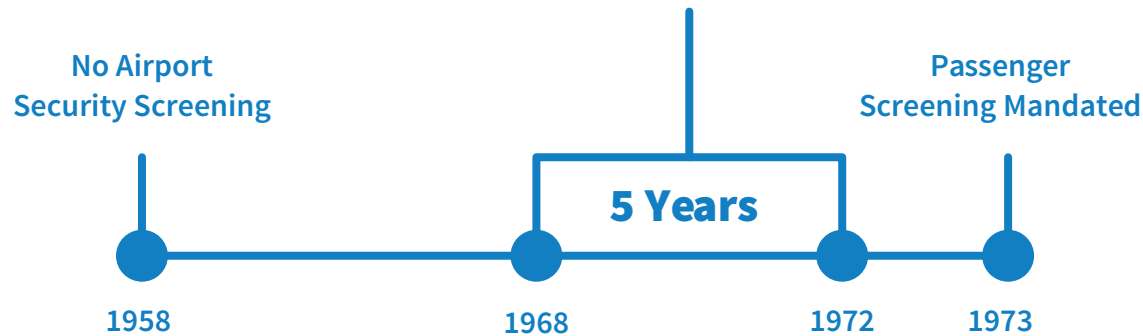


HOW DID WE GET HERE?

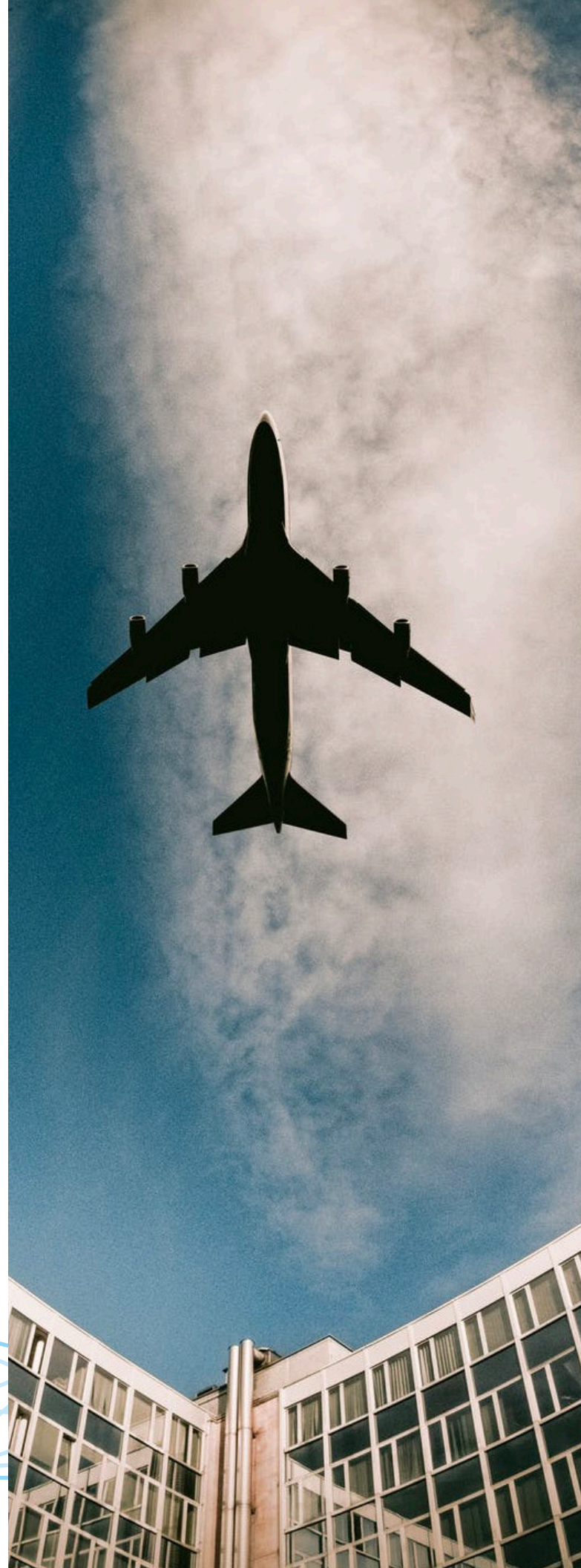
In the decade between 1958 and 1967, approximately 40 hijackings were committed resulting in commercial flights deviating from their original flight plans and landing where the hijacker demanded. The subsequent five-year period (1968–1972) recorded 137 hijacked flights from 326 attempts - an average of more than one per week for five years.

Over that 15-year period, countries around the world continued their efforts to tackle crimes committed on planes. The incidents were interpreted as inconveniences by the industry and the traveling public. On May 7, 1964, the Federal Aviation Administration (FAA) adopted a rule requiring that cockpit doors on commercial aircraft remain locked at all times. By 1970, US President Richard Nixon issued a directive to promote security at airports, electronic surveillance and multilateral agreements for addressing the problem. In the same year International Civil Aviation Organization (ICAO) issued a report detailing the need for action.

137 Aircraft Hijacked 326 Attempted Hijackings



On December 5, 1972, the FAA issued emergency rules requiring all passengers and their carry-on baggage to be screened. Airports began implementing screening processes that involved walk-through metal detectors, hand-searches and x-ray machines in order to locate weapons and explosive devices. The security process was designed to identify or deter rogue individuals, armed, with mal intent. These rules came into effect on January 5, 1973, and were accepted, if not welcomed, by most of the traveling public. In 1974, ICAO issued the Standards and Recommended Practices for international aviation security, designated as Annex 17, to the Chicago Convention. The collective result was Pre-Board Screening (PBS).



While hijackings still occurred, there were fewer incidents and casualties. As that threat was waning, terrorism ideologies emerged and aircraft bombings began to rise through the 1980s and 90s. The events of 9/11 marked another major shift in aviation security with the eventual introduction of the required screening of all checked baggage on commercial flights.

There continues to be technological refinements and infrastructure improvements within aviation security, but the strategic approach has remained essentially unchanged. Aviation security has typically been slow to introduce innovation compared to the industry in general. Inspecting and clearing 100% of passengers and their bags, means that over 4.5 billion people, and 15 billion bags at more than 3400 airports in 192 countries were screened in 2019.

“NO SYSTEM CAN PERFORM EFFICIENTLY WHEN ONE IS LOOKING FOR A NEEDLE IN A HAYSTACK BY CHECKING EACH STRAW INDIVIDUALLY”

- Sela, Rafi. “Do Body Scanners Make Us Safer?” *The New York Times*, 23 Nov. 2010

Even this dramatic statement is an oversimplification. Our current approach requires us to simultaneously search hundreds of “haystacks” around the world in search of threats. At enormous expense, we have bolted on new technologies and complex infrastructure to a 1973 security paradigm that will no longer work in today’s environment.

As the aviation industry struggles to assemble a plan for a post-COVID 19 recovery, it must contend with the undeniable reality that aviation itself, represents the most efficient delivery system to enable a global pandemic. According to industry predictions, global financial impacts combined with low customer confidence will result in passenger volumes not likely to return for at least another 18 months. The industry must respond to the COVID-19 crisis by re-imagining how an airport operates; needing to pivot from being a transmission system to instead being a critical partner in controlling and limiting future outbreaks.

WHERE WILL WE GO?

It is important that we harness post COVID-19 momentum toward positive, long-lasting shifts in social attitudes and cooperation. Policies, processes and experiences gained in dealing with the pandemic are already changing attitudes about how we work and choices about the organizations with which we interact. We are observing a greater emphasis on remote working, digital collaboration, workplace hygiene, and protection for aviation staff and passengers.

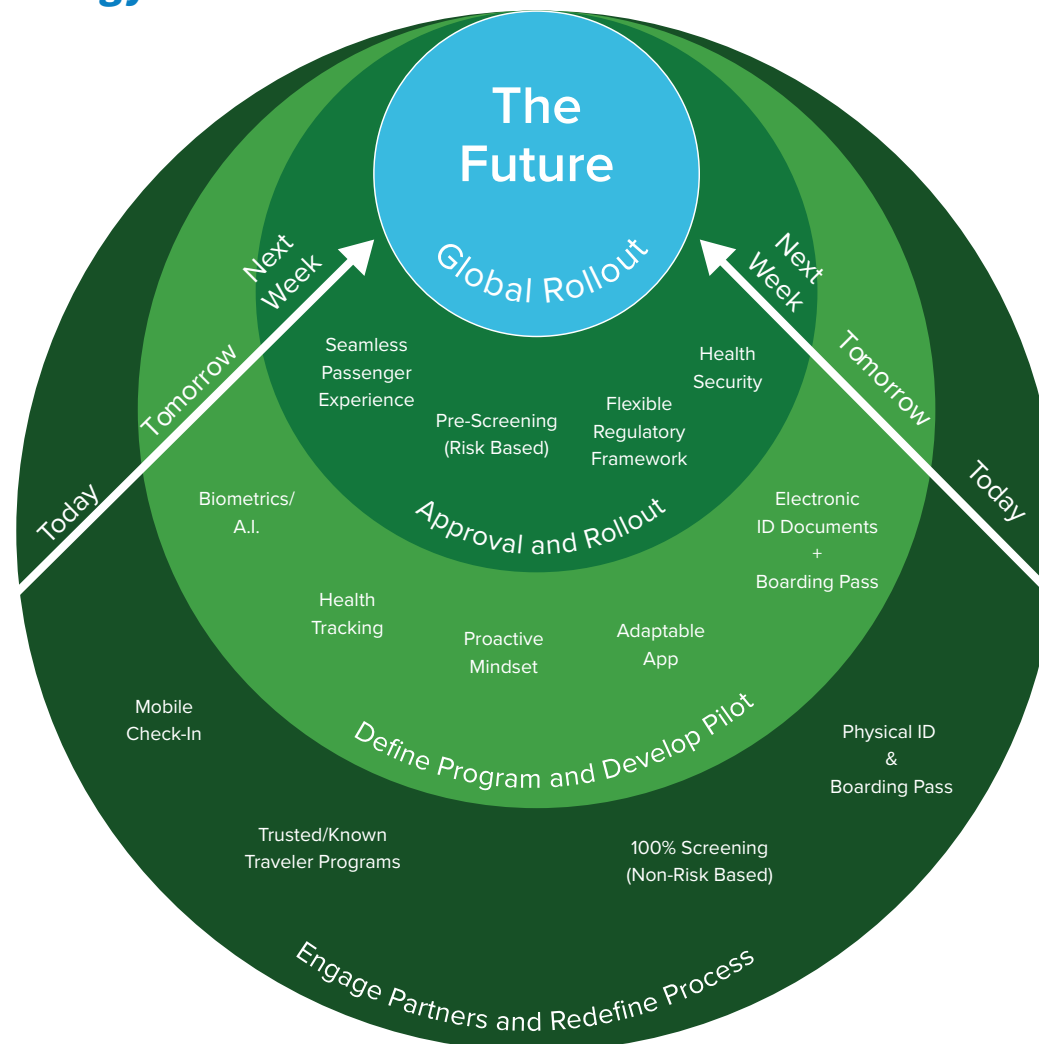
We must expand our thinking and redefine the labels and functions of the past paradigm. Passengers, stakeholders and employees should be considered “partners”. Shared values and important contributions via data sharing will improve security effectiveness, lower costs and support health safety requirements. In turn, the siloed organisations and authorities will need to shift focus to safeguarding privacy in order to responsibly expand collection and sharing of information, uniting shareholders and stakeholders in an ultimate goal of safe, efficient air transportation.

We already possess the technology required to facilitate this new paradigm. Working together we can re-design our processes and apply those proven solutions. The identification of the “known and trusted” partner (passenger) removes the camouflage from those who intend to do harm. By leveraging the investment of our partners (smart devices) and providing them real value in exchange for their additional contributions (data), we can create a truly sustainable aviation operating model.



Technology

Security



Passengers

Airports + Aviation

HOW WILL WE GET THERE?

Currently, aviation’s complex regulatory system provides the framework for global standards to be enforced, along with a decentralised country by country regulatory structure. **Sustaining the existing model has required continuous investment in infrastructure and resources to meet traffic growth.** There is a recognition that the current operational approach is no longer sustainable and cannot scale cost effectively to support recovery. With the distancing requirements in the COVID-19 environment, the existing infrastructure cannot support more than 50 to 60% of the previous capacity under the current model.

To meet the challenges of evolving safety and security threats, with resource constraints and operational limitations, airports will need to access and leverage the power of existing data responsibly though innovative strategies. The collective shift in societal attitudes that resulted in the perceived trade off between personal privacy and safety, and reshaped aviation worldwide post 9/11, will drive similar changes now. The post-pandemic future of the commercial aviation industry depends on changing the current perception and behaviour surrounding data collection and sharing. The technology exists to protect privacy while maximising health safety and drastically reducing costs.

There is no better time to align interests and deal with the complexities of evolving the current approach into a new sustainable operating model. Unless air travel can be made safe, efficient and convenient, the industry will face difficulty in reclaiming its previous market share. Failure to adapt will cause the industry to succumb to the next wave of COVID-19 and the pandemics that follow.

With the facts laid bare, the industry must change if it wants to regain customer confidence. This will be achieved through a collaborative and practical approach to passenger processing models, beginning with security effectiveness and health safety, while simultaneously realizing operational efficiency and enhancing the passenger experience.

RE-ESTABLISH CUSTOMER CONFIDENCE NOW

To inspire the public's confidence to travel again, airports will need to rethink their processes and the use of physical space but more importantly they must work together with all involved to accept the reality and enable the change. Solutions should not get bogged down in old ideals and need to recognise the entire economic model has changed. The critical needs of passengers, their physical and mental well-being, must be resolved before the second wave of COVID and the next pandemic. Technology will be a key enabler in driving these solutions in the post-pandemic era. We must acknowledge that while passengers demand customer-focused innovation, they also place high importance on social responsibility and the ethical use of technology. We must innovate responsibly, focusing on the shared values and interests of the collective whole. This is bigger than individual airports. The solutions proposed will need to ensure fair and accessible travel options for all passengers. We must work collaboratively to develop inclusive solutions that both the industry and the public can support and trust.

We are responsible for well-being of the future with the innovation of today.

Partners that share this common belief will play a key role in redefining the paradigm.



SAFETY, SECURITY AND PRIVACY

The speed by which technology is advancing and adapting exposes us all to a potential future where our freedoms could be lost. Public policy and the rule of Law have not kept pace with the advances in machine learning and AI algorithms that use the latest video and digital surveillance tools for behavioural profiling. Today, most of this focuses on our security, however, many of us are unaware of how our online and real-world activities can be tracked, monitored, recorded, stored and analyzed to form our behaviour profiles. We have already traded away an enormous amount of our personal data in exchange for the convenience of the applications that provide directions, entertain, and inform us. It is time we realised an improved value proposition in the exchange of data and move to ensure a world where we have both great security and privacy.

We believe this future is within our grasp and that the aviation industry is the perfect platform on which to concentrate this conversation. Through our development partnership we are committed to the seven principles of Global Privacy and Security by Design that can provide people across the globe with open-source technology that will protect their online privacy and provide society with the tools to target criminals and terrorists within the constraints imposed by the rule of law.

COLLABORATION AND PARTNERING

The recovery of the commercial aviation industry post COVID-19 will lean on the support of strategic partnerships. We are at a unique point in time where government, private industry and the general public all share a common goal: to recover from COVID-19. With constraints on government resources, airports are being asked to do more with less. Industry and non-industry partnerships are essential in developing and deploying scalable solutions on the local and national level. This is evident with recent Public Health initiatives calling on industry leaders, in partnership, to support the rapid development and deployment of innovative solutions. Whether it be resolving hand sanitizer shortages or health monitoring applications, industry partners play a critical role in supporting the immediate needs of the community.

Successful partnerships share common values, beliefs and goals. The pandemic has proven our ability to adapt and work collaboratively for the betterment of society. Through trust and strategic partnerships, we can leverage the power of organisations' expertise, resources and networks to unite aligned interests and rebuild our industry. We propose to gather key partners to define a realistic approach to achieve our bold, common objectives.

WHY CANADA AND WHY NOW?

Similar to other international jurisdictions, as a member state of the International Civil Aviation Organisation (ICAO), Canada follows a layered approach to aviation security. ICAO sets the global standard, while international and national governing bodies and associations layer in regulations and standards for each jurisdiction to promote a comprehensive set of policies, regulations and security measures that work together to protect air transportation and trade. To better understand Canada's approach to aviation security, a summary of the global membership, regulations and associations governing civil aviation in Canada is highlighted below.

ICAO is headquartered in Montréal, Canada, and is a United Nations agency that was established in 1944 to manage the administration and governance of the Convention on International Civil Aviation (Chicago Convention). ICAO works with the 193 Member States and industry groups to reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies to support a safe, efficient, secure, and sustainable civil aviation sector.

MYTH: We need to give up our personal privacy for public safety.

REALITY: We can have both. We don't need to choose.

**- Ann Cavoukian, Ph.D
Global Privacy and Security by Design**

In Canada, the Minister of Transport is responsible for the development and regulation of aeronautics and the supervision of all matters connected with aeronautics, including Canada's aviation security system. Transport Canada (TC) develops policies and regulations, and conducts oversight to verify that industry and Canadian Air Transport Security Authority (CATSA) meet their obligations. Canada's aviation security system is comprised of 89 airports for which CATSA conducts passenger and baggage screening under the CATSA Act. Canada's Air Transport Security is paid for by a user-based fee that is charged to passengers and flows into the Government's general revenues. The ATSC is paid by air travellers, and the charge falls under the purview of the Minister of Finance.

The International Air Transport Association (IATA) is also headquartered in Montréal, Canada, and is a vehicle for inter-airline cooperation. At its founding, IATA supports airline activity and helps develop policy and standards.

Canada's aviation security system is ripe for change. The model is not sustainable. All of these layers of security and policy, coupled with the growth in the industry and limited real estate and resources to accommodate the infrastructure associated, led to the impetus for a change in the model.

In the 2019 Federal Budget, the privatization of Canadian Airport Security as an independent not-for-profit entity was introduced. Transport Minister, Marc Garneau commented that the rationale for privatizing CATSA stems from, "growing passenger volumes and with it, backlogs at airport security checkpoints [that] have spurred complaints — and calls for reform.

The logic surrounding the privatization of aviation security is more applicable than ever. Canada's aviation industry has already undergone significant transformation since the events of 9/11, and the time is ripe to reconsider what has worked well, and where more substantive changes can be implemented to ensure sustained recovery.

The airports of the World are already working on key initiatives to improve the facilitation of travel with a focus on processes that are ultimately linked to trust:

- » Trusted Traveller
 - Nexus; Global Entry; Restricted Area Identification Card
- » One Stop Security (OSS)
 - Two or more countries agree that their aviation security standards are equivalent
- » International to Domestic Process
 - Eligible travellers no longer have to pick up their baggage and bring them to the Connections desk
- » Automated Border Control Programs
 - Automated self-serve Kiosks or eGates which use data stored in biometric passports to verify user's identity
- » IATA's One ID
 - One ID introduces an opportunity for the passenger to further streamline their journey with a document-free process based on identity management and biometric recognition

REALITY CHECK

Every day, COVID-19 kills more people than terrorists have killed in all attacks against aviation in the last 60 years.

The very nature of aviation to effectively connect the worlds populations in hours is itself the threat to the future viability of the industry.

The commercial aviation industry must collectively embrace the post COVID-19 reality and re-imagine itself with safety as the singular focus and unifying theme to all aspects of the industry.

Transparent, trustworthy proof of safety is the only reliable way to regain the confidence of the customer and responsibly restart the industry.

THE TIME IS NOW

AIRPORTS RE-IMAGINED: SAFE, SIMPLE, SECURE



1

DOWNLOAD & REGISTER

Downloading this app is your first step to safe, confident, and healthy travel where your personal privacy is protected in accordance with Global Privacy and Security by Design standards.

2



MULTI-FACTOR IDENTITY VERIFICATION

To ensure compliant air travel safety, the integrity of the aggregated information, relied upon for the system to function, must carry with it the credibility of multi-factor verification.

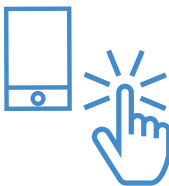


3

TICKET PURCHASE

Once your ticket is purchased and registered to your mobile device's digital wallet, you can link your travel information, personal loyalty programs, and digital traveller credentials (DTC) with the app for use throughout your travel experience.

4



INITIAL RISK-BASED TRAVELLER ASSESSMENT

Once your travel is confirmed, you will be prompted to enable the app's functionality. The initial risk-based assessment will support a more proactive approach to ensuring air travel safety. These features include: encrypted data sharing, health monitoring, anonymous contact tracing, and identity confirmation technology.



5

CHECK-IN PROCEDURES

24 hours prior to your departure, the app will initiate the check-in process. This can include airline, airport, and other services important to the traveller: seat selection, checked bags, parking, transportation, shopping, and food services.

6



JOURNEY TO THE AIRPORT

The integrated nature of the application can provide important notifications related to travel including updated flight information, traffic alerts, and weather advisories.

7



AT THE AIRPORT

After arriving at the airport, the app will guide you through your airport process, improving the passenger experience. This includes enhanced wayfinding, optimized self-serve bag drop, and touchless bag tag printing while maintaining 100% regulatory compliance.

8



PASSENGER SECURITY SCREENING

Upon confirmation of the document of entitlement in your digital wallet and based on risk assessment criteria, the traveller will be directed to the appropriate security screening lane (high, medium, low). The traveller then continues through self-service screening.

9



SECURITY CLEARED

Once the security process has been completed, important notifications can be communicated to the airline, airport, and traveller. Potentially including pickup location of pre-ordered items, priority passenger programs, commercial opportunities, and operational information.

10



EFFICIENT BOARDING PROCESS

The boarding process can be optimized through the use of the app, facilitating the boarding process through passenger status, current proximity to the gate, seat location, accessibility/mobility, and locating missing passengers and their bag.

11



ONBOARD

The health and safety elements of the app will support re-establishing customer confidence in the onboard environment and provide the airlines with the ability to further improve a personalized in-flight experience.

12



ARRIVAL AT DESTINATION

Whether arriving domestically or internationally the app will enhance your wayfinding capabilities by guiding you correctly to border inspection services or your baggage claim location.

13



BORDER SERVICES RISK ASSESSMENT AND INSPECTION

Based on risk profile and verification of DTC, the traveller will be directed through the appropriate border inspection process.

14



BAGGAGE CLAIM

Traveller can be notified of the real-time location of their bag and its estimated arrival time at the carousel to reduce congestion and enhance the customer experience.

15



ENJOY YOUR DESTINATION

After your bag is collected, the app can direct you to your transportation of choice and your onward journey.

A VIABLE INDUSTRY

Improved security and health safety

Regain customer confidence

Seamless, touchless processes

Sustainable financial model

Curb to cabin efficiency

Increased infrastructure capacity

Personalized travel experience

Improved service and communication