From Restart to Recovery

A blueprint for simplifying air travel

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Executive summary

It is almost two years since the SARS-COV2 virus was first detected. In this time, our understanding of the virus and our ability to respond to it have evolved considerably, most notably through the development and distribution of a number of highly effective vaccines. It is also clear, however, that the virus will not be eliminated and so the world is adapting to the need to learn to live with the virus.

International guidance from the World Health Organization (WHO) and the International Civil Aviation Organization (ICAO) supports a risk-based approach to international travel. This guidance has been translated into national level policy by many countries as well as operational practice for industry stakeholders.

Most States have now reopened their borders, at least partially, or announced plans to do so. However, almost all countries have implemented extensive requirements that air travelers and airlines must comply with, with little or no coordination between countries or consistency in the measures being applied.

As the world transitions from the acute, pandemic phase of COVID-19 towards management of SARS-COV2 as an endemic virus, the aviation sector is preparing to move from the initial restart phase towards a focus on recovery. There is now a need to move towards a set of medium-term measures that are simpler, more predictable and more consistent.

In the Ministerial Declaration of the ICAO High Level Conference on COVID-19 (HLCC), States acknowledged that greater harmonization and alignment between countries is important in order to safely restore international connectivity, support the safe recovery of international civil aviation. rebuild the confidence of the travelling public and facilitate revival of the global economy. This is designed to help governments by providing practical recommendations for the implementation of the commitments made at the HLCC.

This document sets out a blueprint for aviation recovery in this next phase. Its objective is to simplify air travel in the context of COVID-19 and to do so by building on good examples that are being deployed around the world.

The blueprint is focused on three key areas to make the international air travel experience simpler, more predictable and more consistent:

- Adoption of simplified health protocols with travel barriers removed for fully vaccinated passengers and pre-departure antigen testing for non-vaccinated travelers;
- Implementation of digital solutions for the processing of health credentials, collection of traveler information and communication of travel requirements;
- Application of proportionate, risk-based COVID-19 measures with a continuous review process

Risk frameworks

As the Delta variant has become dominant around the world, almost all States have recognized that COVID elimination strategies are not sustainable. In this scenario, there is a general recognition that a risk-based approach is required to facilitate reopening of borders and recovery of international travel, consistent with WHO guidance. Under such an approach, given that the risks of COVID-19 transmission can not be eliminated, risk should be managed using the same principles that have been developed to effectively managed safety and security risks.

In order to rebuild consumer confidence and facilitate operational implementation, risk frameworks should be clear and transparent to enable them to be communicated to and understood by all stakeholders. Predictability and stability are also required to further accelerate recovery of demand and a return to more normal travel patterns. At the same time, risk frameworks should be subject to regular review and should be updated periodically as the COVID-19 situation evolves.

Health status protocols

Health protocols should be consistent, stable and streamlined to support the transition of international travel from restart to recovery.

Vaccination offers the single best protection against COVID-19 and it is important to make vaccines available to all as quickly as possible both to accelerate the end of the pandemic and also to support the full restoration of global mobility.

Vaccinated travelers should not face any additional barriers, while testing should enable those without access to vaccines, including minors, to travel without quarantine. Antigen tests are the key to cost-effective and convenient testing regimes that do not constitute a barrier to travel.

The health protocols in place in the European Union are a good example of a risk-based approach that is consistent with the recommendations set out in this document.

Health credentials

More and more governments are looking to implement digital solutions to issue and verify vaccination (as well as test, and recovery) certificates using QR codes both in paper and electronic form. Well-designed digital solutions have many benefits including user-friendliness, reduced fraud and pre-travel verification.

In addition to compliance with international standards and guidance, digital solutions should be interoperable with the systems used by other countries, ensure adequate protection of travelers' personal data and support pre-travel document verification processes.

Digital health credentials should support use in both paper and digital format. Credentials should be produced in the national language(s) of the issuing country as well as English and be provided free of charge.

The European Digital COVID Certificate (DCC) is a good example of a digital health credential that is in use in all 27 European Union Member States with credentials in 18 non-EU countries having achieved equivalence with the DCC standards. IATA Travel Pass is a mobile application that helps travelers to store and manage their verified certifications for COVID-19 tests or vaccines. The EU DCC and IATA Travel Pass are complementary solutions.

Consumer communication

IATA's polling of consumers found that the patchwork of complex and confusing COVID-related health rules and requirements when they travel is a barrier to travel. 73% of respondents who had traveled since June 2020 found it challenging to understand what rules applied for a trip and said COVID-19 paperwork was challenging to arrange.

There is a need for governments to make it easier for passengers to get access to clear, reliable and timely information on any health protocols and other measures that apply to their trip and how to comply with those requirements.

Switzerland's interactive "Travelcheck" tool is a good example of web-based tool that enables travelers to Switzerland to understand the requirements for the journey.

Air travel post pandemic

As the world adapts to COVID-19 being an endemic disease, it is important to look ahead to a more normal flying experience. Public measures should only be in place as long as they are needed. Governments and industry stakeholders should start preparing now for the transition to a situation in which the measures set out in this document are no longer required.

At the same time, COVID-19 has highlighted the need to accelerate the adoption of technology solutions to provide a genuinely contactless, safe and seamless travel experience to passengers.

Finally, Governments and industry should work together to ensure that aviation is better prepared for future health emergencies, including through better collaboration and communication between aviation and health sector at local, national and international levels.

1. Introduction

Context

Almost two years have passed since the SARS-COV2 virus was first detected. In this time, much has changed in our understanding of the virus and our ability to respond to it, in particular through the development and distribution of a number of highly effective vaccines. There is also a significant body of international guidance available to States and stakeholders, which has translated into national level policy and operational practice.

Public health

From a public health perspective. the development of several COVID-19 vaccines, all of which are highly effective in reducing infection, severe disease and death, in such a rapid timeframe is a triumph of science. There are also a number of treatments in development which raise the prospect of a further improvement in our ability to mitigate the impact of the virus.

The emergence of new variants in late 2020 and early 2021 changed the dynamics of transmission of the virus. The Delta variant has gradually become dominant around the world and its increased transmissibility has led to almost all countries, with the exception of China, having abandoned zero-COVID strategies. Most countries are now preparing to live with COVID and at a global level there is an understanding that the world is in a transition from a pandemic emergency to an endemic scenario. However, different countries are moving at very different speeds.

International policy guidance

The World Health Organization (WHO) has published guidance supporting the risk-based resumption of international travel. In the aviation sector, the ICAO Council Aviation Recovery Task Force (CART) has issued three sets of Take-Off Guidance and in October 2021 ICAO published the Third Edition of its Manual on COVID-19 Cross-Border Risk Management. In addition, there have been regional initiatives such as those promoted by the African Union or the European Union and efforts by multilateral organizations, including the OECD initiative for safe international mobility during the COVID-19 pandemic.

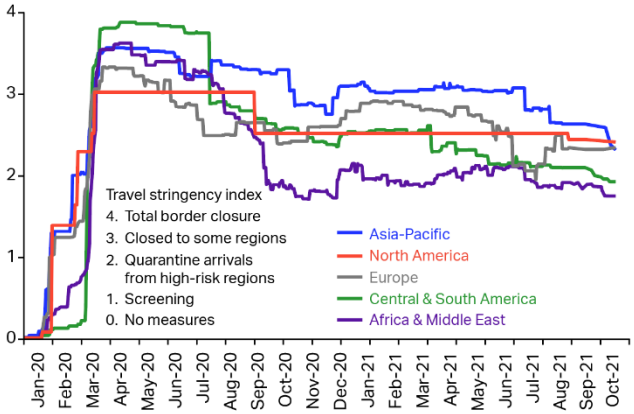
National policies and travel measures

At a national level, most States have now reopened borders, at least partially, or announced plans to do so.

However, the binary concept of borders being opened does not properly reflect the volume of travel measures in place for international travel. The International Organization for Migration (IOM) counted more than 100,000 different travel measures in place globally as of September 2021. This gives a sense of the extent to which the situation is very fragmented, with measures related to vaccination, testing protocols, exemptions and certification all varying widely from country to country.

Similarly, the International Travel Stringency Index, produced by Oxford University uses a graded approach to assess the degree to which travel measures represent a barrier to entry to different countries. Figure 1 shows that, even in countries where borders have been largely "open" for over a year, public health measures mean that travel is much more complex than it was in January 2020. Moreover, using this measure, the relative differences between the most liberal and the most restrictive countries are much smaller than they would appear if using a binary classification of open or closed. While the goal of harmonization may be unrealistic, it is clear that the focus of the next phase of recovery must be on increased convergence and greater consistency of measures.

Figure 1: International travel stringency index weighted by population (Jan 2020-Sep 2021)
Source: IATA Economics analysis based on data from Oxford University



The challenge of a fragmented patchwork of measures

The current fragmented patchwork of travel measures and restrictions undermines traveler confidence and so acts as a brake on demand. Those travelers who do fly are subject to significantly longer processing times at check-in, border control and other points along the journey, disrupting the quality of their journey experience and generating crowding and congestion. Fragmented rules also increase operational complexity for airlines.

Consumer confidence and demand

IATA's polling of consumers[1] found that the patchwork of complex and confusing COVID-related health rules and requirements when they travel is a barrier to travel. 73% of respondents who had traveled since June 2020 found it challenging to understand what rules applied for a trip and said COVID-19 paperwork was challenging to arrange.

This lack of consumer confidence inhibits the sector's recovery. While traffic volumes in domestic markets, measured in Revenue Passenger Kilometers (RPKs), had largely rebounded to January 2020 levels by July 2021, in international markets traffic was still tracking at less than 40% of pre-pandemic levels, even in markets such as intra-Europe which were largely open following the introduction of the European Digital Covid Certificate (DCC).

Where borders reopened and then closed again shortly afterwards due to an increase in case numbers, the negative impact on confidence and demand was even greater. This highlights the importance of stability and predictability.

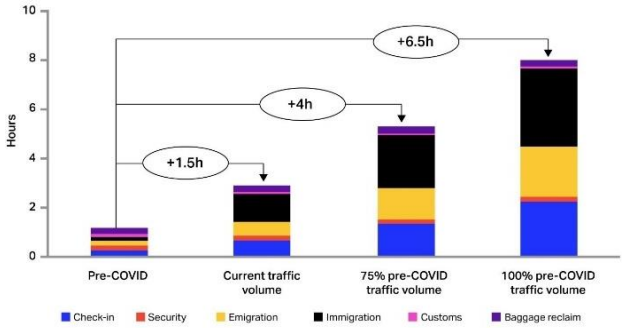
Operational complexity

From the perspective of operations, a patchwork of rules poses huge challenges to a global network industry.

Airlines must determine whether passengers and crew comply with the travel measures that apply to their itinerary. Where these vary as a function of origin country, destination country, transit point, vaccination status it is common that multiple combinations of requirements apply to the different individual passengers on the same flight. If document verification of vaccination certificates or test results must be performed manually this adds significant time to check-in and other processes, potentially resulting in queuing and congestion within the airport terminal. Some airlines have reported that check-in desks are fully staffed even though international travel volumes are only a fraction of pre-pandemic due to the time taken to verify travel documents where digital health credentials are not available.

Figure 2 illustrates modelling which shows how airport processing times could increase as travel volumes increase, unless digital solutions are implemented widely.

Figure 2: Airport processing times at different traffic levels
Source: IATA modelling



The need for consistency, stability and simplification

As States' public health policies towards convergence and the aviation sector moves from restart to recovery there is a need to move towards a set of medium-term measures that are more:

- **Consistent**: While full harmonization may not be a realistic goal, there is a need to reduce variances between countries. Even where countries have different attitudes, recognizing that some States will be more conservative for a period, working within a common framework will be important.

[1] 4,700 respondents in 11 markets

- **Stable and predictable**: To facilitate restoration of consumer confidence and a durable recovery in demand for international travel, there is a need for measures to be predictable and relatively stable. Where international travel is subject to a start-stop approach with borders reopening and then closing again at short notice, this has a lasting impact on travel behaviour. This means that measures need to build in a degree of resilience to changes in the public health situation.
- **Simplified and streamlined**: Measures need to be easier for consumers to understand and for carriers to comply with. As the world transitions from pandemic to endemic, those measures that are not effective or that are no longer justified by the epidemiological situation should be removed.

Building on the ICAO High Level Conference on COVID-19

ICAO Member States acknowledged these challenges, and the profound impact that they are having on global connectivity and mobility as well as the recovery of the global economy, at the High Level Conference on COVID-19 (HLCC) in November 2021.

The HLCC also recognized the role of air transportation in the distribution of vaccines as well as essential medical supplies and personnel in support of the global effort to combat the COVID-19 pandemic as well as other crises and emergencies.

States committed to continue to follow a *"multilayer risk management strategy for international civil aviation, which is adaptable, proportionate, non-discriminatory and guided by scientific evidence in close cooperation and coordination with public health sector, with agreed practices harmonized to the greatest extent possible and underpinned by regular review, monitoring and timely information-sharing among States."*

States also committed to ensuring the interoperability of digital applications as well as secure methods for the transmission and validation of pandemic-related testing, vaccination and recovery certification that protect traveler privacy.

The Conference acknowledged that these commitments are critical in order to safely restore international connectivity, support the safe recovery of international civil aviation. rebuild the confidence of the travelling public and facilitate revival of the global economy.

Purpose and structure of this document

The purpose of this document is to provide a practical and pragmatic way forward for implementation of the objectives agreed at the High-Level Conference on COVID-19.

The document provides key principles to be followed in implementing public health measures affecting international travel. The principles are based on international guidance, where available, and consistent with the latest scientific research. In particular, it is fully aligned with WHO Policy & Technical guidance as well as the work of the ICAO Council Aviation Recovery Task Force (CART) and ICAO's Manual on COVID-19 Cross-border Risk Management.

The recommendations are supported by real-world examples to illustrate how these can be followed by States in the near term. The emphasis is on building on solutions that are in use or in the process of deployment in different parts of the world rather than focusing on "blue-sky" initiatives that would take months or even years to be ready for implementation, by which time the measures may no longer be needed.

Linked to this, a key principle of the document is that measures should be temporary and that the long-term objective should be for them to be progressively removed as the public health situation normalizes and once it is safe to do so without endangering public health or the recovery of aviation and the global economy.

Structure

The document covers the following themes:

- Risk-based frameworks
- Health status protocols
- Health status credentials
- Contact tracing
- Communication

Collectively, the recommendations set out in these five sections form a blueprint that IATA encourages States to align with.

Lastly, the final chapter takes a forward look and considers three priorities for the medium-term:

- Preparing for the transition to a situation in which the measures set out in this document are longer required and in which there is a return to a more normal flying experience.
- Accelerating the development and adoption of technology in the future passenger process to simplify some of the factors that have complicated travel during COVID-19
- Ensuring that the aviation sector is better prepared for future health emergencies.

2. Risk-based frameworks

As the Delta variant has become dominant around the world, almost all States have recognized that COVID elimination strategies are not sustainable and that a risk-based approach is required to facilitate reopening of borders and recovery of international travel, consistent with WHO guidance.

In order to rebuild consumer confidence and facilitate operational implementation, risk frameworks should be clear and transparent to enable them to be communicated to and understood by all stakeholders. Predictability and stability are also required to further accelerate recovery of demand and a return to more normal travel patterns. At the same time, risk frameworks should be subject to regular review and should be updated periodically as the COVID-19 situation evolves.

International guidance

WHO recommends that States implement a risk-based approach to the facilitation of international travel in the context of COVID-19[2]. WHO advises that States should be transparent on the use of travel measures and their public health rationale. In accordance with the International Health Regulations, public health risk mitigation measures such as masking, testing and vaccination should be based on risk assessments and consider local circumstances.

Key principles

Predictability and stability are critical for enhancing traveler confidence and to support airlines and other industry stakeholders with operational planning. Where rules change at short notice and based on fluctuating criteria, a significant share of would-be travelers will be deterred from flying or will only book at the last minute. It is clear that, while there has been significant pent-up demand when markets initially reopen, it is important for markets to remain open based on a consistent and stable set of measures in order to provide certainty for consumers and facilitate sustainable recovery in travel.

Clarity and transparency are important to support predictability. Where this transparency is absent and rules without warning or a clear rationale, this leads to operational disruption and erodes traveler confidence. States should make information available about the criteria that are used in the risk assessments including relevant input data as well as the calculation methodology.

Regular review and updating of risk frameworks are important to ensure that they evolve as understanding of the virus and the associated epidemiological situation shifts. In line with the previous point around predictability of the system, where changes to risk frameworks are recommended these should be announced significantly ahead of implementation which clear discussion of the relevant triggers for the changes.

As an example of a recommended adjustment to frameworks, as vaccination rates in the local population increase and dilute the link between cases and mortality, States should consider using measures such as hospitalizations as leading indicators in their risk frameworks rather than simply using case numbers.

Non-discrimination: Risk frameworks should be non-discriminatory with regard to international travel and should be consistent with and complementary to domestic policy. In practice, if the domestic economy is open without or with very few restrictions, then international travel should also be facilitated. Similarly, the measures applied to air travel should be consistent with those applied to other transport modes, including private vehicles.

[2] World Health Organization, Policy considerations for implementing a risk-based approach to international travel in the context of COVID 19, 2 July 2021

3. Health status protocols

States should implement a consistent, stable and streamlined set of health protocols to make measures easier for travelers to follow and support the transition of international travel from restart to recovery.

Vaccination offers the single best protection against COVID-19 and States should work to ensure that vaccines are available to all as quickly as possible, in particular facilitating vaccine supply for low-income countries.

Vaccinated travelers should not face any additional barriers. For those without access to vaccines, including minors, testing should enable quarantine-free international travel. Antigen tests are the key to cost-effective and convenient testing regimes and governments should pay for testing, so it does not become an economic barrier to travel.

The health protocols in place in the European Union are a good example of a risk-based approach that is consistent with the recommendations set out in this document.

International guidance

The WHO policy guidance on risk-based approaches to international travel recommends that States should not require proof of COVID-19 vaccination as a mandatory condition for entry to or exit from a country while vaccine supply remains limited in many parts of the world.

The guidance does, however, support facilitating international travel for those travelers who are fully vaccinated or have proof of a previous SARS-COV2 infection by lifting other measures, such as testing or quarantine requirements. Where States facilitate travel for such passengers, testing should be offered as an alternative for individuals who are unvaccinated or do not have proof of past infection.

Vaccine equity

Vaccination is the best available protection against COVID-19. The development of a number of vaccines, all of which are highly effective in reducing infection, severe disease and death, in such a rapid timeframe is a huge achievement and a triumph of modern science and technology.

The airline industry is fully committed to performing its crucial role in the global vaccine distribution effort. The industry was quick to develop new global standards to facilitate the movement of COVID-19 vaccines in what is one of the most sophisticated global logistics operations ever undertaken and airlines have shipped hundreds of millions of doses around the world, including collaborating with the COVAX facility to support fair and equitable delivery of vaccine doses in low-income and developing countries.

States should redouble efforts to make vaccines available to all as quickly as possible in order to accelerate the end of the pandemic and the transition out of the acute phase of endemic COVID-19. Promoting vaccine equity will limit the economic and social devastation caused by COVID-19 and help minimize the potential for the emergence of new variants. It will also ensure that travelers in all regions of the world are able to

return to international travel on equal terms, to ensure that no country is left behind in the global aviation recovery effort.

Vaccination

Travelers who are able to provide proof that they are fully vaccinated should be able to travel freely without additional barriers, such as country-based risk measures. States should recognize all vaccines on the WHO Emergency Use List (EUL), including combinations of different EUL-listed vaccines.

In view of the limited global supply of vaccine doses and the WHO call for a moratorium on booster jabs until the end of 2021 or until 40% of the population in all countries has received a first vaccine doses, booster jabs should not be a requirement for international travel. This is also consistent with widespread evidence that all EUL-listed vaccines provide lasting protection against severe disease and death in most population groups and supports shift to risk assessment based on the level of population-based protection in the destination country as suggested in the previous chapter.

Similarly, travelers under 18 should be exempted from vaccination requirements, with testing protocols put in place to enable quarantine-free travel for unvaccinated minors. Travelers who can provide proof that they are participating in a vaccine trial, should be considered as fully vaccinated for the purposes.

Scientific evidence indicates that the EUL-listed vaccines are all very safe and that there are very few reasons to justify a medical exemption from COVID vaccination.

In cases, where an individual experienced side effects from the first dose of a multi-dose regime, a second dose of a different vaccine should be offered and this combination should be recognized as full vaccination. Transport Canada's Medical Exemption policy for transportation workers is a good example of a simple to implement approach that is consistent with the restrictive view on exemptions.

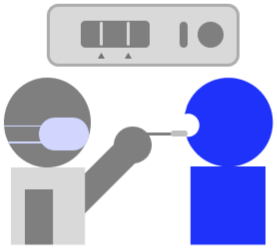
Recovery from past infection

Individuals who are able to provide proof a previous SARS-CoV-2 infection, as confirmed by real time RT-PCR (rRT-PCR) are considered to have significant immunity from reinfection. Such individuals should be treated as equivalent to vaccinated travelers during a period from ten days after the positive test until six months after the positive test.

Testing

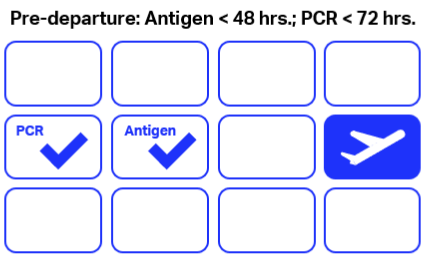
Testing can enable those without access to vaccines to travel without quarantine. Where testing is implemented as part of the travel process, the requirements should be clear and simple to follow and testing should be easily available in the local community. Pre-departure testing is preferred and governments in arriving countries should accept pre-departure tests in order to remove the need for post-arrival testing. Travelers should be able to access testing in a timely fashion to enable them to take the test and

1 Promote the use of antigen tests



Antigen is as effective as PCR in detecting the Delta variant

2 Test prior to the first point of departure



Test as close to travel as practical

3 Governments should pay the cost of testing

States should follow Article 40 of the IHR

receive results ahead of travel. Governments should cover the cost of testing and should avoid placing the financial burden on international travellers in accordance with Article 40 of the IHR.

The rapid diagnostic antigen tests (Ag-RDTs) that are listed by WHO for emergency use or approved by other stringent regulatory authorities offer very high performance levels that are similar to those of PCR tests. The dynamics of the Delta variant, with a shorter incubation period and high viral loads compared to the wild-type virus or other variants, mean that any differences in detection rates between PCR and antigen tests are further reduced, in particular where antigen testing can be performed closer to the time of travel.

Antigen tests are the key to implementing cost-effective and convenient testing regimes. In comparison to PCR testing, antigen tests are relatively inexpensive, and most can be used at the point-of-care. Most of the currently authorized antigen tests return results in approximately 15–30 minutes.

Where testing measures are in place, antigen tests performed within 48 hours of the scheduled departure of the first flight of a journey should be accepted and for PCR tests, 72 hours before departure should be allowed. Where an antigen test performed at the departure airport gives a positive result, a confirmatory test should be performed (either another antigen test or a PCR test).

Implementation of risk-based frameworks and health protocols in Europe

Risk-based frameworks

Europe has implemented two risk assessment frameworks. The first applies to travel, based on a color-coding scheme, and the second applies to non-pharmaceutical interventions to be implemented locally in function of the epidemiological situation.

The color-coding framework is applied intra-Europe and is based on ECDC data relating to SARS-COV2 incidence and test positivity rate. For travel from countries that are rated as green, no restrictions apply. For orange or red countries, additional measures may be implemented. In addition, when the epidemiological situation in a third (i.e. non-EU / EEA) origin country improves sufficiently, the Council can include it on the list of countries from which all travel should be possible, regardless of vaccination status – the so called "white list".

Since July 2021 the European Commission has recommended that everyone who is fully vaccinated with vaccines authorized by the European Medicines Agency should be able to travel to the EU for any purpose regardless of the country from which they are traveling. Many European States accept travelers with any vaccine from the WHO Emergency Use List and IATA encourages other States to align with the WHO. This shift from country-based assessment to individual-based measures is important and IATA encourages those States who have not adopted a similar approach to replicate this policy.

Spain has translated the European guidelines into law to ensure full adherence. France, Greece and Portugal are other examples of countries with a very high degree of alignment to the recommendations.

Health protocols

The European model is also a good example of implementation of an approach to health protocols that is consistent with the approach set out in this Chapter. Under the Regulations supporting the EU Digital COVID Certificate, travelers can obtain a certificate through each of the channels set out here, namely: full vaccination against COVID-19, a negative test result or proof of past infection. Travelers who hold an EU Digital COVID Certificate (or equivalent documentation from one of the 18 non-EU countries that have joined the DCC system) should be exempt from further restrictions.

4. Health status credentials

Digital solutions to certify and verify health status (vaccination, past infection, test results) using QR codes both in paper and electronic form are being deployed in a growing number of countries. Well-designed digital solutions have many benefits including user-friendliness, reduced fraud and pre-travel verification.

Digital solutions should be interoperable with the systems used by other countries to support mutual recognition and acceptance of health credentials issued by different states as functionally equivalent, They should also ensure adequate protection of travelers' personal data and support pre-travel processes as well as complying with international standards and guidance as defined by the WHO and ICAO

Digital health credentials should support use in both paper and digital format. Credentials should be produced in the national language(s) of the issuing country as well as English and be provided free of charge.

The European Digital COVID Certificate (DCC) is a good example of a digital health credential that is in use in all 27 European Union Member States with credentials in 18 non-EU countries having achieved equivalence with the DCC standards. Digital solutions based on open standards, such as IATA Travel Pass help travelers to store and manage their verified certifications for COVID-19 tests or vaccines while protecting their privacy. The EU DCC and IATA Travel Pass are complementary solutions.

Key principles

For global air travel to resume at scale, digital health credential solutions should adhere to the following principles:

- **Interoperability**: A solution to declaring passenger health data needs to be interoperable, scalable, affordable and simple to implement, as well as being consistent with international guidance and standards.
- **Protection of privacy**: Solutions should address the risks of proliferation of personal medical data and adequately protect traveller privacy. Linked to this, solutions should not rely on airlines collecting or storing health or travel history information but encourage the processing and verification of required data off-airport.
- **Pre-travel processing**: Any declaration should be done in advance of travel to avoid burdensome processes, queues and congestion at airports.

International guidance

The WHO has prepared technical specifications and implementation on the Digital Documentation of COVID-19 Certificates focusing specifically on Vaccination Status.

ICAO has established a minimum data set for vaccination certificates, testing certificates and proof of recovery certificates in order to facilitate States' recognition and harmonization of their use for air travel. The minimum information to be recorded on the certificates is set out in the ICAO Manual on COVID-19 Cross-Border Risk Management.

Characteristics of health credentials

In addition to consistency with the guidance published by the WHO and ICAO as set out above and in order to support security and Interoperability with other governments, IATA recommends that health credentials for use in the international travel journey should have the following characteristics:

- A 2D barcode or QR code with openly accessible specification is required as a display method available both on paper and digital devices.
- Health certificates should always be digitally signed to allow for their authentication. A unique vaccination certificate identifier (UVCI) with digital signatures should be generated to secure certificates issued manually.
- Public keys required to authenticate all digital signatures must be openly accessible to all non-State verifiers including airlines.

Verification of health credentials

Many governments require travelers' COVID-19 status to be determined prior to departure. Some States are expanding the use of existing web portals to allow travellers to upload test and vaccination certificates in addition to other health information needed for contact tracing.

The verification of health credentials, whether via web portals or application, is a responsibility for governments and should result in the issuance of an authorization confirming that the passenger meets the government requirements including health requirements and is "OK to travel". Passenger data privacy must be protected and airlines should not be required to access, validate or store travelers' medical data.

Confirmation of the "OK to travel" should be provided in such a way that, where airlines are responsible for validating that the passenger possesses the appropriate authorization, the validation process can be automated and allow the passenger to demonstrate they possess the authorization before arriving at the airport or, where needed, through self-service options at airports. Manual document verification should not be part of this solution as this will cause congestion at airport check-in, border control and other checkpoints which is contrary to the contactless travel experience recommended by ICAO.

IATA recognizes that not every government will put in place solutions for direct passenger to government transmission of documentation required to travel and that there may be cases where governments need to delegate the responsibility to verify the health status of inbound travelers. IATA has therefore developed IATA Travel Pass as a tool that can perform the verification of required documents held by the passenger and generate an "OK to travel" authorization. This allows for automation while avoiding the need for airlines to collect or store health of travel history information. IATA Travel Pass is described in more detail below.

Practical implementation of health credentials

This section presents two "good practice" examples, one of a digital health credential solution and one of a verification tool and considers how the two initiatives are complementary.

EU Digital COVID Certificate (DCC)

An EU Digital COVID Certificate (DCC) is a digital proof that a person has either been vaccinated against COVID-19, received a negative test result or recovered from COVID-19.

The DCC meets several key criteria which have been identified as important if a digital vaccination certificate is to be effective and IATA considers that it could form the basis of a global standard for digital vaccine certificates:

- **Format**: The DCC has the flexibility to be used in both paper and digital format. The certificate is produced in the national language(s) of the issuing country as well as English and is provided free of charge;
- **QR code**: The DCC QR code can be included in both digital and paper format. It contains essential information as well as a digital signature to make sure the certificate is authentic;
- **Verification and authentication**: The European Commission has built a gateway through which the encrypted data used to sign DCCs and required to authenticate certificate signatures can be distributed across the EU. The gateway can be also used to distribute encrypted data of non-EU certificate issuers to other issuers. The EU has also developed a specification for machine readable Validation Rules for cross-country travel.

The EU DCC is implemented in all EU Member states and EEA countries. In the absence of a single global standard for digital vaccination certificates, third countries may also seek an EU DCC equivalence decision for their own COVID-19 certificates. An equivalence decision confirms that COVID-19 certificates issued by a third country adhere to the standards and technological systems interoperable with the EU DCC Trust Framework and contain the data set out in the Annex to

Regulation (EU) 2021/953. At the time of writing, 22 third countries have obtained an equivalence decision from the EU and up to 60 other countries are looking to use the DCC specification for their own certification.

The DCC is a good practice model for States to adopt or align with as it is consistent with the latest World Health Organization Guidance and is fully supported by IATA Travel Pass. Another benefit of the DCC is that it enables holders to access non-aviation sites that require proof of vaccination, such as museums, sporting events and concerts, in Europe and in third countries with EU DCC equivalency.

IATA Travel Pass

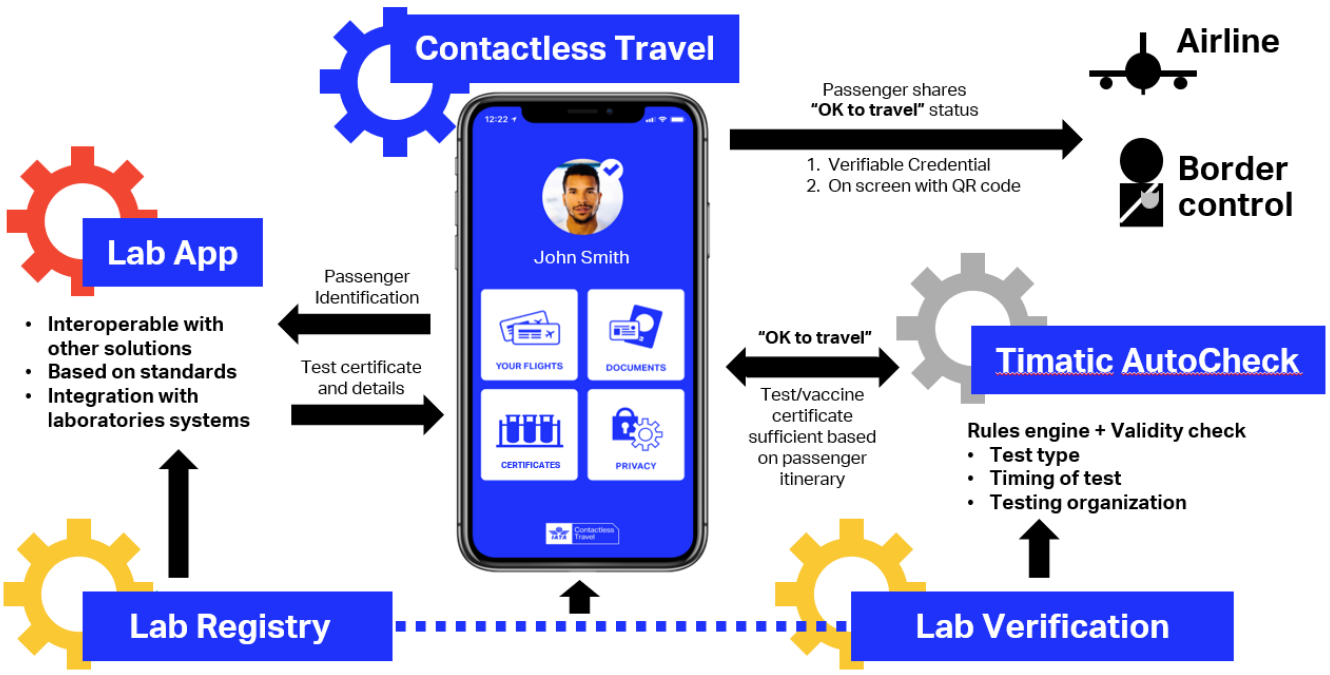
IATA Travel Pass is a mobile application that helps travelers to store and manage their verified certifications for COVID-19 tests or vaccines. It is more secure and efficient than current paper processes used to manage health requirements (the International Certificate of Vaccination or Prophylaxis, for example). This is important given the huge number of health credentials that will need to be securely managed as international air travel restarts and while vaccination and testing requirements remain in place.

The graphic below shows how the different modules can combine as an integrated system.

IATA Travel Pass consists of four key modules:

- A **Registry of Health Requirements** (powered by IATA Timatic) enables passengers to find information on travel, testing and vaccine requirements for their journey.
- **A Registry of testing centers**, helps passengers to find vaccination facilities and testing centers at their departure and/or arrival location that can perform vaccination or conduct COVID-19 tests in accordance with the type of test required for their journey.
- A **Lab App** enables authorized vaccination and testing centers to securely send vaccination certificates or test results to passengers.
- The **Travel Pass App**, enables passengers to:
  - Create a 'digital passport',
  - Upload and verify COVID-19 certificates
  - Locate a testing center
  - Verify that their vaccination and/or test meets the regulations and
  - Share their "OK to travel" authorization, their health credentials and other documentation that may be needed for travel such as digital passport, biometrics and Passenger Locator Forms (PLFs) with authorities to facilitate travel.

The Travel Pass App can also be used by travelers to manage all travel documentation digitally and seamlessly throughout their travel experience.



The IATA Travel Pass can read, ingest, and authenticate a vaccine QR code once its technical specifications and the public key information are shared with IATA. This is already possible for the EU DCC ensuring that the two solutions are compatible and complementary. The IATA Travel Pass will also read and verify COVID-19 vaccination certificates issued compliant with the open specifications for the ICAO VDS and the Smart Health Card as well as a number of other country specific vaccination certificates.

Complementarity of the EU DCC and IATA Travel Pass

The EU DCC is a health credential; a digital or physical QR code-equipped COVID-19 test, vaccination or recovery certificate that is issued by the appropriate authority in a given country. IATA Travel Pass is a verification tool; a technical solution that can be used by travelers to check that their certificates meet the entry requirements of their destination and then to communicate required information from passenger's device directly to airlines, airports and government authorities. As such, the tools are complementary.

IATA can offer Government authorities an easy integration with IATA Travel Pass so that passengers can use the application to send their health credentials, passport details and any other required information direct to digital services operated by governments such as pre-arrival declaration platforms or Border control inspection systems. This service will enable Government authorities to undertake advance risk assessment and pre-clearance of incoming or transiting passengers.

Governments can verify the information they receive, or they may consider delegating the verification of the various health certificates to IATA Travel Pass service, for example, when the digital services or public key information are not available for that authority.

5. Contact tracing

Contact tracing and the provision of health data provide an additional layer of risk mitigation for governments, enabling outbreaks to be managed and potentially contained. Therefore, many governments are requiring certain passenger information to be provided as a condition for international travel.

Key principles

Where Governments require health data to be collected, the process should be digital and based on a standardized set of information to avoid a patchwork of different reporting requirements. Fully paper-based solutions should be avoided. Use of a single government web portal or application will simplify provision of the information by customers as well as enabling government verification ahead of the start of the travel journey.

There needs to be a clear definition of roles and responsibilities between travelers, governments and airlines. The ideal scenario is for the traveler to provide the information directly to the relevant government. Airlines should neither be intermediaries in acting as health information broker on behalf of government authorities, nor the decision taker on the admissibility of the passenger.

The role of contact tracing

The World Health Organization (WHO) recognizes contact tracing along with robust testing, isolation, and care of cases as a key strategy for interrupting chains of transmission of COVID-19 and reducing mortality. WHO recommends that the trigger to commence contact tracing is detection of a probable or confirmed case. Individuals who have been in contact with this case are identified and instructed to quarantine to avoid further transmission of the virus. Identifying the source of infections through case investigation (known as 'backward tracing') is key to detecting unrecognized chains of transmission and common points of exposure.

Case investigations can help to identify additional contacts at particularly high risk of becoming ill with COVID-19. At national level, source investigations help identify risk factors and allow development of targeted public health and social measures. Moreover, the WHO notes that "As COVID-19 vaccines begin to deploy in many countries, it remains important to enhance existing public health strategies like contact tracing and quarantine to stop further transmission". In the context of international travel, community-level contact tracing is an important complement to measures applied during the travel experience and at the border and therefore play a role as part of a multi-layered, risk-based approach.

If States have effective contact tracing as an additional backstop and can stop clusters of infection from spreading into the community, this should increase their confidence to reopen borders and keep them open even in the event of outbreaks as will they be able to contain any imported cases.

Therefore, IATA urges States to go beyond simply collecting data to allow contact tracing of international arrivals and use the comprehensive guidance developed by ICAO and WHO to establish a multi-layered approach according to the risk level, including a robust national contact tracing capacity for the control of COVID-19. The WHO guidance sets out how to prioritize contact tracing activities based on local epidemiological situation as well as advice and support on community engagement, data, and digital applications.

Provision and collection of data

Many governments are collecting health information from travelers in addition to contact tracing to enable the containment of COVID-19 outbreaks in the immediate post-travel period. Several states have set up dedicated mobile applications and web portals to which travelers can upload the required information (for example, recent travel history, possible contacts with infected individuals and contact information as well as proof of compliance with any other requirements).

Government web portals and mobile applications enable authorities to verify the completeness of the contact tracing information provided by the travelers. Some States such as Canada (ArriveCAN) and Switzerland have expanded the use of existing web portals to allow travelers to upload test and

vaccination certificates in addition enabling the authorities to confirm that the traveler is "OK to travel". As the information exchange is directly between the traveler and government authorities, passenger data privacy should be ensured.

Digitally verifiable solutions are preferred to paper-based declarations or forms which require manual verification as they increase processing time at airports for both airlines and authorities. Moreover, paper-based forms are not easily searchable and prevent authorities to ensure effective follow up with individuals. In addition to the inconvenience to travelers, additional processing time at checkpoints increases the likelihood of queues and congestion which could create a risk of transmission.

Implementation of contact tracing, web portals and applications

Australia

Australia is planning to bring the validation process to an even more secured and contactless level through the introduction of the Digital Passenger Declaration (DPD) platform. This will enable passengers to upload and submit their digital passport, proof of vaccination and pre-departure negative test result along with other identity and health-related information prior to departure. The information submitted will be reviewed by the authority and passengers will be given confirmation once all the requirements are met.

Airlines will be automatically notified through the interactive advance passenger information system (iAPI), a seamless process which provides the airline the result of the assessment of the government system for each passenger based on national requirements. This will enable airlines to rely on the iAPI response at check-in without having to check individual travelers' health-related documents or any form of government's approval.

Once the DPD and iAPI are implemented, it should enable a fully automated check-in process with reduced processing times and a much lower operational burden for airlines.

In addition, the arrival process is also expected to be automated for fully vaccinated passengers as they will be able to use the automated border control gates.

Singapore

The Singapore Government has announced plans to streamline and digitize the collection of health information from passengers. As Singapore reopens its borders on a larger scale and to travelers from more countries, the intention is to enable passengers to upload their vaccination certificate when they apply for approval to enter Singapore or when they submit their electronic SG Arrival Card.

This will remove the need for manual checks of the documents by immigration authorities upon arrival, and thus will speed up border clearance. Singaporean citizens and residents who have submitted their health information in advance will be able to use automated border control gates for faster immigration clearance.

Aruba

Aruba was among the first countries to roll out a complete web portal for travelers to upload their information. Through the Embarkation / Disembarkation web portal, known as ED card, travelers submit information such as basic personal and travel information, details about possible exposure to COVID, insurance coverage and consent to cooperate with authorities during the stay. The proof of successful completion of the ED card process is provided by email and is to be showed digitally or in a printed form to the airline staff. Testing or vaccination certificates are to be uploaded to the Aruba Health App prior to travel.

Canada - ArriveCAN

With the Canadian ArriveCAN mobile application, travelers have to submit their health information within 72 hours before their arrival to Canada. Information to be provided includes contact information, purpose of travel, travel itinerary, proof of vaccination, pre-entry test results, travel history and the quarantine plan. Upon completion, a receipt is provided to the travelers, which has to be presented to the airline and to a border officer (through the mobile app or a printout).

6. Consumer communication

IATA's polling of consumers found that the patchwork of complex and confusing COVID-related health rules and requirements when they travel is a barrier to travel. 73% of respondents who had traveled since June 2020 found it challenging to understand what rules applied for a trip and said COVID-19 paperwork was challenging to arrange.

There is a need for governments to make it easier for passengers to get access to clear, reliable and timely information on any health protocols and other measures that apply to their trip and how to comply with those requirements.

Switzerland's interactive "Travelcheck" tool is a good example of web-based tool that enables travelers to Switzerland to understand the requirements for the journey.

Consumer research findings

Since the beginning of the pandemic, IATA has been polling consumers in 11 major aviation markets around the world to understand their attitudes towards air travel during COVID-19. The most recent wave – the seventh since February 2020 – was conducted in September 2021 and included a total of 4,700 participants.

Sample results below from the September 2021 Air Traveler Response to COVID-19 survey.

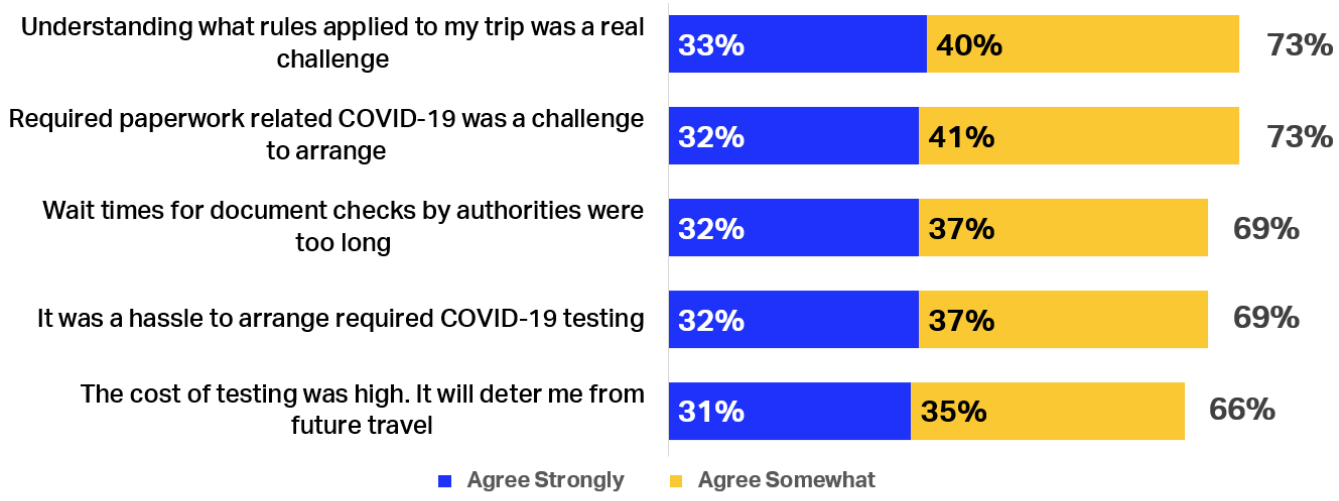
The focus of the survey has evolved with each wave as issues surrounding COVID-19 change. The latest survey explored passengers' beliefs about many of the issues covered in this Blueprint, such as vaccinations, testing and how they should affect travel regulations as well as digital travel solutions for verifying health credentials.

Overall, three-quarters of survey respondents reported that their quality of life has suffered as a result of COVID-19 travel restrictions. Most missed was the loss of freedom that comes with flying followed by various aspects of being able to connect with other people.

Frustrations with travel restrictions is high and has increased since June 2021. Similarly, belief that air travel restrictions go too far has increased eight points since June. Quarantine remains a significant barrier to air travel and is viewed as unnecessary for those who are vaccinated or test negative.

While public health risk mitigation measures are seen as necessary at the current time, consumers are clear that they should be eliminated as soon as possible and consistently across countries.

As noted in the introduction to this section, with regard to health rules and requirements, the survey found that the patchwork of complex and confusing COVID-related health rules and requirements is confusing for travelers. 73% of respondents who had traveled since June 2020 found it challenging to understand what rules applied for a trip and said COVID-19 paperwork was challenging to arrange.



*Numbers may not always add up due to rounding. Q2. Have you taken any airplane trips since June 1st, 2020? [IF YES IN Q2] Q3. When thinking about your most recent airplane trip, do you agree strongly, agree somewhat, disagree somewhat or disagree strongly with each of the following statements?

Communication of travel rules

WHO's guidance on risk-based travel in the context of COVID-19 calls on States to communicate travel-related measures and requirements in a timely and adequate manner to promote and facilitate adherence to them by travelers.

Communication on travel measures and requirements should use clear and unambiguous language and provide clear definitions to avoid confusion. Information about relevant requirements should be provided in several languages: at a minimum the local language(s) and English as well as other languages according to major travel markets and other target populations.

Tools to facilitate communication of travel rules

A number of States have introduced tools to help travelers to a country navigate the entry requirements for their journey.

Swiss interactive "Travelcheck" tool

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Swiss interactive "Travelcheck" tool

Switzerland's Travelcheck tool enables travelers to Switzerland to understand the requirements for the journey as a function of their itinerary, in other words taking into account their departure country and any other countries visited in the period before entry to Switzerland as well as their health status.

The Travelcheck comprises of a number of multiple option questions, addressing the following topics:

- **Immigration status**: whether the individual is a Swiss national, has residency, is covered by freedom of movement rules or has an appropriate visa;
- **Countries visited**: documenting all countries that the traveler has visited in the 10 days before entering Switzerland;
- **COVID-19 vaccination status**: whether the traveler has been fully or partially vaccinated, and if so with which vaccine, or has proof of a prior infection with COVID-19.
- **Exemptions**: whether the traveler is subject to any specific exemptions, for example applying to transiting passengers or transport workers.

Based on these answers, the Travelcheck tool advises whether the traveler is entitled to enter Switzerland and what conditions apply.

7. Air travel post-pandemic

Governments and industry stakeholders should start preparing now for the transition to a situation in which the measures set out in this document are no longer required and in which there will be a return to a more normal flying experience.

At the same time, COVID-19 has highlighted the need to accelerate the adoption of technology solutions to provide a genuinely contactless, safe and seamless travel experience to passengers.

Finally, Governments and industry must ensure that aviation is better prepared for future health emergencies, including better collaboration and communication between aviation and health sector at local, national and international levels.

Towards the removal of COVID-19 health protocols

As the world transitions from pandemic to endemic, there is a need to prepare to the gradual and progressive relaxation and removal of the public health measures that are currently in place for international air travel.

Measures should remain in place only for as long as they are needed. As with aviation safety regulation, sunset clauses and defined review periods are important. It is also important that the removal of measures is carried out in a managed and coordinated manner given the global nature of the air transport industry and the need for international consistency, not least to reinforce consumer confidence and facilitate compliance with rules.

At an international level, ICAO – through the CAPSCA mechanism – should commission an evidence-based audit of all public health measures that are included in the CART Take-Off Guidance and the Manual on Cross-Border Risk Management. At a national level, governments should set out roadmaps for the relaxation of measures and paving the way for a return to more normal operations and an enhanced traveler experience that will support the sustainable recovery of travel demand.

As our understanding of the SARS-COV2 virus and its dynamics of transmission has evolved, it has become clear that some measures are not effective or that their benefit is small in comparison to the cost and disruption that they cause. Temperature screening is an example of a measure that remains widespread despite considerable evidence that its effectiveness in detecting positive cases is very low. Similarly, high frequency deep cleaning and disinfection of aircraft is not justified given that the evidence indicates very clearly that surface spread is not a major driver of transmission and given the considerable cost and time that such protocols involve. These measures should be relaxed immediately.

Other elements of the multi-layered risk mitigation framework should be subject to regular review, and where such measures are implemented through regulatory mandate, the supporting legislation should be subject to sunset clauses with a review period every 3 months to identify the scope to relax measures as they are no longer justified given the evolution of the health situation.

Future developments in the Passenger Process

The 2020 Covid-19 pandemic and industry crisis has shown the urgent need to provide a contactless safe and seamless airport experience to passengers. While it remains difficult at this point to know with any certainty how the industry will evolve, there are trends to observe, and we can expect continued growth in digitization and the application of technology to increase efficiency and improve passenger experience as well as comfort safety. Passenger surveys report that reducing the need for queueing at airport counters and interacting with staff and other passengers are among travelers' top priorities.

Over the past two decades, air travel has been reinvented to put passengers in control of their journeys through self-service processes. These innovations enable travelers to arrive at the airport essentially "ready to fly". With digital identity technology, border control processes are also increasingly self-service using e-gates. The integration of health credentials into already automated solutions, based on globally recognized, standardized, and interoperable digital certificates,

is a key for the restart, recovery and return to normal of the air travel experience.

The rapid development of technology and tools such as the IATA Travel Pass is already contributing to restart and recovery efforts. These smartphone based tools to manage passenger health credentials and identity information have been developed based on open standards, open APIs[3] and the IATA One ID concept where the passenger's biometric information is captured and verified. As recovery continues, the investments made in these technologies can be leveraged to achieve a completely seamless end to end passenger process.

Biometric recognition and trusted digital identity are key to the One ID concept for enhancing the passenger's airport experience while improving the efficiency and security of paperless identification processes. Efficiency will increase by lifting current repetitive processes, such as the passenger having to present travel tokens (health credentials, boarding passes, travel documents, travel authorizations, etc.) at multiple touchpoints across their journey.

With the COVID-19 crisis, passengers' concerns and demands are changing. IATA's consumer poling found that once the pandemic has subsided, 84 per cent of travellers would feel safer having contactless processing throughout the airport. This is complemented by 65 per cent of travellers being extremely concerned or somewhat concerned by handing over their passport, phone or boarding pass to airline, airport and border officials. In addition, 73% are willing to share their biometric data to improve airport processes, a large increase from 46% in 2019.

Contactless processing

Contactless passenger processing at airport touchpoints enables physical interaction between people to be minimized and limits the exchange of documents; helping to protect passengers, as well as airline, airport, security and government employees from cross-contamination. In addition, the passenger is less likely to be required to queue at control points making the management of social distancing easier while addressing airport capacity limitations at the same time. The increased use of advanced technologies to facilitate contactless processing of passengers has also been outlined as a key principle as part of the ICAO CART guidelines.

Direct passenger information exchange

Web portals and applications facilitate the secure and efficient exchange of information from passengers to airlines and governments in the face of growing information requests. These tools empower passengers with the capability to understand and comply with additional government requests during times of emergency and leverage the opportunity to directly and securely communicate personal health, identity and biometric information.

Decentralized identity management

Leading edge technology solutions using decentralized identity management are transforming the way identity data is shared and verified. These solutions put passengers in control of their own data and able to share only the minimum data or proof required for any transaction directly with airline, airports or governments via a secure and encrypted channel of communication. This protects against exposure of personal and sensitive identity, health and biometric data by removing the Airline as the 'middleman' and removing the need for the centralized storage of personal data by industry. This technology allows airlines, airports and government authorities to confirm information has been provided and assure that the passenger's collected information has been verified pre-travel and off-airport

Interactive decision-making

The concept of interactive decision making is based on better control for passengers to personalize their travel experience, based on improved communication and coordination of data sources. Interactive decision making becomes even more key in a post-COVID-19 world, where

[3] **API: Application Programming Interface**

customers need up-to-date and accurate information about travel requirements and passenger travel authorizations including health information.

Passengers need to be enabled to customize their travel journey prior to their arrival at the airport. From purchasing parking to selecting retail and concession options to arrive at their gate, advanced API integration will allow for a personalized and contactless experience from curb to gate. In addition, APIs can support the exchange of relevant information between all stakeholders to ensure passenger are 'ready to fly' when they arrive at the airport and improve the management of airport capacity addressing predicted capacity constraints in advance.

COVID-19 has put greater focus on the need for a flexible approach and resilience. In turn, this brings an urgency to put available technology to use, to provide this flexibility and unlock the full benefits which are achieved with global coordination rather than isolated approaches.

Preparation for future public health events

The effort to reopen borders and restart international air travel has not been straightforward and there is still a long way to go in order to achieve a strong and resilient recovery. Given the possibility that pandemics may be more common in the future, the challenges that COVID-19 has highlighted need to be addressed to put the whole aviation sector in a better position to face future health events.

COVID-19 has highlighted the challenge of developing a set of public health mitigation measures in the middle of an emergency. An immediate priority should be to develop an agile and proportionate risk-based framework that States can adapt to the specifics of future health emergencies - recognizing that they may be very different to COVID – and deploy rapidly to mitigate the disruption to international travel and trade and to support a much quicker recovery than has been the case during this crisis.

COVID-19 has also illustrated the limitations of the international legal framework as codified in the International Health Regulations (IHR). Those Regulations are currently under review by the World Health Organization. It is essential that aviation stakeholders are involved in that review and that the perspective of the industry is taken into account. More generally, there is a need for more cross-sectorial collaboration at global and national levels.

8. Moving from restart to recovery: A blueprint

Taken together, the policy recommendations and good practice examples set out in this document form a blueprint for a simpler, more predictable and more consistent approach to air travel in the context of COVID-19.

As the world moves from a pandemic emergency to learning to live with COVID-19 as an endemic disease, restoring global mobility is crucial for reconnecting societies and facilitating economic recovery.

The blueprint identifies three focus areas to make the international air travel experience simpler, more predictable and more consistent:

- Adoption of simplified health protocols;
- Implementation of digital solutions to process traveler health information;
- Application of proportionate, risk frameworks subject to regular review

Simplified health protocols

The ICAO HLCC recognized the importance of working to achieve the greatest degree of harmonization possible. This is strongly supported by consumer research. The objective should to implement a set of protocols that are simple, consistent and predictable.

Key recommendations include:

- Removal of all travel barriers (including quarantine and testing) for those fully vaccinated with a WHO-listed vaccine.
- Enabling quarantine-free travel for non-vaccinated travelers with a negative pre-departure antigen test result.

Digital solutions to process traveler health information

The management of travel health credentials should be handled digitally and enable travelers to complete the process in advance so that they can arrive at the airport ready-to-travel. This will facilitate automated check-in procedures, reducing airport crowding and wait-times.

Key recommendations include:

- Implementation of digital health credentials to record health status.
- Implementation of a digital web portal or application through which passengers can provide relevant health information directly to governments for verification.
- Implementation of a web-platform to provide clear explanations of entry requirements tailored to an individual traveler's residence status, heath status, travel history and any other required variable.

Proportionate risk frameworks subject to regular review

Governments and industry have amassed crucial and vast experience with COVID-19. This will continue as COVID-19 becomes endemic. The approach to international travel should adapt to reflect this growing knowledge, changing risk levels and societal tolerance.

Key recommendations include:

- Publication of the risk assessments that are used to make decisions relating to international travel to enhance predictability for both consumers and industry
- Regular review of existing processes and application of "sunset" clauses to public health measures to ensure that they are only in place for as long as needed
- Development of a roadmap for restoring aviation connectivity in the post-pandemic phase and preparing for future public health events.