Relaunching international travel

Response and recovery strategies for airports in the wake of COVID-19
Executive summary

The COVID-19 pandemic is forcing airports to consider a raft of changes to attract people back to flying both domestic and internationally. At a minimum, it is expected that a number of modifications to airport infrastructure and operating processes will need to occur.

This report examines the current state of the aviation sector and the type of changes governments, airports and airlines across the world are trialling that will influence the passenger journey. These changes fall into three key areas:

1. Safety, health and hygiene
2. Core operations and social distancing
3. Regulations and policies

There are already some clear trends emerging. For example, the use of smart devices to organise and comply with COVID-related restrictions has increased dramatically in recent months, which means the concept of contactless processing for a passenger’s entire end-to-end journey is now much more feasible. Already many airports across the world are partnering with passenger solution platforms to help implement contact free experiences.

Furthermore, journeys in the future will almost certainly include some form of pre-departure testing to ensure the health and safety of passengers and aviation employees. In some countries, smart phone apps are being explored which allow passengers to access and show airline officials test results, which could streamline the process and reduce the need for paper documents. However, these apps bring concerns regarding their costs and approvals.

When it comes to the way airports operate, COVID-19 has proven that cities are no longer a region’s sole urban hub. In planning for the future and selecting technologies to implement, airports will need to consider the business case for becoming a carefully designed ‘aerotropolis’, not only to attract customers, but to also minimise community levels of exposure.

To be resilient and adaptable to inevitable changes, airlines and airports must be prepared to diversify their revenue streams.

Additionally, Etihad Airways is trialling a range of self-service thermal imaging to estimate vital signs, as well as robotic cleaners, while some airports are looking into advanced CCTV. But, determining whether these kinds of technologies are temporary or the ‘new normal’ poses another obstacle.

While it is challenging to predict passenger trends moving forward, it is clear that the end-to-end journey needs to be a user centric one that places the passenger, not the process, at the centre of the experience.

The trials and adoption of new technologies have proved a contactless and safer way forward, but there remains a gap to the adoption of a globally consistent approach. Collaboration between government, airports, airlines, key stakeholders and industry will be critical to restore passenger confidence.

To be resilient and adaptable to inevitable changes, airlines and airports must be prepared to diversify their revenue streams.
COVID-19 impacts on the Aviation Sector

No industry has been impacted more than aviation. After years of revenue growth from surging travel and tourism, airports are facing months, and potentially years of losses that will place pressure on thousands of employees and on the jobs the industry supports.

Demand for travel decreased by 97 percent at the beginning of the pandemic and by October 2020, demand had barely recovered to 30 percent of the levels seen in 2019 (Business Insider, 2020).

Airports need to adopt robust strategies for the staged restoration of international travel, a pathway to the ‘new normal’. The path to progress and recovery for airports beyond COVID-19 involves anticipating and responding quickly to public health advice and adapting to changes in passenger needs and available country routes.

This literature review explores three key challenges that are crucial to returning domestic and international travel: (1) safety, health and hygiene; (2) core operations and social distancing; and (3) regulations and policies. Although the nature and uncertainty of this global unprecedented situation poses significant problems for airports to respond to and plan for, it is anticipated that the solution involves a reimagined end-to-end passenger journey, one that places the passenger—not the process—at the centre of the passenger experience. Many of the innovations and processes identified in redefining the passenger experience had already been under development prior to COVID-19.

The challenge now, however, is to implement the most appropriate user-centric technology and necessary modifications to physical airport infrastructure and operational processes. These must meet a specified globally-recognised standard for pre-departure testing and screening in collaboration with governments, airlines and state agencies through a gradual restarting of operations for airports and airlines, with the ultimate aim of restoring passenger confidence.

Coronavirus (COVID-19) has reshaped society since the beginning of 2020, altering our approach to public health, forcing us to rethink how cities fundamentally operate, and dramatically impacting businesses and individuals alike.
The beginning of 2020 saw countries across the globe closing borders and limiting travel in response to the COVID-19 outbreak. In the wake of COVID-19, airports are operating on almost zero revenue while struggling to provide essential support for passengers, airlines, tenants and governments. An economic impact analysis by the International Civil Aviation Organisation (ICAO) revealed that world scheduled passenger traffic in 2020 has seen a reduction of 2,900 million passengers, resulting in a potential loss of A$550 billion (International Civil Aviation Organisation, 2020).

Although daily media headlines ensure that the troubled status of the aviation industry is at the forefront of everyone’s attention, there is a lack of discussion and continuity regarding the strategies that airports can implement now to emerge from the COVID-19 crisis in a stronger position.

This literature review will investigate approaches for airports to transition through the unprecedented situation of the COVID-19 pandemic in order to reinvigorate domestic and international travel.

This review of the literature revealed three recurring challenges that will directly impact the response and planning required by airports, airlines and government in order to recover domestic and international travel:

1. Safety, health and hygiene,
2. Core operations and social distancing,
3. Regulations and policies.

Angela Gittens, Director General of Airports Council International (ACI) World, acknowledges the difficulties that these challenges represent, stating that there is ‘currently no single measure that could mitigate all the risks of restarting air travel’ (Freight & Trade Alliance, 2020).

Angela is echoed by Alexandre de Juniac, Chief Executive Officer (CEO) and Director General of the International Air Transport Association (IATA), who states that a globally-consistent, outcome-based approach will prove to be the most effective method for balancing risk mitigation with the need to enable travel and unlock economies (Freight & Trade Alliance, 2020).

This study will include extensive research of the above three challenges, examining various emerging global technology trends and how airports can incorporate these into their future planning. Due to the recency of the COVID-19 pandemic, research has been limited to readily available data in the form of online media releases and company product publications.

Changes to operational systems and processes
- Data modelling
- Bio metrics
- Low airfares
- Contactless processing

Collaboration between airlines, airports, government and key stakeholders
- Funding and approvals

Changes to physical airport and aircraft infrastructure
- Passenger flows
- Spatial planning

Staged reopening of first domestic then international routes

Airports re-envisioned as ‘aerotropoli’

Human behaviour and passenger confidence
- Capitalise on the fact that people are increasingly using their smartphones

Pre-departure testing
- Interim: COVID-19 detecting dogs
- Long-term digital healthpasses/ immunity passports

1 Safety, health and hygiene
2 Core operations and social distancing
3 Regulations and policies
Safety, health and hygiene

A recent passenger survey conducted by the IATA revealed that only 14 percent of passengers would fly immediately, while 60 percent of passengers would fly again within one to two months of containment of COVID-19, and 40 percent said they would wait six months or more before they would consider travelling (Garcia, 2020). Amadeus, a provider of global passenger servicing solutions, suggests that new personalised options and premium services are the way forward, and that the most effective way to implement this is by capitalising on the widespread passenger use of smartphones (Amadeus, 2020).

Amadeus is not alone in this type of endeavour. FrontM and MAG USA, who have recently announced their partnership in providing passenger solutions, have developed a multi-use real-time adaptive platform that will enable passengers to book travel services more easily and efficiently, including ground transportation, airport lounges and airport parking (FrontM, 2020). MAG USA also brings to the partnership their GOairport platform, which has been implemented at William P. Hobby Airport and George Bush Intercontinental Airport, to provide passengers with a more contact-free parking experience (MAG World, 2020). The COVID-19 world finds passengers using their own devices more than ever as they navigate through ever-changing protocols and potential disruptions. It is logical for businesses to invest in personalised solutions that are compatible with passenger smartphones.

In addition to providing personalised passenger servicing options, it is apparent that any end-to-end solution will include pre-departure testing to ensure the health and safety of passengers and staff. Heathrow Airport recently launched pre-departure testing facilities in Terminals 2 and 5, offering passengers travelling to Hong Kong the option to fulfil Hong Kong’s pre-departure testing requirements at Heathrow before they fly (Heathrow Airport, 2020).

While a technically sound idea, the issue for these pre-departure testing solutions lies in their cost. Heathrow’s pre-departure testing costs UK£80 (roughly A$145) and must be booked well in advance of departure. Meanwhile, airlines such as United Airlines and Cathay Pacific are trialling a digital health pass on global destination trips to Hong Kong, Singapore, London and New York (Sully, 2020), whereby passenger undertake their pre-departure testing prior to reaching the airport, with the aim of reducing passenger time in the terminal.

The app, CommonPass, was developed in collaboration by The World Economic Forum and the Common Project Foundation, a Switzerland-based not-for-profit organisation. The app claims to allow passengers to access and show airline officials their test results or vaccination record in a standard format, thereby reducing the production of paper-printed test results that are both unhygienic and often in a different format and language.

In the wake of the pandemic, passenger confidence will be crucial to influencing travel demand; rigorous safety, health and hygiene measures will therefore be necessary to restore passenger assurance of their health and safety.
One potential setback, however, lies in the uncertainty about whether costs will be incurred by passengers to use the product. In addition, trials have just begun and would need to be monitored by both government and border officials before the product can be rolled out further. Another disadvantage is that passengers will be required to seek testing at external test centres in advance of their travel, potentially reducing the streamlined nature of the overall passenger experience.

In a similar approach, Germany is exploring the use of ‘immunity passports’ (similar to CommonPass) that aim to establish who already has immunity to COVID-19 and is therefore able to travel more freely. Although the status of development of these digital identity health documents and how they would function is currently unclear, the United Kingdom government has expressed interest in going down a similar route (Future Travel Experience, 2020).

At Dublin and Cork Airports, the Dublin Airport Authority (DAA) is reportedly in conversation with independent providers to establish their own pre-departure testing procedures (O’Halloran, 2020).

The key limitation to CommonPass, the ‘immunity passports’, and all other digital health passes in development is that they all rely on input and approval from government and health authorities. Since the final decision on pre-departure testing falls to government and state agencies rather than airports, it is uncertain how these systems and procedures will function in practice if they do not receive a green light from government and state agencies alike.

Although these digital health pass apps will likely form part of the long-term pre-departure testing solution in returning to the ‘new normal’, they take time to get funding and approval, and require extensive development and testing before their functionality can be implemented.

Some airports are resolving this by employing interim pre-departure testing measures. COVID-19-detecting dogs is one such measure being used at Helsinki Airport (Finavia, 2020). The dogs, trained by Wise Nose Academy, arrived at Helsinki Airport in September 2020 to speed up the process of identifying passengers infected with COVID-19. A major advantage is that the dogs are able to smell the virus with almost 100% certainty, days before the symptoms begin, something that laboratory tests currently fail to provide. The dog and its minder work in a separate booth so there is no direct contact between persons being tested, minimising the risk of infection spread.

Core operations and social distancing
COVID-19 has highlighted the need for airports to be more agile when planning their operations.

As major airports take on most of the functions of metropolitan centres, they have become urban realms – airport cities where businesses, industries and associated residential developments work in concert with each other.

As portals of entry, international airports are crucial in enabling international travel connectivity while simultaneously managing infection control. Ashmore et al. (2020) assert that unlocking economies requires airports to broaden their role and function in society by becoming aerotropoli¹.

¹ ‘Aerotropolis’ (plural, Aerotropoli) implies a city or urban area centred around an airport (Cambridge Dictionary, 2020).

Post-COVID-19 finds passengers using their own devices more than ever as they navigate their way through ever-changing protocols and potential disruptions.
This idea of reimagining airports as aerotropoli can foster the vision of a safeguarded zone where large-scale, highly controlled quarantine and testing are spatially concentrated within the aerotropolis, diminishing community levels of exposure to hazards.

In addition, Ashmore et al. (2020) indicate that there is a lack both in national quarantine standards and in the development of national centres of quarantine excellence. Airports frequently contain thousands of square metres of commercial real estate – ranging in use from terminal retail and leisure services to hotels, office buildings, and convention and exhibition centres (Kasarda, 2020) – that should be reimagined and restructured to increase the attraction and catalysis of business activity, employment and commercial development.

The world is facing a global recession with millions of people facing unemployment. An article by Wiedemann, M (2020) describes using the concept of an aerotropolis as a tool for sustainable and resilient precinct planning that is economically viable.

One feature of the aerotropolis is its increased scope for commercial retail. Airports and airlines both need to recognise the rise of the online society in planning for increased e-commerce retail (Future Travel Experience, 2020). For retail businesses, this translates to touchless transactions and the need for physical distancing. One example is enabling duty free to be pre-ordered through an airline’s onboard Wi-Fi, as has been implemented by Dallas/Fort Worth International Airport. This e-commerce platform, called Grab, brings a contact-free retail experience, enabling
Passenger confidence to travel will require unprecedented changes to the end-to-end passenger journey.

The requirement for social distancing will cause an increase in the passenger journey time through the terminal that will need to be taken into consideration when determining passenger flows (Aurecon, 2020).

To implement more effective queue management, Delta Airlines has launched a virtual queuing feature on its Fly Delta app, which notifies passengers when their seat is ready for boarding (Future Travel Experience, 2020). Similarly, Gatwick Airport and easyJet are trialling boarding by seat number in the bid to reduce queues and boarding times. Meanwhile, other airports are capitalising on the increased available floor space within their terminals to temporarily use areas for reactivation steps, such as health and administrative checks, as well as temporary barriers for social distancing. In London, Heathrow Airport has installed protective screens at check-in desks and currently have prototypes in the mix (Aurecon, 2020).

Other physical infrastructure upgrades include new routes and wayfinding signage to segregate passengers.

Airports should plan their infrastructure upgrades and passenger flows based on a staged reopening of domestic followed by international travel.

At present, it is challenging for airports to predict passenger trends and flows. However, it is clear that the majority of passengers will want to avoid touching surfaces and minimise interacting with airport officials. This highlights the need for contactless end-to-end journey processing that includes check-in, bag drop, security, customs, amenities and boarding (Future Travel Experience, 2020; Amadeus, 2020).
Although several airports are currently using contactless processing for check-in, its use is not widespread. This is where biometrics and automation come into the equation.

Etihad Airways is trialling a range of contactless self-service thermal imaging cameras and temperature sensors, developed by Elenium Automation, that can estimate a passenger’s vital signs, and that enables touchless, virtual health screenings at airport kiosks and bag drops (Future Travel Experience, 2020). The airline has also introduced a wellness program that features robotic cleaners to reinstate a COVID-19-free environment (Abu Dhabi Airports Company, 2020). Some airports are considering adapting existing technology in terminals such as advanced CCTV and surveillance platforms to identify passengers who display potential COVID-19 symptoms; privacy concerns and approval from government, would however, need to be addressed. Another challenge lies in determining which health screening and sanitation requirements are temporary and which are likely to be the ‘new normal,’ as it is hard to predict the exact long-term impacts caused by the virus on the future of airport operations, processes and infrastructure. A staged, gradual process of restarting operations will therefore be necessary for airlines and airports to safeguard passenger health.

At the other end of the spectrum is Vinci Airports, the first airport operator in the world to deploy biometrics throughout the entire passenger journey from home to aircraft (Future Travel Experience, 2020). Their new travel assistant, Mona, is currently being pilot-tested at Lyon–Saint-Exupéry Airport. Mona allows passengers to set up a customer account by downloading a free app to their smartphone. Since Vinci Airports provides a one-year free trial to customers, the anticipated cost of the customer account is still unclear. Developed in close collaboration with the French Civil Aviation Authority and CNIL – the French government agency charged with approval of data protection – Mona demonstrates the importance of collaboration and agreement among all parties. Mona uses facial recognition technology developed by IDEMIA to biometrically match scans of the passenger’s identity document and boarding card with their smartphone-based face (Idemia, 2020). Once the facial data has been successfully matched, automatic and biometric gates developed by RESA, known as Major eGate, use an integrated camera to allow passengers to pass through to the security restricted area and board their plane (Future Travel Experience, 2020).

Vinci Airports, IDEMIA and RESA claim that their new travel assistant technology system is universal and secure, and that it will work on all airlines. With the system only launching in October 2020, this claim has yet to be proven. A further issue in using facial recognition technology is data privacy: while Mona has been deployed in Lyon–Saint-Exupéry Airport, the system is still subject to CNIL approval.

Adelaide Airport, which has had automated bag drops and kiosks for almost 10 years, currently remains unconvinced that the end-to-end passenger journey should be fully automated (Future Travel Experience, 2020). Adelaide Airport states that there is a delicate balance between automation and the human touch, worrying that full automation could depersonalise the journey experience for the passenger. It could be argued that Australia, with its low number of COVID-19 cases, has no pressing need for biometrics and full automation advancements. However, while this may be the case for domestic travel, contactless passenger journeys will almost certainly need to be embraced in order to restore international travel.

Some airports are considering adapting technologies such as advanced CCTV to identify passengers displaying potential COVID-19 illness symptoms.
Regulations and policies

Examination of the above two challenges has identified a gap in a globally consistent approach to pre-flight testing and passenger screening as an alternative to quarantine measures.

ACI World and IATA have made a joint call for an internationally agreed and recognised approach to testing passengers during the travel process, one that is quick, practical, accurate, low-cost, easy-to-use and supported by public health authorities (Future Travel Experience, 2020). They claim that a systematic approach to COVID-19 testing will provide an effective means to provide governments with the confidence to reopen borders without quarantine.

John Holland-Kaye, Chief Executive Officer (CEO) of Heathrow Airport – where pre-departure testing facilities have recently launched – shares the views of ACI World and IATA for a common international standard (Heathrow Airport, 2020).

Although trials and new technologies around the world have proved that it is possible to integrate effective testing technology into the travel process, governments still need to be brought into agreement regarding an implementation plan so that aviation can reconnect people and economies (Future Travel Experience, 2020).

In addition, many of these technologies and processes cannot be developed without assistance from government. The Australian Airports Association (AAA) has reached out to the Australian government to contribute to the cost of a recovery program for new security at airports and necessary infrastructure upgrades, which is estimated to require almost A$437 million in addition to a separate recovery program requiring A$200 million in federal funds (Crowe, 2020).

Australia, along with many other countries, has a limited capacity to successfully quarantine incoming passengers. Not only does this restrict the number of returning Australian citizens and permanent residents allowed to enter the country each week, it also prevents the opening of national borders to international students and visitors, heavily affecting tourism, aviation and higher education sectors (Ashmore, Nogueira de Moraes, & Thompson, 2020). A long-term, flexible and risk-based formal international system is therefore necessary to aid the recovery of air travel, which will require collaboration amongst all parties and government aid.

In Ireland, the European Commission was tasked with introducing a common testing regime to eliminate the need for quarantine and other restrictions by introducing a traffic light system, classing regions as green, orange or red according to their level of risk.

Travellers in green and orange regions would be able to move freely, while those from red regions would need to show test results confirming they carry no trace of COVID-19 before travelling (O’Halloran, 2020).

Progress on the traffic light system has come to a halt, however, as not all member states are in agreement regarding common criteria for restrictions (Martinez, 2020). In advance of these zone regulations coming into effect, SITA has developed automated border control kiosks that use biometric data to ensure robust and consistent checks on passengers along Europe’s borders (Butcher, 2020).

Collaboration clearly is a long-term trend, not only between airports and airlines, but also with government and other industry stakeholders. ICAO and the World Health Organisation (WHO) have joined forces to advise the aviation industry on the status of the virus as well as to reaffirm their commitment to fostering greater international cooperation to contain the virus and protect the health of passengers (Future Travel Experience, 2020).

$437M

in federal funds will be needed to provide new security at airports and necessary infrastructure upgrades
Conclusion

COVID-19 has confronted societies globally with unprecedented new challenges. It is apparent that many of the solutions to these challenges require innovative new technologies and processes sooner than they might otherwise have been developed.

Closed borders, social distancing and quarantine measures have dramatically curtailed domestic and international travel, ultimately affecting the global economy.

This paper identified three challenges to be addressed in order to reinvigorate global travel:

1. **Safety, health and hygiene**
   - Without stringent health measures in place, including pre-departure testing, passengers will lack the confidence to visit airports or travel by plane. Connected to these health measures are the necessary modifications to physical airport and aircraft infrastructure, operational systems and processes to ensure social distancing is maintained, while enabling passengers to move through their journey as efficiently and seamlessly as possible.

2. **Core operations and social distancing**
   - Major airports today are powerful business magnets and metropolitan region economic accelerators – they seek to attract and catalyse business activity, commercial development and employment around and from them (Kasarda, 2020). COVID-19 has proven that cities are no longer a region’s sole urban hub. In planning for the future and selecting which technologies to implement, airports should strive towards a vision of becoming an airport city, or aerotropolis, as a means of attracting people to them.

3. **Regulations and policies**
   - Contactless processing for the passenger’s end-to-end journey is the ideal long-term solution for returning to the ‘new normal’. This incorporates technologies such as biometrics and digital modelling in place of previous, traditional methods to ensure the health and safety of airport users and minimise the spread of infection. This solution requires collaboration between airlines, airports, government and key stakeholders for funding of new systems and infrastructure, as well as obtaining the necessary approvals for the use of identity data.

Lastly, health and safety, social distancing and modified core operations cannot be achieved without a uniform and globally-recognised testing regime. Applying the various strategies and tools mentioned in this paper to address these three challenges will enable a stated return of domestic and, subsequently, international travel routes to be realised, unlocking economies and rebuilding passenger confidence in air travel.

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References


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