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 fly 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, reliability 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 commercialise their landside for non-aero dependent uses while also minimising 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 years of losses that will place pressure on thousands of employees and on the jobs the industry supports.

Demand for travel decreased by 97% at the beginning of the pandemic in March 2020 and by October 2020, demand had barely recovered to 30% 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.

Although the nature and uncertainty of this unprecedented global 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 technologies and necessary modifications to physical airport infrastructure and operational processes. These must align with a 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.
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). James Goodwin, Chief Executive Officer of the Australian Airports Association (AAA) revealed that airports in Australia has been losing about A$320 million each month through the pandemic, with 25% of the workforce losing their jobs in the past 12 months (Wood, 2021). 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 includes 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.
Review of literature

Safety, health and hygiene

The COVID-19 vaccine will take time to be rolled out to the vast majority of the population. Airports and airlines cannot wait until the end of this rollout for international borders to open and therefore other security-screening measures need to be planned and implemented to assist in returning air travel.

A passenger survey conducted by the IATA in August 2020 as a response to COVID-19 emergency risk indicated that, once the pandemic has subsided, only 15% of passengers would fly immediately, 33% of passengers would fly again within one to two months, and 52% would wait six months or more before they would fly again (IATA, 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 them is by capitalising on the widespread passenger use of smartphones to deliver a touchless boarding experience (Amadeus, 2020). Amadeus are currently using facial recognition technology which eliminates the need to scan a boarding pass, show a passport and unnecessary queuing for this purpose (Wakim, 2021).

Amadeus is not alone in this type of endeavour. FrontM and MAG USA, who announced their partnership in October 2020 in providing passenger solutions, have developed a multi-use real-time adaptive platform that will enable passengers to book travel services, including ground transportation, airport lounges and airport parking (FrontM, 2020), more easily and efficiently. 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 therefore logical that businesses 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 launched their pre-departure testing facilities in Terminals 2 and 5 in October 2020, which includes a partnership with Collinson for COVID-19 testing (Brandler, 2021). Following the opening of this facility at Heathrow Airport, Zurich Airport opened the second major international airport facility in January 2021 whereby passengers can undertake a saliva COVID-19 test, rather than the traditional nasal swab, with results provided within only five hours (Future Travel Experience, 2021). Other airports to follow this trend include Abu Dhabi International, Chicago O’Hare International, Gatwick, Hong Kong International, Paris Charles de Gaulle, Singapore Changi and Tokyo Narita airports.

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.
Passenger confidence to travel will require unprecedented changes to the end-to-end passenger journey.

Etihad Airways has introduced a COVID-19 wellness insurance cover which protects all passengers for 31 days from the first day of their trip. In addition, the airline has been enticing passengers to travel by including free pre-departure testing during selected periods on flights from Abu Dhabi International (Etihad Airways, 2021).

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 (Heathrow Airport, 2020). Zurich Airport’s pre-departure saliva test is currently priced at 195 Swiss francs (roughly A$275), however passengers can visit without prior appointment (Future Travel Experience, 2021). Meanwhile, United Airlines has trailblazed the rollout of a digital health pass (Sully, 2020), whereby passengers can upload their COVID-19 test results and vaccination information ahead of their trip, assisting in reducing passenger time in the terminal. In addition, the digital health pass will integrate into the United Airlines smartphone app and website experience, providing a one-stop shop user experience (Cortez, 2021). There are a handful of other airlines also adopting the digital health passport concept, including Cathay Pacific, Singapore Airlines, Qatar Airways and Virgin Atlantic (Bodell, 2021). The IATA Travel Pass is another health passport available to airlines through a partnership between the IATA, Emirates, Etihad and Qatar Airways and is expected to be rolled out from April 2021. The rapid uptake of digital health passes integrated into smartphone devices appears to be a successful and efficient way for passengers to manage their travel documentation with a contactless, safe and efficient travel experience.

CommonPass is another digital health pass developed in collaboration by The World Economic Forum and the Common Project Foundation, a Switzerland-based not-for-profit organisation. The app allows 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. Although these digital health passes are a step in the right direction, data privacy remains a key concern for those accessing the app which airlines and airports will need to manage for passengers to feel confident in their usage. In addition, there are numerous other digital health pass apps being developed by airlines, resulting in a less than harmonised solution for travellers and ultimately creating passenger confusion (Cortez J., 2020).

Another disadvantage with the digital health passes 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 was among the first to begin exploring the use of ‘immunity passports’ that aim to establish who already has immunity to (or has recovered from) COVID-19 and is therefore able to travel more freely (Future Travel Experience, 2020). Faced with deep recession after 2020, governments around the world want to put these immunity passports into action to allow a degree of normality to return (Edmond, 2020). Although countries are eager to adopt the immunity passports as soon as possible, there are valid concerns from the World Health Organisation (WHO) that inaccurate and insufficient testing could hamper the ability to monitor passenger immunity. WHO’s reluctance to support the immunity passports is also due to the lack of clear evidence that those recovered from COVID-19 are protected from a second infection, risking continued transmission of the virus (RT, 2020). WHO are not alone in this opinion, with the German Ethics Council unanimously advising against immunity passports in late 2020 due to the many uncertainties that still exist (Gesley, 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 to 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’, along with the COVID-19 vaccination, 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 alternative pre-departure testing measures. The use of COVID-19-detecting dogs is one such measure that was piloted at Helsinki Airport in September 2020 (Finavia, 2020). The dogs, trained by Wise Nose Academy, speed up the process of identifying passengers infected with COVID-19. Dubai International Airport is also using canine pre-departure testing.

A major advantage is that the dogs are able to smell the virus with almost 100% accuracy days before symptoms begin, levels that laboratory tests currently fail to achieve. The dog and its minder work in a separate booth, ensuring there is no direct contact between persons being tested and minimising the risk of spreading infection. However, as this is still a relatively novel approach to the detection of the virus, passengers suspected as carrying the virus are also instructed to take a swab to confirm the result.

**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).

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The COVID-19 world finds passengers using their own devices more than ever as they navigate 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. In Australia, Brisbane Airport (BNE) is one airport already venturing down this avenue, having recently opened a new LEGO store as well as cafes and bars in their domestic terminal to encourage passengers to the airport.

The BNE Auto Mall is under construction, which will be the largest non-aviation project that Brisbane Airport has undertaken to date, featuring a 2.3 km performance track with flagship automotive dealerships alongside experience centres, exhibition and conference facilities, hotels, event areas and commercial offices (de Graaff, 2021).

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, previously called Grab and recently rebranded as Servy, brings a contact-free retail experience, enabling passengers to explore the airport’s retail offerings while maintaining social distancing (Future Travel Experience, 2020). Similarly, Brisbane Airport’s eCommerce solution, BNE Marketplace, supports its retail partners via an online channel, providing ‘virtual passengers’ during a time when physical foot traffic within the international terminal is down by up to 98 percent (de Graaff, 2021).

Condor Airlines has introduced tablets developed by Retail inMotion to optimise their onboard sales and communication, further validating that technology will be the key driver, and the new norm, for optimising the passenger journey post COVID-19 (Future Travel Experience, 2020). Teesside International Airport has deployed their OrderNext ordering platform, developed by VenueNext Europe, at its departure lounge café and bar. OrderNext enables passengers to scan QR codes located on tables and elsewhere around a terminal to bring up a menu, place an order, and pay using credit or debit (Butcher, 2020). The ordered food is then brought to a location nominated by the passenger, meaning that food can be waiting for passengers after they have passed through security. Similarly, a pilot programme developed by Amsterdam Airport Schiphol and iFleat allows passengers to order and pay for their inflight meal up to one hour before their scheduled flight, reducing contact between passengers and the cabin crew (Future Travel Experience, 2020). In addition, this innovative service was also developed to consider the reduction in waste generated by meals that are brought on board and not consumed. The use of existing data, largely untapped for many airports, will become the foundation for the core operational processes required in the wake of COVID-19 (ACI Insights, 2020).

ACI is not alone in applying this data-driven approach. Hartsfield–Jackson Atlanta International Airport, which took the lead as the world’s busiest airport in 2020, has rolled out feedback analytics software, Tatvam, that measures total passenger sentiment around topics such as COVID-19 and the safety precautions the airport has put in place by tapping into passenger commentary on physical surveys, online social media, and reviews in a single environment (Tatvam Insights, 2020). Based on the data and feedback received, Hartsfield, can modify and adapt their airport operations to suit the needs of the passenger. It is noted that there was a lack of clarity as to the process of collecting and potentially storing of personal data; however, this would undoubtedly require the collective involvement and approval of government.

Similar to Tatvam, Dutch independent provider Point FWD Solutions, are exploring the use of data in addressing the lack of security checkpoint insight at most airports and have designed multiple tools to assist this process (Point FWD, 2020). Passenger confidence in travel will require unprecedented changes to the end-to-end passenger journey, not just inside the airport terminal. This includes modifications to physical infrastructure, such as the physical layout of the airport and aircraft, and to operational processes, including booking, checking in, and navigating through screening and security – all within the boundaries of social distancing.

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 a 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 is exploring protective screens at check-in desks and currently has several 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 travel 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). Amadeus are at the forefront in this digitisation, releasing their fully integrated digital cloud solution for passenger servicing and data-driven airport options in March 2021 (Mattig, 2021). The product, called Amadeus Flow, provides insights to airports to enable proactive airport management and resolution of problems before they have an effect on the passenger experience. Amadeus will also be implementing the emerging systems including the IATA Travel Pass and Common Pass with Amadeus Flow.

Sydney Airport has just announced a five-year contract with technology provider SITA for the provision of a...
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, was rolled out at Lyon–Saint-Exupéry Airport and 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 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.

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² Vinci Airport’s use of the word ‘entire’ in this context is slightly misleading: passengers must still interact with airport officials when moving through border control areas.
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 were among the first to have been launched in late 2020 – shares the views of ACI World and IATA regarding a common international standard (Heathrow Airport, 2020).

This is echoed by IATA Senior Vice President for Airport, Passenger, Cargo and Security Nick Careen who notes that for the digital health passes to work, global standardisation is necessary to both securely record digital proof of vaccinations alongside global recognition and acceptance of COVID-19 certifications (Burt, 2021).

Although trials and new technologies around the world have proven 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) reached out to the Australian government in late 2020 to contribute to the cost of a recovery program for new security at airports and necessary infrastructure upgrades, which is estimated to require almost $437 million in addition to a separate recovery program requiring $200 million in federal funds (Crowe, 2020). The Australian Government has responded with a new $1.2 billion support package for the aviation and tourism sectors which includes the reinstatement of domestic aviation security screening costs rebates for more than 50 airports and support for aviation employee mandatory training and accreditation. Other funding initiatives in this support package include 800,000 half-price airline tickets to encourage Australians to travel, cheaper loans for businesses, and direct support to keep planes running and airline employees in jobs. The AAA is confident that these new funding initiatives will encourage Australians to travel, reduce unemployment, and provide a much-needed boost to the UK economy (Crowe, 2020).

Collaboration is therefore clearly a long-term trend. This is true not only between airports and airlines, but also with government and other industry stakeholders, particularly in an ever-changing environment. 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).

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.

Australia however, 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). The Australian Government has highlighted the return of international travel from October 2021. 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.

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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.

Without stringent health measures in place ... passengers will lack the confidence to visit airports or travel by plane.

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.

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.

Widespread COVID–19 vaccinations will eventually enable countries to reopen their borders for international travel, however the question is ‘when’. In addition, despite the vaccine progress, active COVID–19 cases overseas continue to rise, with Massachusetts, United States reporting daily average increases of 28% at the end of March 2021 compared to the start of the same month (Stening, 2021). Australia’s vaccination program is off to a slow start, with the target end date already pushed back from October 2021 to January 2022 (Duckett, 2021). Once international borders reopen and hotel quarantine is no longer universally required, the risk of COVID–19 infection will increase. For governments to reopen international borders sooner than the vaccine target end dates, other COVID–19 safe security measures need to be in place for the entire journey.

Contactless processing for the passenger’s end-to-end journey is the ideal long-term solution for advancing 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, governments, and key stakeholders to provide appropriate funding for 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 underpin the return of domestic and, subsequently, international travel routes to be realised, unlocking economies and rebuilding passenger confidence in air travel.

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Christina Hayes
Aviation Engineer
Author / Researcher
E: christina.hayes@ghd.com

Floyd de Kruijff
Aviation Technical Director
E: floyd.dekruijff@ghd.com

Jarred Williams
Aviation Engineer & Service Line Coordinator
E: jarred.williams@ghd.com
References


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