

# BEING RESILIENT

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## Execution of Clinical Trials

The coronavirus disease (Covid-19) pandemic has clipped the wings of the aviation industry. Prior to the pandemic, the industry was stabilizing after being jolted by several events over two decades: 9/11, SARS, the war in Iraq, and the global financial crisis. According to Statista.com, the number of passengers scheduled to fly in 2020 was estimated to be more than 4.72 billion, around 137 percent higher than 2004. Given the circumstances of the lockdown, the aviation industry is at the crossroads. However, just as aviation has bounced back from setbacks in the past, the industry will return to business as usual and learn how to become more competitive in the aftermath of the pandemic.

After disruptions in the past, the aviation industry learnt to optimize their processes and utilize technology to improve safety, productivity and efficiency. For instance, after 9/11, the United States established the Transportation Safety Administration (TSA) to ensure the safety of air travel. The TSA PreCheck program facilitates seamless travel by identifying 'known' travelers from those who require more checks. Under this program, travelers voluntarily provide personal information for the Customs and Border Protection's Global Entry mechanism to fast-track screening of passengers on arrival.

After the SARS virus epidemic of 2003, advanced health equipment such as walk-through infrared thermal scanners

at airports protected the health and well being of travelers. During the Covid-19 pandemic, technology is being leveraged again to stay ahead of the curve. For instance, artificial intelligence (AI) predicts coronavirus outbreaks, using patient screening information and medical claims to find hidden hot spots. AI can be the catalyst for the aviation industry to recover from disruption, ensuring seamless and accelerated movement of travelers at airports, after increased health screening of passengers becomes the new normal, in the post-Covid-19 era.

A traveler interfaces with several touchpoints, adding to the travel time for a typical international journey, as shown in the illustration:

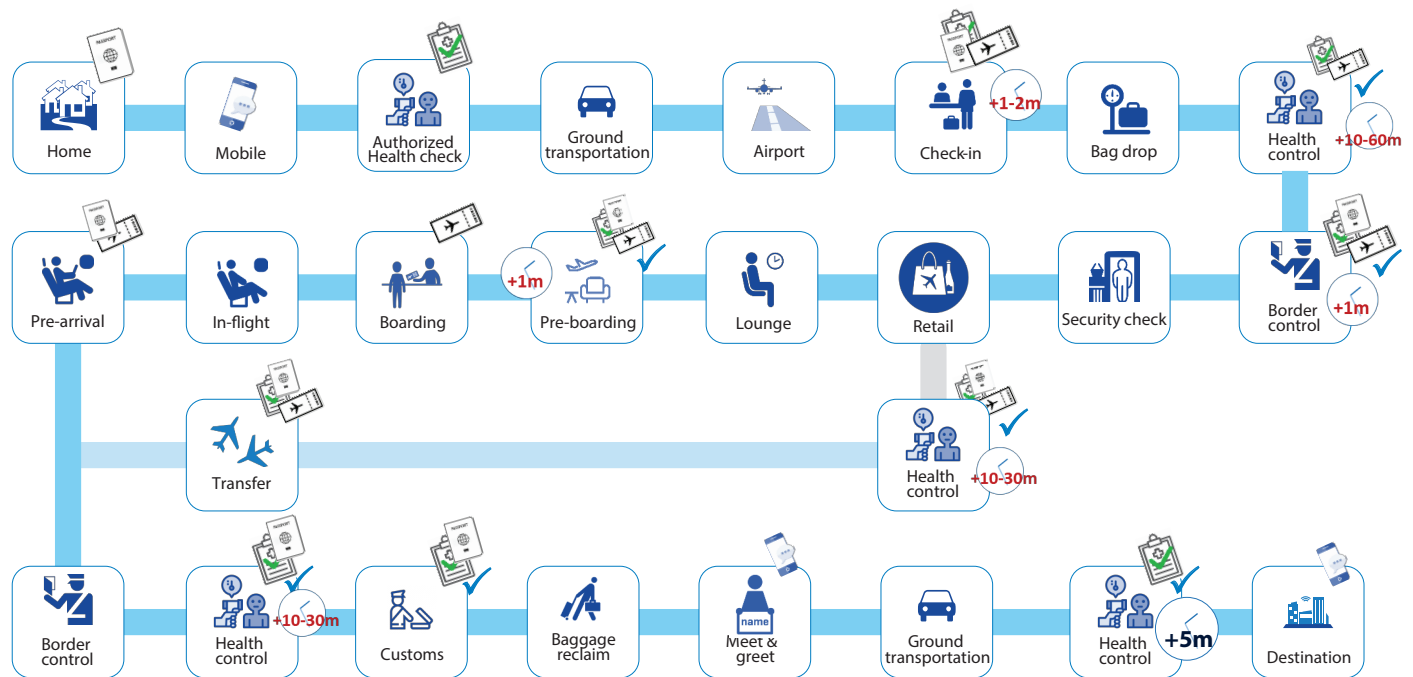


Fig. 1: Current international passenger journey at the airport with the health checks



In 2019, the International Air Transport Association (IATA) and Airports Council International (ACI), launched the New Experience Travel Technologies (Nextt) program in response to a global survey of passengers indicating a quicker, less intrusive, and partially automated service at the airport. The OneID initiative offers a secure and seamless journey using a trusted digital identity, such as biometrics, and sharing a single set of passenger ID information to airport authorities. However, Nextt did not foresee the scale of Covid-19, and does not factor passenger health monitoring, which will be a prerequisite of

airport security in the near future.

In the post-pandemic environment, travelers will continue to seek convenience and speed for airport check-in procedures. An automated monitoring system can reduce entry and exit times using self-learning AI tools, providing a smooth experience for passengers.

One efficient way to combine multiple checkpoints into a single workflow can be a 'tunnel' system, with multiple checks, starting from passenger identity at the entry. As the passenger walks through, the health monitoring systems capture and

analyze the passenger's health status. By the time the passenger reaches the other end, all processing is complete, symptoms and risk level assessed, for the airport staff to decide whether to allow the passenger to fly or redirect to a health station for the next level of checks.

Let us explore some of the key components of the health check tunnel for an efficient and safe passenger processing journey. If the passenger is identified to be a health risk, the system can append a note in the airline's distributed control system (DCS) to alert passenger services agents for taking appropriate action.

## Digital identification

The notification of an epidemic or possible pandemic will be communicated to regulators, government agencies, WHO, pharmaceutical manufacturers and research organizations on a Blockchain

network. Pharma's will invite and onboard patients, clinical logistics companies will ensure collection and delivery of samples and medication. Contract research organizations and laboratories

will conduct diagnostic evaluation of the progress of the patients. Thus, the various stakeholders in the value chain for drug/vaccine exploration, will have a stake in the proposed Blockchain network.

## Digital health card

Several countries make it mandatory for inbound passengers to be vaccinated for TB and yellow fever. In the near future, a hard-copy vaccination record could be replaced by a digital immunity passport, where the passenger's vaccination record can be uploaded, with digital certification

added by the doctor authorizing it. The certification can be tamper-proof using blockchain technology. Various certifications, test results, fit-to-fly advisory can be added to the record.

Such digital immunity passports can also

be linked to the national / immigration passports, making it mandatory for travelers to present them during ticket booking and at immigration checkpoints. Airports can provide a fast-track facility for those who have digital health cards or digital immunity passports.



## Zero-touch travel

In the post-pandemic world, with an end-to-end digital processing system in place, it should be possible for a passenger to experience a zero-touch journey from boarding to disembarkation. The passenger's digital ID linked to travel e-documents such as visa and boarding pass will accelerate the check-in and bag-drop process, where facial recognition and underlying electronic records automatically validate the passenger, to proceed to the

next stage before boarding. The validated boarding pass will be available on the mobile phone along with the baggage tag information, and it will also link the booking reference or PNR, baggage tag, digital health records to the passenger ID for further automated processes.

A virtual agent could inform passengers about their position in the 'virtual queue' for boarding a flight, ensuring that

accidental physical contact with other passengers is avoided in the queue. Delta launched a virtual queueing system via its Fly Delta app in January 2020. The app notifies passengers when their seat – not just their flight – is ready for boarding. This system maintains social distancing, as passengers can relax in any part of the airport terminal, without crowding together while waiting to board the aircraft.

## Symptomatic checks

The most effective way to reduce community spread at airports is to ensure frequent checks of passengers. Infrared cameras with computer vision technology detect and track individuals with fever at security checks, and entry points of airports. This technology combined with AI will help airport staff perform temperature screening without coming in close physical contact with travelers. The passenger's symptoms, along with thermal imagery analysis and health card information, provide a risk score for airport authorities to decide whether the passenger should be allowed to board.



## Crew and staff safety

The 'tunnel' system, besides being a speedy mechanism of processing passengers, can be used for pilots, cabin crew, airport and

airline staff, vendors and other workers as they need to move without disturbing passenger flow. Digital health cards and

wearable health monitoring systems can be made mandatory for such individuals.

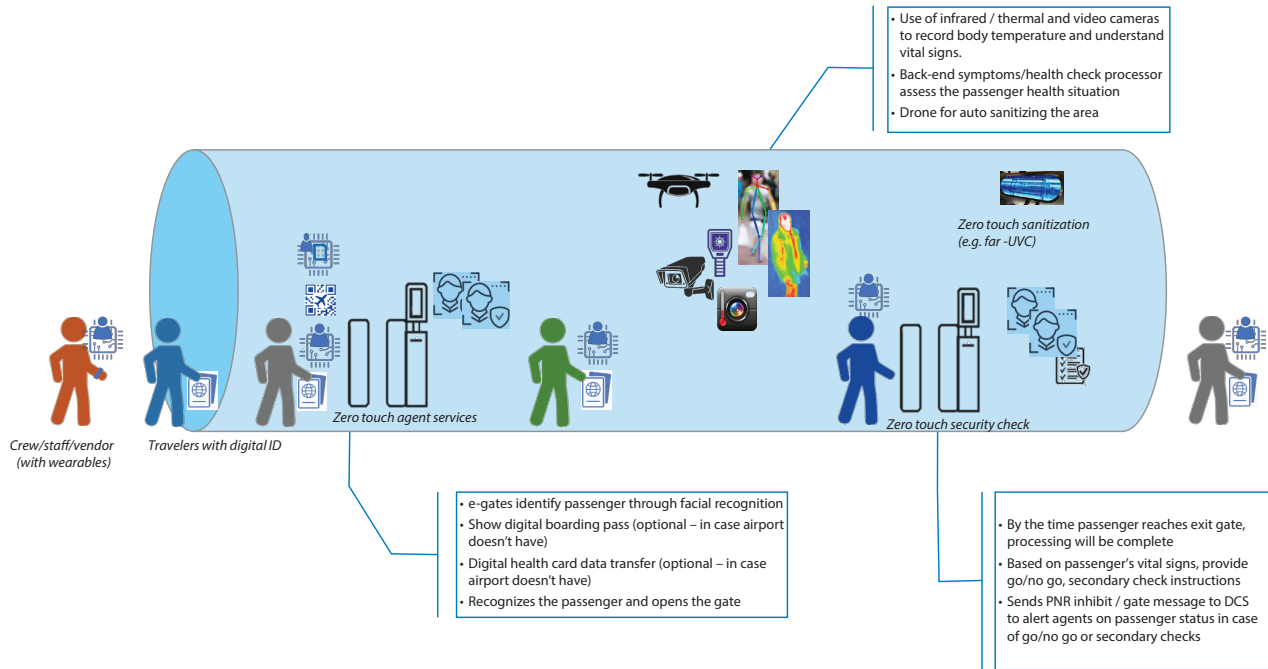


Fig. 2: The health check tunnel

Health check tunnels can also be used to monitor inbound or transit passengers to reduce the transmission risk of viral infections.



The figure below illustrates the smooth flow of passengers after adopting digital technology:

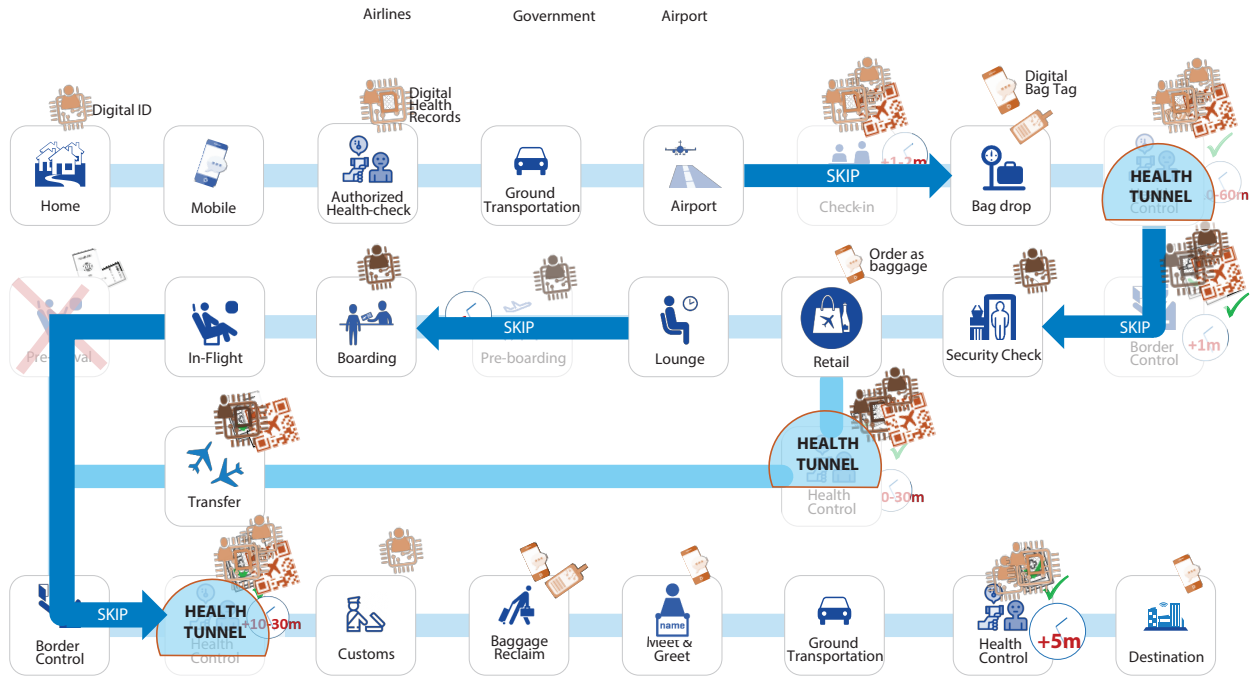


Fig. 3: Benefits of digital technology and the tunnel concept accelerate passenger processing

The time required to assess passenger health will be less than a minute. Moreover, the tunnel can be a portable one which can be moved to different sections of the airport, including arrival gates, and outside

the terminal, if required. The data gathered from these tunnel systems can be entered into a learning model to plan the number of health check staff and the space required at various

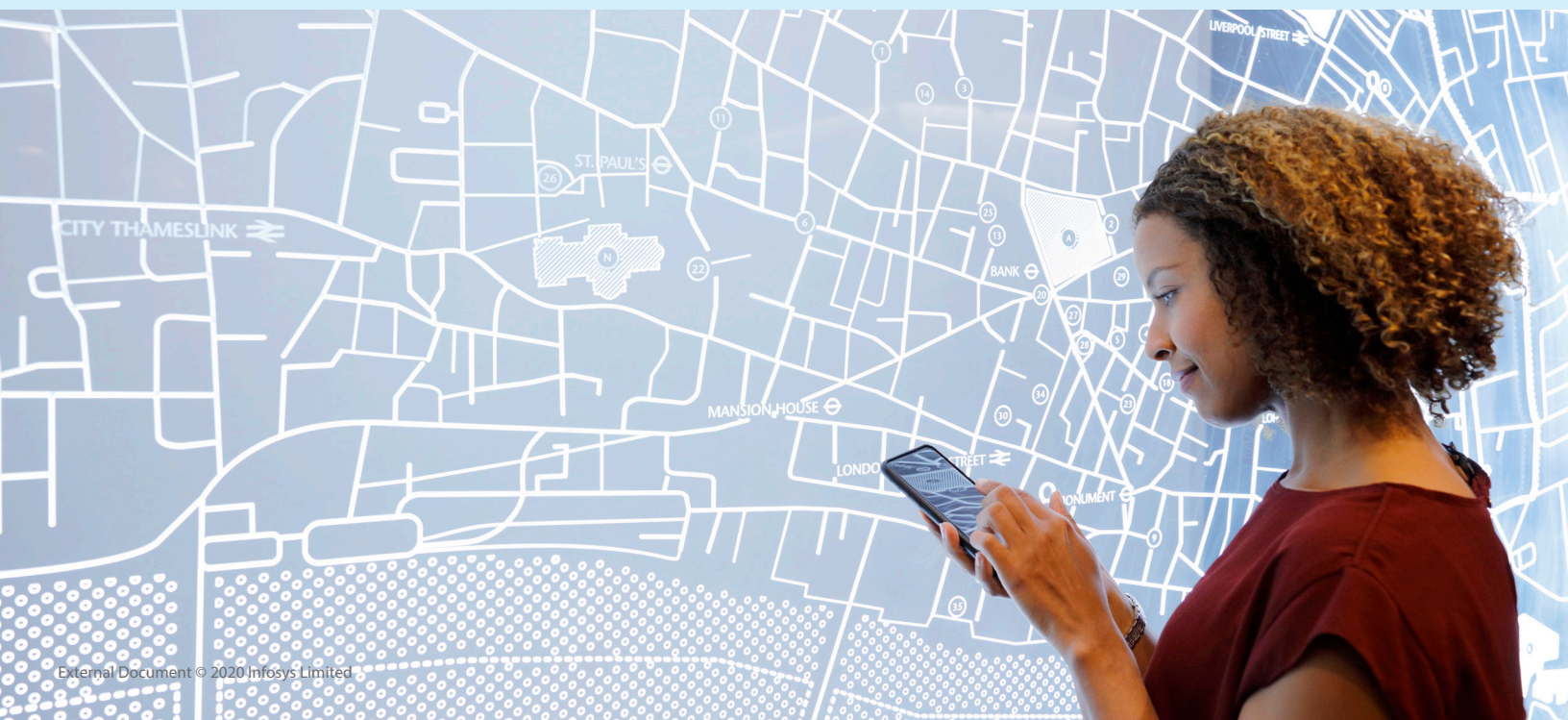
stations. The data can also be correlated with the potential quarantine space required for passengers of long haul and ultra-long haul flights.

### Contact tracing

In the event of a virus outbreak, it is imperative to identify and trace passengers who have contracted the virus through an infected person. It can be done using

a contact tracing app, which can be integrated with a digital passport or global ID to verify whether a person poses a health risk to others. Infosys' Location

Based Service platform (LBS) offers features for Bluetooth Low Energy (BLE), Wi-Fi technology which can be leveraged for developing such apps.



## Conclusion

Hundreds of passengers in an aircraft increase health risks and speed up the spread of a virus. Airports play a critical role in preventing community spread across borders by increasing their health check capabilities at every entry or exit point. A majority of airports have inefficient and slow pre-travel health check processes, which lead to flight delays and endless waits for passengers.

In a post-pandemic world, health checks will become mandatory for international and domestic travel. These additional checks will add to the delays, and airports will struggle to process a huge volume of travelers. This situation is a learning phase for the industry to innovate with faster, automated, and seamless solutions and reduce the impact of health check delays.

Advanced technologies and artificial intelligence solutions can automate health monitoring, reducing health risk assessment to a few seconds, with more accuracy.



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