Nabil Khalil, Executive Vice-President of R&M Middle East, Turkey and Africa.

Mark Ackerman, Regional Director, Middle East and Africa, ServiceNow.

Avtar Jalif, Partner, Head of Transport and Logistics, KPMG Lower Gulf.

Moustafa Elbanhawi, CEO, DHL Global Forwarding, Arabian Cluster.

Raj Sabhlok, President, ManageEngine.

PANDEMIC AND TECHNOLOGY DRIVING
AIRPORT TRANSFORMATION

Under the onslaught of digital technologies and the pandemic driven contraction in travelers, airports are being transformed for tomorrow.

R&M

CABLING NETWORKS FOUNDATION FOR AIRPORT MODERNISATION

Kilometres of optical fibre and copper cabling with redundant pathways and alternate networks are part of an airport's modernization programme.

NABIL KHALIL,
Executive Vice-President of R&M Middle East, Turkey and Africa.

Airports faced two main challenges prior to the Covid-19 outbreak. Airports were looking at how they could support growing traveller capacity and how to modernise their operations. In 2018, for example, the top 20 busiest airports in the world experienced an average passenger growth rate of 5.2%. This growth brough with it challenges around how to boost profits and control costs, how to comply with the latest regulations, how to operate more sustainably and how to enhance safety.

As an example of how expansion to support added passenger capacity required investment, consider Muscat International Airport, which is an R&M customer. The new terminal, a state-of-the-art facility with 28 contact gates, has been designed to handle a flow of 12 million annual passengers, with a net floor area of 340,000 sqm.

Closely related to the need to support growing passenger capacity, airports have also had to modernise their infrastructures with the aim of streamlining operations, increasing passenger comfort, enhancing security and create new revenue streams. Such modernisation is a costly undertaking. Consider Lviv International Airport in Western Ukraine, also an R&M customer.

It was built between 1923 and 1928 and now, its passenger traffic is expected to exceed 3.7 million by the end of this year. As a result, the airport had to undertake a massive $200 million reconstruction project, the completion of which took around two years.

While the request for quotation is important and serves as a guideline, R&M goes much further in having discussions with the airport authority, the project owner, technical authority and other stakeholders. The many hours put in at this phase give a better understanding of the challenges, objectives, and timelines, which technical experts then translate into comprehensive cabling solutions.

The complexity of airport cabling projects is the result of a combination of factors, namely the expanse of cabling, data centre connectivity, Power over Ethernet, redundancy and availability.

Airports are characterised by very large areas being covered by IT infrastructure. This necessitates the use of fibre at a large scale. In the data centre, given the scale of these projects and the volumes

KEY TAKEAWAYS

- Complexity of airports is the result of expanse of cabling, data centre connectivity, Power over Ethernet, redundancy, availability.
- Airports are characterised by very large areas being covered by IT infrastructure.
- There is need for world-class cabling management and automated infrastructure management.
- PoE is essential for connecting CCTV cameras, sensors, access control systems and more.
- Without high-density fibre and PoE, highly modernised airports simply would not be possible.
- With airports being 24x7 operations, redundancy is another critical factor.

of copper and fibre cabling being utilised, there is need for world-class cabling management and automated infrastructure management.

Looking beyond the data centre, PoE is essential for connecting the myriad of devices such as CCTV cameras, sensors, access control systems and more. Without high-density fibre and PoE, these highly modernised airports simply would not be possible.

With airports being 24x7 operations, redundancy is another critical factor. Redundancy must be built not only into the data centre and fibre cabling, but also into the entire network design such that there is no single point of failure. Addressing this is as a design intensive process involves several teams as there are also the elements of compliance, and post-implementation maintenance.

Within terminals, airports typically have a fibre to copper ratio of 70:30,

with fibre being utilised for wide scale high-bandwidth connectivity and copper for the connectivity of endpoint devices such as computing terminals, cameras, and sensors. This ratio shifts outside terminal buildings as the fibre density scales vastly to connect the multiple service building that support the main terminal. These fibre networks are designed with high levels of redundancy and even multiple network paths.

The foremost priority for airports in the post-COVID world will be gaining back passenger confidence by ensuring their safety. For this, airports will have to invest in technologies that accurately screen for infected passengers, streamline operations and enable social distancing to be maintained, and enable more cost-effective operations.

For obvious reasons, regulations for IT systems will be very strict as the safety and reliability of the operation of the whole airport depends on the quality of the IT infrastructure. With the increased utilisation and dependence on IT systems in modern air travel, a high-performance cabling network is the critical platform for airport's entire internal and external telecommunications plus other operational applications and services.

This high-performance cabling network is fundamental to connecting and supporting the key airport systems including its ICT infrastructure for security, police and customs.

Technology can be increasingly leveraged for contactless services – for example in the UAE, smart gates have greatly reduced the human to human interaction through the immigration process. Eye scanners and other equipment can reliably identify people without need for contact.

Cabling infrastructure typically features 20-year refresh cycles. For a 24-hours business such as an airport, the highest reliability is essential as any downtime can significantly impact operations and passengers. ◼

TRANSFORMING AIRPORT EXPERIENCE WITH SINGLE SYSTEM RECORD

By integrating with cloud and on-premises applications and building a single layer of data, ServiceNow can transform passenger and employee experience.

MARK ACKERMAN,
Regional Director, Middle East and Africa, ServiceNow.

Service Now has been working in the airport space for some time. Often what we find is legacy IT service management solutions. Some of the airlines in the MENA region have up to 10+ implementations of a help-desk solutions across their organisation. What we have done is immediately go in and reduce that duplication from an IT service management perspective, creating a normalised environment.

This has really come from having a single system of record. What we found with a lot of customers is having multiple records of data, and they are not able to normalise data and actually understand what they spend. And in most instances, it is kind of the backbone of cost reduction. The most aggressive roll out within an airline has been five weeks, to the maximum of about six or seven months, versus a typical 18 to 24 months projects.

In the Covid world, organisations are now working from home and they need to work in a lot more agile manner. They have a lot of collaboration tools like Slack, Teams, and Zoom. This is helping people to communicate very much in the way we are now. But what is also happening is data is getting even more distributed.

Using ServiceNow in these organisations, we are actually able to move workflows across disparate systems. We have actually seen an acceleration in this space over the last two months to the point where we are seeing a lot more companies come on board and come to us and say, help us reduce the spending.

Airports are not using ServiceNow as a deep system of record. But what the customers are working with us on is looking at how do we improve the customer experience within the airport, the passenger experience and starting to look at creating a simple way to engage with the airports when they have problems.

And that can take various forms. What we found is linking the mobile solutions into the platform and starting to drive case management. And as part of that single work-flow across the airport, what we are doing is we are linking in information that comes out of various systems. And in case management, the field service management is helping to drive customer support across the airport.

Airports want to drive down the wait time. Any negative experience needs to be recorded and managed as a case with service level agreements, so that they can at any point be able

> ## WHAT IT DOES DO FOR THE END USER IS CREATES A SINGLE EXPERIENCE AND SEAMLESS DIGITAL WORKFLOW.

to trace that experience.

ServiceNow is that horizontal layer that makes sure all of those core systems perform at operating at the highest level. What drives the complexity here is the broad scope of services that airports provide. It is a complex business and heterogeneous environments in terms of services that they provide.

There is high complexity to maintain and to operate all of those services. ServiceNow provides the simplification to enable people to be more efficient and provide that level of service that passengers are looking for.

The complexity of an airport is not just related to how many systems there are or how complex is the network. When you are talking about an organisation as complex or heterogeneous as an airport, usually there is a huge organisational change required to make all of your policies streamlined.

So, it is not just about technology, it is also about how you re-engineer your policies and you reorganise your teams, rescale and upskill your teams so that they follow the transformation that you are doing at the technology layer.

ServiceNow is more of a horizontal layer. There is a lot of data that is being collected and a lot of data points, and at which point we have to insert ourselves. ServiceNow is being selected to serve over solutions. If we talk about a hybrid cloud strategy within an organisation, where they will have on-premises solutions, legacy implementation, and some cloud stack deployments or cloud-based services.

What ServiceNow can be for an organisation is that overarching layer to create a marketplace, whether it is for a passenger consumer, or IT consumer or business consumer. They can actually go to a certain marketplace portal, which is presented by ServiceNow and then pick from a service catalog based on entitlements, based on persona and so on.

ServiceNow will integrate from different clouds and orchestrate the different services from those different clouds. It will assist with things like metering, consolidation, consumption, policies against those cloud-based services. And then ultimately, manage the lifecycle to change the configuration management tied into it. What it does do for the end user, is it creates a single experience, and creates a seamless digital workflow across all their disparate systems. ∎

KEY TAKEAWAYS

- Airports are not using ServiceNow as a deep system of record.
- Airports want to drive down the wait time.
- ServiceNow is built to simplify complexity.
- Any negative experience needs to be recorded and managed as a case with service level agreements.
- ServiceNow is that horizontal layer that makes sure all of those core systems perform are operating at the highest level.
- What drives the complexity here is the broad scope of services that airports provide.
- It is a complex business and heterogeneous environments in terms of services that airports provide.

DIGITAL CHECK-IN, DIGITAL HEALTH SCAN, DIGITAL PASSPORTS

Once air travel resumes expect to see innovation along the passenger travel chain reducing personal contact, increasing automated detections and alerts.

AVTAR JALIF,
Partner, Head of Transport and
Logistics, KPMG Lower Gulf.

For some years, airlines have expanded their fleets in anticipation of an ever-burgeoning demand for travel. The sector was subject to sustained global pressures, including a relatively weak economic environment resulting from trade tensions – including those between the US and China, as well as Brexit.

These pressures were compounded by insecurities, due to fluctuating oil prices and geopolitical issues – factors which tend to impact the aviation sector more than others.

Airlines and airports around the world, including the UAE, are amongst some of the hardest hit due to travel bans and restrictions resulting from the coronavirus pandemic. With international traffic generally being restricted to repatriation flights and cargo, most aircraft around the world are grounded and airport halls are nearly empty.

With wafer-thin margins at the best of times, airlines and airports around the world are fighting for survival during the current crisis and liquidity is under tremendous stress. This reflects the substantial costs continuing to be incurred for staff, large terminals and aircraft ownership and lease costs, whilst revenues are minimal.

The International Air Traffic Association estimates that industry passenger revenues could be $242 billion, 44% below 2019 figures. In the wake of this crisis, the aviation sector has been seeking to contain costs and increase liquidity.

Even with the relaxation of travel restrictions in the coming weeks and months, these pressures will continue. Propensity to travel may be subdued due to economic and safety concerns, capacity at airports and on aircraft will be constrained due to social distancing and other safety requirements and local authorities are likely to regulate flights between countries subject to the state of local infection rates.

Technology is likely to play an even greater role to help airlines and airports emerge from the crisis, which is likely to accelerate the adoption of automation and artificial intelligence at airports and on aircraft.

In the near future, passengers can expect increased touchless check-in and security processing, enhanced biotechnology to screen for symptoms, command centers at airports to maintain social distancing using heat maps and even the use of digital passports to certify passengers' health.

Once travel restrictions are eased to pre-Covid-19 levels, adoption of technology at airports, in aircrafts and across the supply chain will continue at a rapid rate, as the industry seeks to become safer and lean. Airports will look to increasingly use artificial intelligence in order to reduce human interactions for security and customs clearances. This may include biometric facial recognition technology, virtual or augmented reality and automated baggage processing.

Ultimately this will benefit consumers. Technology will help airlines to reduce cost and decrease ticket prices and improve customer experience at airports and on the aircraft. ■

PANDEMIC ACCELERATING AUTOMATION OF AIR LOGISTICS

The ongoing pandemic has disrupted global supply chains but the industry is adopting AI and automation to sustain and improve efficiencies.

MOUSTAFA ELBANHAWI,
CEO, DHL Global Forwarding,
Arabian Cluster

In 2019, air cargo performance was impacted by slowing GDP growth in manufacturing economies and trade tensions that dampened global trade. Softer business and consumer confidence, along with falling export orders, also contributed to air freight struggles.

IATA described 2019 as the worst year for the air cargo business since the Global Financial Crisis in 2009. While trade tensions eased somewhat at the beginning of 2020, the Covid-19 outbreak in January has since added more pressure and has severely disrupted global supply chains.

Despite a challenging market environment, all divisions under The Deutsche Post DHL Group, including

DHL Global Forwarding has recorded positive growth in the first quarter of 2020, with the Group's broad geographic footprint and portfolio of logistics solutions.

There is no doubt that aviation has been one of the worst affected industries. Naturally, airports are also significantly impacted, as they have to bear fixed operating costs despite a drop in passenger numbers.

The fall in passenger traffic has grounded many aircrafts, and thus severely impacts belly capacity. This is posing a challenge to air cargo operators who have to grapple to service demand with limited capacity. On the ground, new logistics arrangements, a result of the need for social distancing, safety and hygiene protocols, are also impacting how operations are carried out, such as trucking and ground handling.

However, air cargo remains at the frontlines of the fight against Covid-19, delivering lifesaving relief materials and medical equipment to the countries that need them. With the gradual resumption of passenger travel, it would be imperative for governments to simplify customs declaration processes and ease off restrictions to aid the recovery of the aviation sector.

The Covid-19 crisis is creating a

challenging situation regarding staffing, especially in cities under lockdown, closing workplaces, or where strict social distancing measures apply. As digitalisation is a core focus in the company, DHL Global Forwarding is ready to manage these challenges including allowing most of our workforce to be working remotely from home.

Employees are able to access and utilise the systems and remote working tools DHL Global Forwarding have in place to keep in touch with our customers to manage their shipping needs.

The logistics sector is being disrupted by technologies such as robotics, automated systems, drones, Big Data and AI. Digitisation has the potential to improve operations for shippers and freight forwarders; even more during unpredictable times such as the ongoing Covid-19 pandemic, which is going to accelerate digital disruption of the industry.

It is against this unpredictable and challenging climate that DHL Global Forwarding is more convinced that the Group's Strategy 2025 to focus on globalisation, e-commerce, digitalisation and sustainability is the right one. DHL Global Forwarding is convinced that digitalisation bears the potential to ease improve the daily business of shippers and freight forwarders simultaneously. ■

TRANSFORMING RESPONSES AND ALERTS AT THE AIRPORT

Gaining access to passenger data and escalating for advice and remediation are going to be key transformations in an air travellers journey.

RAJ SABHLOK,
President, ManageEngine.

Most agree that air travel itself will not be the same at least in the near future. With Covid-19 still being a big factor, airports and airlines will continue to impose restrictions. Until there is a better understanding of how to operate in a Covid-19 world, there will be significant investment in safety by airports and airlines.

The use of new screening and tracking technologies is expected to be much more intense. To limit direct contact with passengers, technology will be leveraged more heavily for passenger check-in and security.

We can also anticipate the deployment of thermography technology to identify passengers with elevated body temperatures. In Singapore, the government has already deployed robots in public parks to remind people to social distance. Similarly, robotics will soon be leveraged in airports to limit direct contact.

Ideally, in the medium and long term, there will be rapid testing of technology at airports that can identify or clear travelers of Covid-19 or other contagious diseases. Technology will also be required and used to track passengers' travel history. It will be more important now to track and know a passenger's travel history, determining if they have recently visited a hotspot country or city.

Most importantly, the development and utilisation of technology that limits direct contact and tracking will be imperative. Allowing passengers self-check in, line queuing technology, automatic sanitisation of baggage and passenger compartments. Virus detection and testing technology will have to evolve to spot potential infections before, during and after air travel.

Data processing applications will play a central role in the aviation industry. Information related to passenger travel and health history, real-time virus information by location, travel restrictions and more will need to be captured.

All this data will need to be analysed in real time with the help of analytical and AI tools to allow the aviation industry to provide safe travel. Ultimately, the long-term answer will require a vaccine, treatments or a cure; but until then, technology will be critical for safe travel.

In some sense, the issues and solutions are data dependent. Airports and airlines will need to quickly identify potential issues, example a passenger exhibiting Covid-19 symptoms, and notify the right people quickly and remediate. ManageEngine's ServiceDesk Plus does all this quite effectively.

ServiceDesk Plus is a help desk that is designed to capture incidents, notify the responsible individuals and implement changes to remediate a problem. Additionally, the built-in AI capabilities within ServiceDesk Plus can provide self-service functionality for staff to query a knowledge database or determine how to handle certain situations.

Beyond the help desk, software will be imperative for managing the expanded technology infrastructure required by airports and airlines. There will be more applications, devices and expanded networks deployed by the aviation sector, and all of these technologies will need to be monitored, managed, analysed and secured. ■
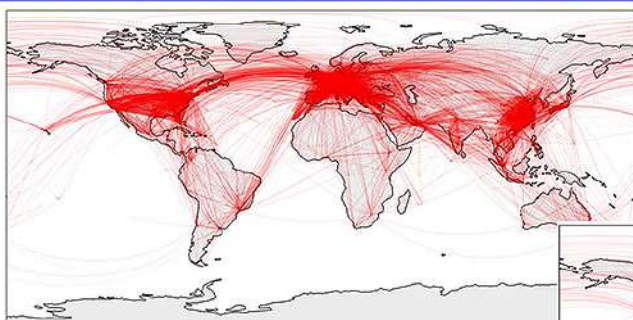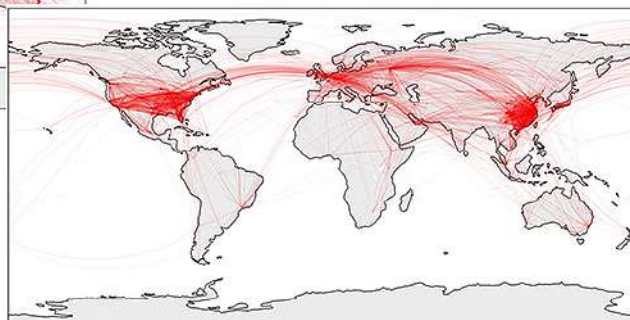
IATA

NO REGION HAS BEEN IMMUNE TO AIRCRAFT GROUNDING

With global passenger aircraft utilisation slipping below the 20% mark, IATA has come up with best practices for reopening the sector in a safe way.

Air connectivity continues to be seriously disrupted globally

3 May 2019

IATA Global Media Days 2019 · #IATAMediaDays

1 May 2020

Global air connectivity continues to be seriously disrupted, with no region immune. The number of daily flights worldwide were down 81% at end of Q1, effectively grounding the entire industry, with the exception of some domestic flights in the US and Asia. At the end of May, African flight departures were down 94% and Middle East flight departures were down 88%.

Airlines are continuing to suffer and are battling for survival. Airline revenue losses means GDP and jobs at risk. Main priority is to secure relief for industry through government engagement across the region through direct financial support, loans, loan guarantees, reduction, waiver or deferral of government-imposed taxes and fees. Aviation specific relief measures in Africa and Middle East have not been as strong as in other regions

Almost every challenge in aviation requires a team effort to solve it. Today we face the biggest challenge in commercial aviation's history: Restarting an industry that largely has ceased to operate across borders, while ensuring that it is not a meaningful vector for the spread of COVID-19. Meeting this challenge will mean making significant changes across air travel experience: pre-flight, at the departure airport, onboard, and post-flight.
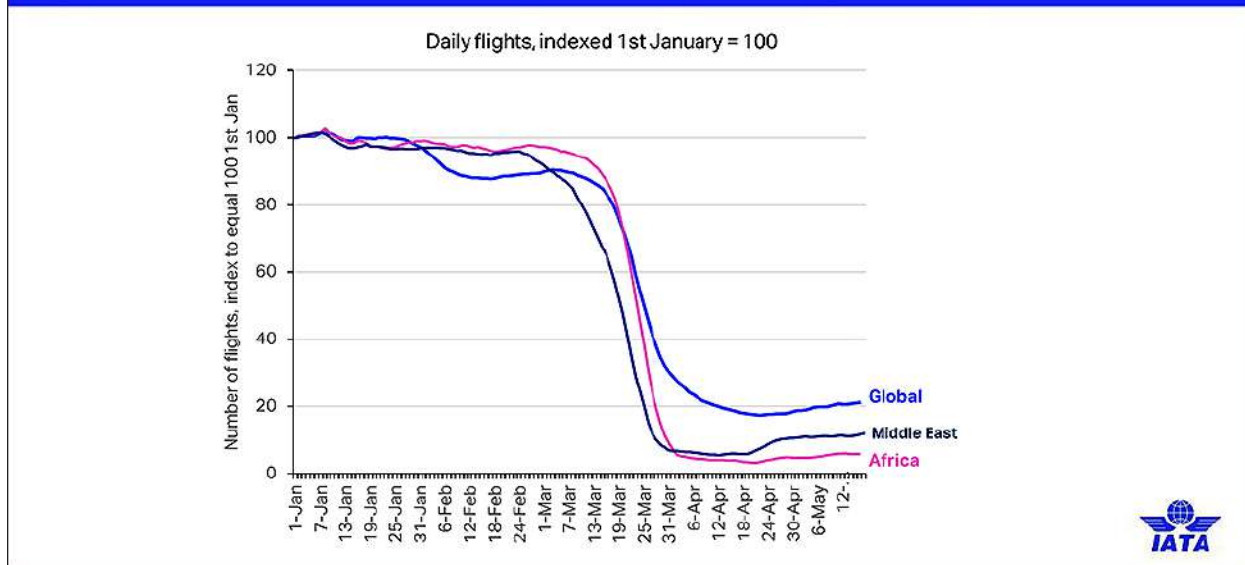
MUHAMMAD ALI ALBAKRI,
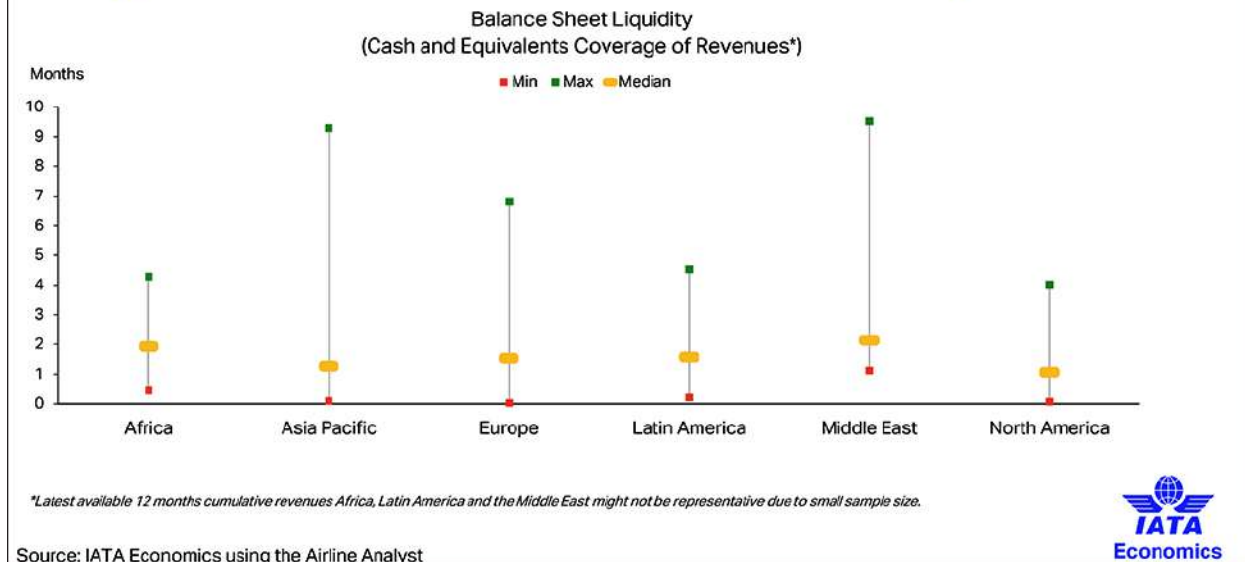*Regional Vice President for Africa and the Middle East, IATA.*

All graphics: International Civil Aviation Organisation

Africa and the ME flight departures 95% lower at the end of Q1
As of May 17th, flights further reduced by 94% (Afr.) & 88% (ME) relative to January 1st 2020

Daily flights, indexed 1st January = 100

Number of flights, index to equal 100 1st Jan

Global
Middle East
Africa

IATA

Now airlines are fast running out of cash.
The typical airline had 2 months of cash at the start of this year

Balance Sheet Liquidity
(Cash and Equivalents Coverage of Revenues*)

Months

■ Min ■ Max ■ Median

Africa   Asia Pacific   Europe   Latin America   Middle East   North America

*Latest available 12 months cumulative revenues Africa, Latin America and the Middle East might not be representative due to small sample size.

Source: IATA Economics using the Airline Analyst

IATA
Economics

It will require governments to assume broad new responsibilities in terms of assessing and identifying traveler health risks, as governments did for security after 9.11. Airlines and airports will need to introduce and adapt processes and procedures to minimise contagion risk in the airport and aircraft environments.
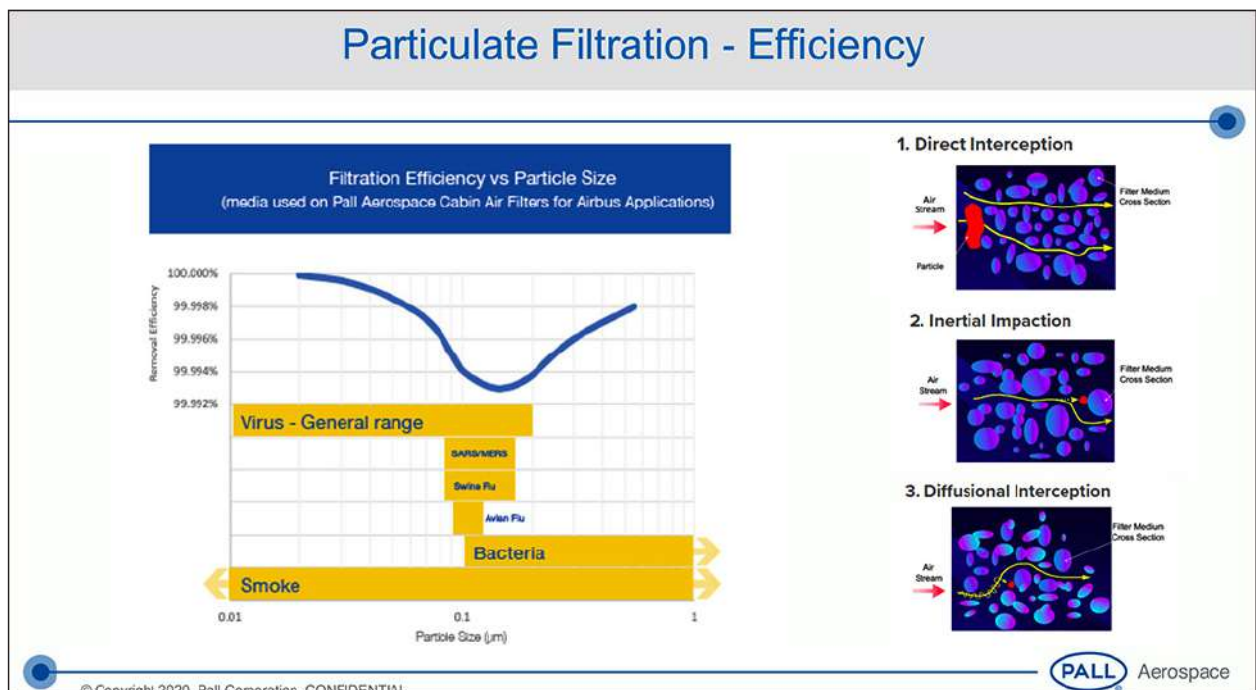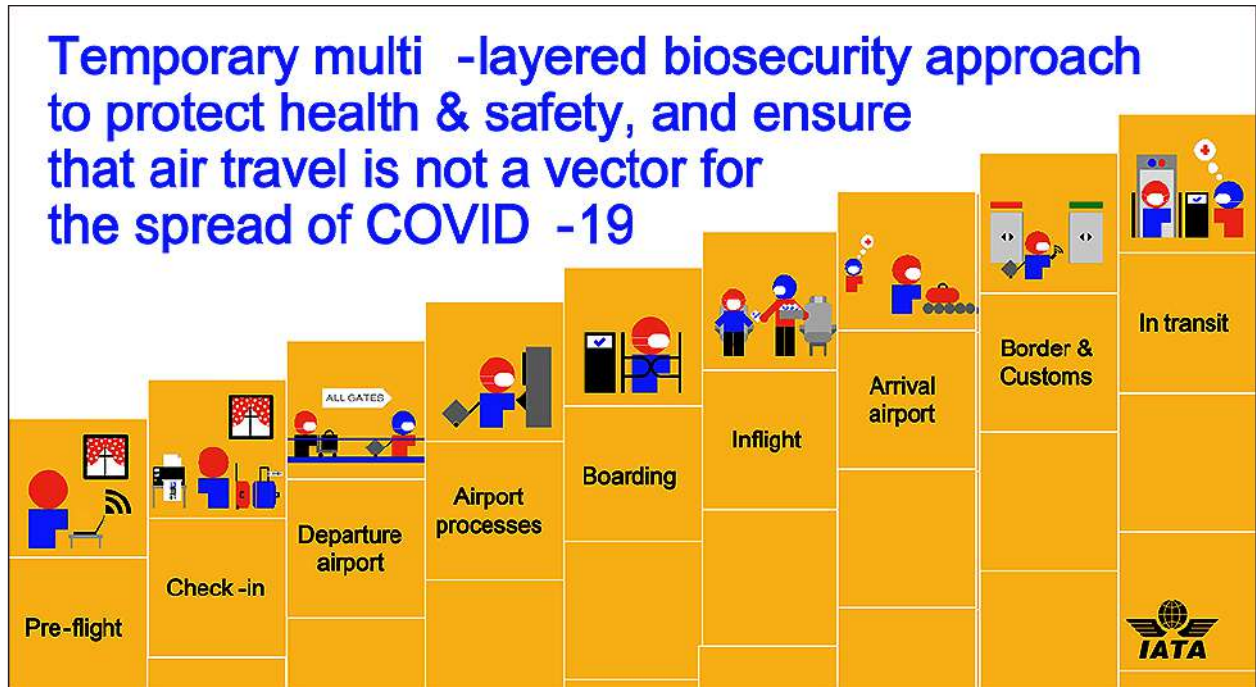
Passengers will need to be empowered to take more control of their travel journey, including responsibly assessing their own level of health risk before a journey.

Because there is no silver bullet solution, IATA recommends a temporary multi-layered approach during the restart for the health and

safety of passengers and crew, and to ensure that air travel is not a vector for COVID -19 transmission.

AT THE AIRPORT
Access to the terminal building should be restricted to airport and airline workers and travelers, with exceptions being made for those

All graphics: International Civil Aviation Organisation

Temporary multi-layered biosecurity approach to protect health & safety, and ensure that air travel is not a vector for the spread of COVID-19

Particulate Filtration - Efficiency

accompanying passengers with disabilities or unaccompanied minors. Temperature screening by trained government staff at entry points to the terminal building. Physical distancing through all passenger processes, including queue management, use of face coverings for passengers and masks for staff in line with local regulations.

Self-service options for check-in used by passengers as much as possible to reduce contact points and queues. This includes remote check-in; automated bag drops with home printed bag tags and self-boarding. Boarding should be made as efficient as possible with redesigned gate areas, congestion reducing boarding priorities, and hand luggage limitations.

At the arrival airport, IATA foresees several layers of protective measures. Temperature screening by trained government staff if required by authorities, automated procedures for customs and

All graphics: International Civil Aviation Organisation

Typical Aircraft Environmental Control System (ECS)

Purpose of ECS: To control the pressure and temperature in the cabin and cockpit.
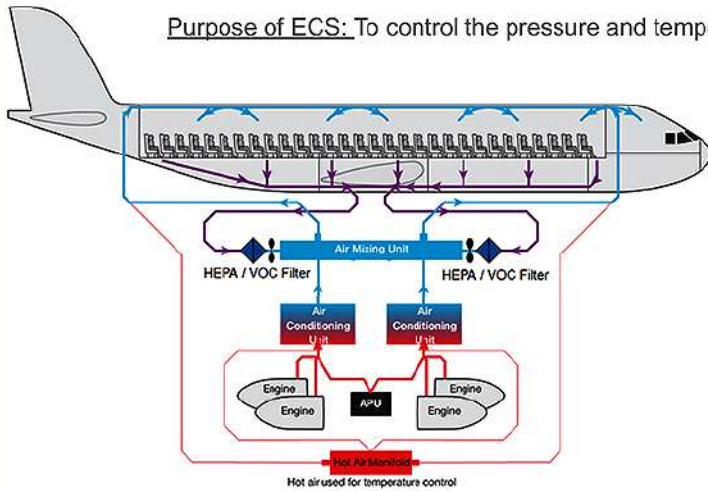
Fresh Air: Regulated CS 25.831

Minimum 0.28 m³/min per person

Recirculation Air:

Typically 0.19 m³/min per person

- Reduces temperature gradients
- Disperses CO_2
- Increases humidity

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PALL Aerospace

KEY TAKEAWAYS

- IATA does not recommend restricting the use of the middle seat while onboard aircraft.
- Almost every challenge in aviation requires a team effort to solve it.
- IATA recommends a multi-layered approach during the restart for health of passengers, crew.
- Self-service options for check-in used by passengers to reduce contact points and queues.
- With fewer seats to sell, unit costs would rise sharply.

border control including use of mobile applications and biometric technologies, accelerated processing and baggage reclaim to enable social distancing by reducing congestion and queuing, health declarations and robust contact tracing are expected to be undertaken by governments to reduce the risk of imported chains of transmission

MIDDLE SEAT NOT AN OPTION

IATA does not recommend restricting the use of the middle seat to create social distancing while onboard aircraft. Available evidence suggests that, the risk of virus transmission on board aircraft is low even without special measures. There are several plausible reasons why COVID-19, which is spread primarily by respiratory droplets, has not resulted in more on-board transmission, and why air travel is different from other modes of public transport. Passengers face forward with limited face-to-face interactions. Seats provide a barrier to transmission forward or aft in the cabin. Air flow from ceiling to floor further reduces the potential for trans mission

Air flow rates are high and not conducive to droplet spread in the same way as in other indoor environments. High Efficiency Particulate Air filters on modern aircraft clean cabin air to hospital operating theater quality, further assisted by high levels of fresh air circulation. Moreover, even if mandated, keeping the middle seat open will not achieve the

recommended separation for social distancing to be effective. Most authorities recommend 1M-2M while the average seat width is less than 50cm.

Calls for social distancing measures on aircraft would fundamentally shift the economics of aviation by slashing the maximum load factor to 62%. That is well below the average industry breakeven load factor of 77%. With fewer seats to sell, unit costs would rise sharply. Compared to 2019, air fares would need to go up dramatically, between 43% and 54% depending on the region—just to cover costs. For Africa and the Middle East this would be a 43% on average increase.

IATA is reaching out to governments with the roadmap. The mutual recognition of globally agreed measures is critical for the resumption of international travel. This engagement is in support of the COVID-19 Aviation Recovery Task Force of the International Civil Aviation Organisation, which is tasked with developing the global standards needed for the safe re-start of aviation. ■

All graphics: International Civil Aviation Organisation