Digital
Boardroom
Report

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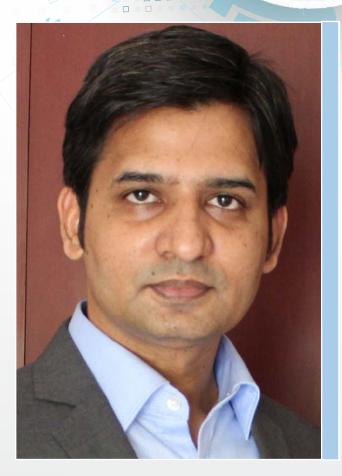
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Introduction

What a year it has been! One of major upheaval yet resounding in faith; a very testament to the resilience of mankind and unparalleled opportunities through the times of despair.

Over the last year, as consequences of the pandemic unfolded, airports wore a deserted look, undertaking drastic measures to cut cost and stay afloat. The mood of despondency, however, thankfully did not last long, with many of the airports initiating innovative technology measures to welcome back travellers with a larger intent of reimagining the future of travel altogether.

Contactless travel capabilities, like biometric and QR code operated check-in kiosks, robotic transportation for baggage, drone delivery of cargo, use of chatbots to keep customers updated, foot operated elevators, UV light driven, self-cleansing security machine trays, rapid health screening technology at the airport are just some of the technologies that continue to ensure that countries could keep their borders open and their travellers flying.

Going forward, airports will emerge from the traditional role of travel facilitator to that of 'new-value-orchestrator' enabling purpose-led convergence leading to seamless experience for travellers and enriched value for partners they serve and communities they are part of. More and more airports are keen to ensure that on-the-day decisions and long-term strategies are supported and driven by machine-first intelligence. The travel industry will witness the major entities like airports, airlines and hospitality participating in an ecosystem play, along with niche players across logistics, local experiences,

retailing and Food & Beverages: giving the control of time and choice of experiences in the hands of the traveller and empowering the workforce with information required to run frictionless operations. Airports being a key link in the travel value chain, their focus on harnessing the local context and paving ways to new business and operating models will be instrumental in building a harmonious and sustainable travel industry. At this juncture, airport leaders coming together at this boardroom, with a common purpose and goal to revive travel, calling on the governing bodies to implement standards, governments to facilitate measures to support the aviation industry and aviation eco-system partners to collaborate in this endeavour is a welcome start.

Balaji Jagannathan
Global Head, Strategic Initiatives Group,
Travel and Hospitality, TCS

Foreword from the **Editor**

IT WAS AN absolute pleasure to welcome a select few C-level executives to this intimate digital boardroom, which brought together senior decision maker attendees in an informal setting to discuss the high-priority items that are currently on aviation's agenda.

Through these discussions, we have seen that there is a willingness from airports to adapt their airport experience to welcome back passengers and facilitate a safe travel. However, they are frustrated by the unpredictable changes to regulations which fans the flames of uncertainty in the public, which in turn only creates barriers to travel and undermines their own efforts to instil confidence. The attendees also reiterated the general public's perception of the aviation industry as being a super spreader of the COVID-19 virus. An image that they keenly wish to do away with.

International Airport Review has compiled this extensive report following the digital boardroom, highlighting the major topics of discussion that arose during the meeting. We hope that you find it a useful tool and that it provides an insight into the most important issues that airport leaders are facing now.

Holly Miles
Editor of International Airport Review

Foreword from the **Chair**

Airport executives are exploring practical opportunities and flexible strategies that deliver new revenue streams without necessarily engaging in infrastructure rehabilitation or construction. Passengers need to feel confident that their journey is safe.

With the rapid adoption of touchless technologies for passengers, a few challenges should be expected. Firstly, passengers would expect their time spent at the airport to be smooth and painless: airport operators must work with different stakeholders and work closely with different system integrators to find the best options to reduce friction and to adopt friendly technology. Secondly, new technology must bring new revenues: airport operators would be more engaged with and committed to deploying new technologies that would offer new sources of revenue and/or that would encourage passengers to spend some of their time shopping and spending on experiences at the airport. Speeding up services at the different touchpoints should contribute to more time for shopping and dining.

The COVID-19 pandemic is not the only reason to deploy new technologies and render the passenger experience more seamless and touchless. These technologies existed and were being tested and deployed even before the pandemic. However, emerging from the pandemic will accelerate their deployment and adoption. There is an opportunity right now for all key airport stakeholders to deploy more inclusive and efficient technologies.

Dr. Fethi Chebil
Airport PPP Expert

Top airport priorities

Continuing with innovation programmes

Many airports have been dealing with the problem of how to drive innovation despite severe financial problems, particularly in terms of investment programmes and knowing how to make the adjustments in their airports to facilitate new technologies. With programmes like incorporating biometrics and delivering a "my face is my passport" experience from curb to gate, these are the some of the initiatives that airports would like to achieve.

However, there is a perceived reluctance from stakeholders in accepting any additional cost. Therefore, it is difficult for airports to find ways to make innovation happen without shouldering the whole cost themselves. In this case, airports need to look at creative ways of working with their partners to be able to deliver new technology and innovation programmes. Airports are struggling to find the money to spend and would like airlines to contribute to the cost. However, airlines do not have the passenger volumes and are hence unable to do so thus creating a vicious circle. One UK airport reported that there are some funds that they are applying to, to try to drive forward some of their big capital projects, and the delivery speed of those capital projects will be determined by whether they are successful in gaining the funding.

One airport stated that there is no need for technological innovation in responding to the current situation, saying instead that it is more about how you use the technology, and that is where the real solution is going to be. They are focusing on the international travel passport, the single biometric token and other process improvements such as these, but also thinking about how to engage with the traveller.
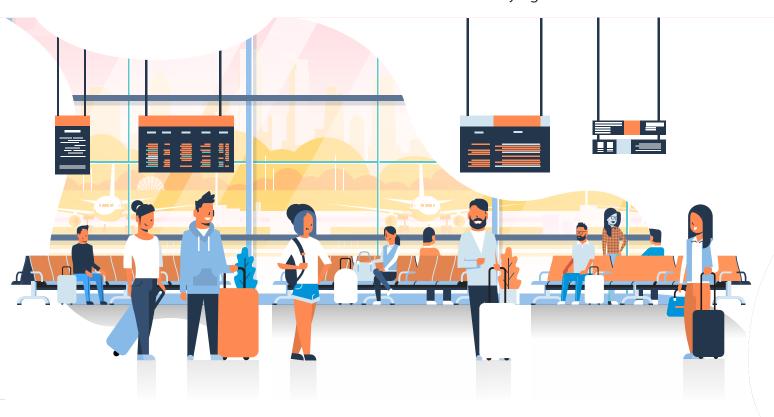
Rebuilding confidence

People want to feel safe and secure, and airports need to build passengers' confidence in returning to these spaces. A focus for airports is innovation around the whole passenger journey and investing in a frictionless or touchless journey from kerb to gate is the ultimate goal. This is hindered by the constraints of being in a massive financial downturn and operating on very low levels of income. Some airports have been lucky enough to benefit from government assistance through various schemes, but this is not uniform across the globe.

One airport reported receiving 80 per cent of funding for a digital innovation project on its websites, creating additional channels to communicate with passengers with up-to-

date information on their flights. The same airport said that it is looking at doing a CAPEX realignment to meet the changing needs of passengers, but their decisions are both passenger and board-driven, and they understand that, as a board, they need to be a smart airport: "Because that's how we will differentiate from the airports around us." It was raised during the meeting that lots of potential passengers are thinking twice about travelling now and that, in the future, implementing touchless, digital journeys is an absolute minimum that all airports need to deliver. The guest experience needs to be put at the centre of airport operations and needs to be at the heart of new operating models to grow back much more efficiently.

Common data

Another major challenge highlighted was around data. How should common data be addressed? Granted, there is the International Air Transport Association's (IATA) 'IATA Travel Pass', or the European Union (EU) 'EU Digital COVID Certificate' that is in development. But that does not necessarily cover places like the UK when travelling. From a UK government perspective, at this moment in time, the changing of the traffic light system – one country may be deemed 'green', as the case was for Portugal, and then they are changed to 'amber' very quickly – and the consequences that follow in terms of quarantine requirements when arriving back in the UK, creates uncertainty and does not inspire confidence in British travellers. There must be a single wallet that the aviation industry agrees on that enables

passengers to travel and that must be inclusive of agreements regarding issues like vaccinations. So, when governments discuss the travel corridors that they are trying to establish between certain countries for vaccinated passengers, it raises the question of what will happen if a passenger receives the Moderna vaccination and the one country that they want to travel to, does not accept Moderna – this would make things very complicated.

Those who are frequent travellers are probably able to cope better with the changing requirements. Those who are not so frequent travellers will struggle more with that, and their anxiety will be higher. The question is how to best support and help a passenger to understand the necessary requirements, which differ from country to country.

> **" The question is how to best support and help a passenger to understand the necessary requirements, which differ from country to country. "**

Data privacy

Data is clearly going to be a big challenge for everybody. Common protocols, data privacy and the question of: who is the custodian of that data? If you travel outside of Europe, are you, as a passenger, happy to sign away that data? Do you know where it is going? Do you know what it is going to be used for? Are you confident that it will be used in the right way? There is a huge challenge here around digitalisation. There are opportunities for cross-industry learning: during crises, it is very easy to look inwards and focus only on your own issues, but it can also be helpful to look at other industries and see how they are tackling similar problems. Their solution may well be something that the aviation industry can benefit from.

People want to have a seamless experience at an airport, and a lot of the technological enablers already exist – so, it is not a technology issue. It might be an affordability issue for some operators. The biggest frustration for the industry is trying to create a single biometric token – because, if the industry agreed on one interoperable biometric token, then it means

that a passenger's wallet, in theory, could become their passage through an airport. However, some passengers may prefer facial recognition, some iris scanners, some still preferring fingerprints, etc. Therefore, the industry needs a global agreement on what that travel pass looks like, because a single biometric token will enable easier and smoother travel. That then leaves it up to the airports to decide who the suppliers are, which technology they adopt, and then adopting a technology that is suitable for their passengers and not based the price point.

Reducing OPEX

Financial survival is at the top of the priority list in terms of controlling OPEX. The question is how to reduce OPEX, whether it is maintenance cost, manpower cost, automating operations, and more. The industry downturn and low passenger traffic has provided airports with an opportunity to future-proof their terminal buildings.
The crisis is something that will stay for some time, at least from a confidence perspective, and passenger expectations of safety and wellbeing at the airport terminal will be sustained for the foreseeable

future. Airports are making sure that some of the measures that they have taken are going to be a part of their permanent concept of operations going forward. For some airports, the biggest challenge has been just keeping everything open, as they have not had commercial passengers pass through their airport since March 2020. One airport said that it is very fortunate to be part of a long-term, open-ended infrastructure fund with patient owners.

For some airports, the biggest challenge has been just keeping everything open, as they have not had commercial passengers pass through their airport since March 2020.

For some airports that have a national carrier using their airport as a hub, those airports can almost ride on the back of the airlines' recovery.

Cyber-security

As airports deploy more technology, they open themselves up more to cyber intrusions. Airports are trying to use technology to enhance their passenger experience and optimise their business, but one eye must be on cyber-security, as well, which has never been more important. Airport technology teams have been working to enhance their products and, therefore, have enhanced the data to drive additional revenues going forward. But with more technology, more data and more solutions come increased cyber threat. Airports have reported an increase in cyber-security issues.

Business 4.0 for Managing Impact of COVID-19 on Travel and Hospitality

The way forward for T&H recovery post COVID

As the dust settles from the impact of COVID-19 on Travel and Hospitality (T&H) business an imperative need will be to focus on providing personal health and well-being assurances to customers as well as employees as a priority. Remaining true to this ask requires the various industry players to build purpose-centric ecosystems with products and services that look beyond traditional boundaries and offer holistic solutions:

- Building financial resilience for sustainable operations
- Going digital in a human-centric business
- Building adaptable business and operating models
- Purpose-centric ecosystems to drive sustainable growth
- Harnessing customer loyalty to rekindle demand

Shankar Narayanan
President and Global Head, Retail, CPG, Travel & Hospitality at TCS

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The challenges facing airports

A uniform requirement between countries

The nature of the pandemic has made it very difficult to stay with one precautionary measure. One day, the curve of new COVID-19 infections is flat, and the other day, countries are affected with increased cases, the protocols end up being changed and these changes need to be communicated to airlines and to the authorities within the airport.

One airport that was mainly a domestic airport reported adding a lot of European routes. Their biggest challenge is getting all the members in the common travel area to be under the same guidance or legislation for domestic travel.

Despite the pandemic, people are not actually scared of flying. They fear going somewhere and getting stuck, or arriving somewhere and not knowing what the protocol is with respect to quarantining or not having the right testing or vaccination certification. So, now more than ever, aviation must get to a stage where all the stakeholders across the aviation ecosystem agree on a common set of principles and protocols to re-establish what the essentials for travel are. At the moment, we are only adding barriers to travel and are making it far more difficult, and this is killing demand. The industry needs to come up with a set of protocols which means that, if followed correctly, the traveller is free to travel widely across the world, free to enter and re-enter, and any changes will be given 15- or 30-days warning.

A concerted effort

If we go back to the nature of the crisis – it first started as a health crisis – airports and airlines had nothing to do with all the restrictions that followed, and we must remind ourselves of this. The authorities are reacting to health data, the peaks and troughs, and the number of cases. This is where a concerted effort needs to be made by industry representatives. Airlines, airports and regulators – such as the International Civil Aviation Organization (ICAO), Airports Council International (ACI) and IATA – must sit down with the health authorities. This is the crux of the issue, and the nature of connectivity is so huge that it cannot be sorted out single-handedly by one airport or one airline, or even one region. It is going to be a very hard task to achieve. Between these four parties, something different must be done if the industry has any hope of returning to 2019 figures.

Optics

Air travel is an easy scapegoat because it is perceived, by both the public and the press, as something that can spread an infection on a global scale. This is a reputation that the aviation industry must shake off by driving the industry in the right direction. How will the industry get agreement on a global travel passport for vaccinations? We need to collaborate as an industry, and not just within the industry, but with governments and other authorities to get it through.

One airport mentioned that they had recently seen a newspaper cartoon which depicted passengers socially distancing in an airport, but then being crammed in together on their flight. It is this sort of image that the industry needs to fight, because that is how it is perceived. The only way that the industry can overcome this reputation is through collaboration and unity around the lobbying groups with a single message to governments and health organisations. It is no longer just a health issue: this is a global economic issue, and the industry really

needs to hit the nail on the head and drive global collaboration on a scale that has never been done before.

Fragmenting air connectivity

With the changing rules and regulations, the way that people are travelling is changing, as passengers are being funnelled through different routes to their destination.

One airport described the situation in Northern Ireland as 'Schrodinger's Northern Ireland': "We're in the EU, but we're not, and we're in the UK, but we're not." What is being witnessed now in the Republic of Ireland is that people are travelling internationally via Northern Ireland because there is free land movement between the two points. This airport said that it has attracted airlines based on the fact that they know that people will travel from another country to then fly out of their airport

because it is caught in between two sets of jurisdictions and two sets of rules and regulations. Yet, with the political stance in Northern Ireland, they cannot put a hard stop at the border to stop people travelling up and down.

Barriers to entry

People will travel if the industry can enable it. Pre-pandemic, travel used to be relatively easy, but now we have made it difficult and uncertain for passengers. For passengers travelling as family, it is incredibly expensive due to all the different tests that they need to book and pay for. We have traffic light systems, a myriad of different rules to follow, masks must be worn, and you may have to quarantine. The magic of travel disappears

when this is what you must go through. Governments are also not helping by changing their stance at a moment's notice and, sometimes, it is not clear why that decision has been made. No consideration is given to the people who may currently be visiting a country which then suddenly changes from being deemed green or amber to red. To make it easier, the industry needs to talk about digitalisation and how to make it a simpler process.

However, the impact on national Gross Domestic Product (GDP) and the global economy is going to be so significant that, once a country's population reaches a certain point of vaccination, you will start to see governments being a bit more rational at the border. ◪

Preparing for the restart of global air travel

Preparing for the restart

Despite the uncertain nature and outlook of the recovery, there will eventually be one. Airports around the world are preparing for the restart of global air connectivity and are looking to start attracting airlines again. Although, what some airports have found is that, problematically, their incumbent airlines hold a large portion of their slots but have decided not to fly certain flights to save money. One airport said that they have found that the biggest demand for restart has come from other airlines who do not currently fly to the airport but want to, but they can't get the slots to fly there because they're all effectively controlled by the incumbent airlines. So, that has been challenging.

Airports have said that they have been maintaining relationships with their service partners, concessions and so on, who are all getting ready for restart. They have also focused their time over the course of 2020 and early 2021 on new technologies and trying to enhance the passenger experience. There are steps that airports can take to aid recovery: one is to be more aggressive in accelerating growth; another is downsizing the operation successfully, making sure that suspended assets don't open too soon and that resources are as sufficiently deployed as possible. But there may be structural steps for operating model changes that airports can take to grow back more efficiently and win underlying efficiencies as part of an operating model change.

There is a lot of pent-up demand, but people do not feel comfortable planning for two or three months ahead. One of the predicted challenges that is going to be seen within the industry is that when passenger volumes do return, domestic and short haul flights will be some of the first to recover, so airports need to ask how well prepared they are with all the extra processes that are going to be in place for passenger checks. Then, passengers must ask themselves if they have the right quarantine paperwork in place and the right tests. Have they completed their passenger locator forms? Even a small increase in passenger volumes at an airport will bring a negative impact on the passenger experience, such as extremely long queues to get through immigration. London Heathrow Airport (LHR) was impacted by large queues at the end of 2020 just before the UK went back into a second lockdown. They were not even running at full capacity, but they had five-to-six-hour queues to get through immigration.

With all the above points, it must be remembered that there is great opportunity provided by the accelerated change and sense of recovery to look ahead and drive change for great outcomes when recovery does come.

Lobbying

The aviation industry is at the behest of how governments and health authorities are reacting. That lobbying is going to be key to bring confidence in travel back, and to see passenger volumes increase. Airports need to get ahead of the curve and look at their modelling and forecasts for how to open gradually. If they are multi-runway, where is the capacity? What is the right point in time to open a second or third runway?

Dynamic Experience Composition and Cognitive Operations

Ensure a world-class customer experience with airport innovations

As corporatization and competition between airports continue unabated, the key to achieving airport excellence is a world-class customer experience. Thus far the airport information system landscape has been about incremental innovations. There is an imperative need for reimagination of the overall operations.

Airports need a platform-led approach to ecosystem integration across its key functions such as customer experience, airport operations, commercial and engineering. The need is to have seamless, stress free guest experience, retail personalization, operational efficiency and nimble selling through dynamic partner integration.

A platform that combines dynamic customer experience composition and is founded on the bedrock of enterprise digital twin led cognitive operations will aid airports in their pursuit of achieving excellence.

Subramaniam Balakrishnan
Industry Advisor, Travel, Transportation and Hospitality Business Unit, TCS

Biju Manghat
Consulting Partner, Travel, Transportation and Hospitality Business Unit, TCS

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Digitalisation
A Case in Point

Digitalisation

COVID-19 has changed air travel and passenger behaviour forever. Because of this, the regulator is now more accepting of new concepts and increasing automation. While some airports have deferred capital improvements, many of the greenfield airports have progressed, and being digital right from the very beginning is a priority for them. New airports that are in their construction phase are now able to build their airports from the ground up according to this new passenger concept, with all the technology that other airports wish that they had.

One airport commented that it already has a lot of the digital solutions in place, but that it has not made a big difference to passengers, because they would still like to interact with check-in agents and, similarly, with immigration, which the airport thinks is due to the added layer of health protocols. Today, you need to fill in a declaration form and, in most cases, it is a physical form that you need to fill and submit to an agent to verify before you move to the next step. Therefore, standardising the digital platform is going to be one of the challenges that airports will face. The terminal infrastructure cannot be expanded to respond to the additional processes that have been brought in by the pandemic.

There is a big struggle in terms of getting passenger volumes back and, therefore, digital investments are being made very selectively, and many of the original digital roadmap projects that airports had in place have been deferred for maybe 12 to 18 months. Instead, the priorities are primarily around safety and enhancing passenger confidence.

One airport reported that it first started its digital transformation journey four and a half years ago and had made a fair amount of headway through the establishment of three or four key platforms that were well underway before COVID-19 hit. The airport said that the effort that it put into developing those platforms and, more than anything else, developing an organisational capability to deal with digital transformation and technology, stood them in good stead. COVID-19 accelerated organisational change far more rapidly than otherwise might have been possible. The same airport said that the issue, with respect to bringing passengers back, is not one of technology. The technology already exists, and all airports have, in some form or the other, contactless boarding or contactless retail and the ability to use data analytics and work with stakeholders and customers. Now, the challenge is the consistency of processes and protocols. There seems to be such a huge divergence in terms of what somebody is going to accept with respect to travelling from point A to point B and what that common standard is. Aviation must get some degree of common protocols and processes that will allow people to begin somewhere and end somewhere without the fear of potentially being stopped on the journey somewhere in the middle, or not being allowed to return. This is the issue, rather than the technology itself. ◼

Singapore Airlines Lands Operational Excellence with Systems of Insight:

This Forrester analyst report highlights how Singapore Airlines worked with Tata Consultancy Services (TCS) to build Intelligent Airline Operations **(now rebranded as TCS Aviana™)**, a solution to help the airline evolve toward more real-time, automated operations. With **TCS Aviana™**, the airlines achieved operational excellence by overcoming silos and aggregating data to generate insights across single-function applications.

The report states:

"To fulfill its vision of an integrated operational control capability to optimize aircraft turnaround and improve CX, SIA worked with longtime strategic partner TCS to help develop the Intelligent Airline Operations (IAO) solution. IAO uses systems of insight, a key business capability that sits at the core of SIA's operating model."

It goes on to elaborate how IAO not only enabled SIA to empower its employees with real-time actionable insights, but also laid the foundation for real-time data and analytics, helping SIA rapidly develop add-on insights applications, cutting time-to-market by up to two-thirds.

Read the full report HERE.

Future Trends

> **This shifts OEM's primary focus from creating value by making and selling a product to creating value by delivering a service through a product. The manufacturer may or may not make money selling the product itself, but it does make money by providing the service embedded in the product.**

Airport cities

Airports have all the characteristics of a city in terms of citizens, mobility, amenities, safety & surveillance and hosting various service providers within the environment. In the future, there will be greater traction in terms of converting this into an artificial intelligence (AI) led smart airport city. This is a trend that has seen developments where they are using AI to know what is happening to the passenger, personalising the whole interaction, and then making it more engaging for their citizens. Another thing that we are seeing become more popular is business platforms. Many infrastructure players are trying to look at themselves as a business platform, departing from traditional concession models on base

infrastructure. Multi-sided platform approaches have great potential for large infrastructure providers to monetise their assets more effectively. At the same time, it offers greater nimbleness to deliver to the dynamic nature of customer demands and fosters robust economic growth within the region.

Servitisation - When products turn into services

Airports should look to take economic advantage of the innovation happening at OEM end in converting their products into services. "This shifts OEM's primary focus from creating value by making and selling a product to creating value by delivering a service through a product. The manufacturer may or may not make money selling the product itself, but it does make money by providing the service embedded in the product". This is achieved through smart and connected products that uses a combination of IOT and AI technologies to close the digital loop between OEMs and customers. This enables remote asset diagnostics, troubleshooting accompanied by very targeted field interventions. At the outset this will enhance reliability of Airport's critical functions such as air-conditioning, passenger movement, baggage handling, security screening, video surveillance, end user IT etc. Carefully strategizing adoption of this paradigm can also provide airport with a cost model that optimises its large fixed / semi-fixed cost base associated with its operations that needs especially mobile assets. For instance, airports can source bus-as-a-service for its airside shuttles, where airport pays for the number of shuttle trips or mileage associated rather than investing into the asset and its maintenance.

Engaging with the traveller

Currently, the traveller is engaged at different touchpoints by many different agencies. For example, they engage with the airline when they book their ticket; then with Uber or an equivalent taxi company to get to the airport; when they arrive at the airport, they engage with a ground handling agent or the airline; then security; then the boarding agent; and then the concessionaires in the experience arena etc. What would be useful to look at is how do airports build a platform for more seamless interaction with the traveller, so that they get reliable and consistent information about their trip and are able to subscribe to services to make their travel seamless and stress free. One of the objectives that will emerge after the COVID-19 global crisis is how the travel ecosystem can build resilience to stay pandemic proof.

It will become more important to communicate consistently with the traveller. This means giving the right information at the right time, so that the traveller comes prepared and knows what to expect at the airport. The pandemic has brought great collaborative thinking between airlines, airports, and other agencies, so they should work together to create a common mechanism to communicate with travellers, to avoid the traveller getting any surprises when they get in touch with the airport and other agencies. This should be underpinned by necessary automation and data processing, which is protected from any abuse. Therefore, how you automate data privacy and then how you build a seamless travel engagement platform could be one of the solutions that will pave the way to the success of the single biometric token.

What Happens When You Turn Your Products Into Services

Servitisation
TCS' Point of view

Manufacturers everywhere are using sensors, software, and wireless connectivity to add features to their products and differentiate them in the marketplace. In this way, digitization and the Internet of Things (IoT) are revolutionizing the sector across categories and geographies.

To be sure, the idea of connected products isn't news to manufacturers. In 1996, General Motors (GM) began offering its on-board OnStar1 concierge service in Cadillacs. What GM did then has become ubiquitous. General Electric (GE) estimates that investments in industrial IoT alone would surpass $60 trillion in the next 15 years. Meanwhile, leading B2B and consumer companies are rushing to connect everything they make from jet engines to tractors to refrigerators to electric toothbrushes.

Regu Ayyaswamy
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