

# FACE THE FUTURE

Get it right: SITA biometrics white paper

**SITA**

**Easy travel.  
Every step of the way  
with biometrics.**

**SITA**

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# Introduction

**By 2040, according to IATA forecasts, passenger numbers will double – from 4 billion in 2019, to 8 billion. Existing paper-based and manual travel infrastructure and legacy processes simply won't be able to cope.**

Fortunately, there are already solutions available that deliver a simpler, faster passenger journey through the airport and beyond. So that passengers can experience a streamlined, worry-free, hassle-free journey, using their face as their boarding pass and much more. Spending less time queuing, and more time enjoying themselves – whether that's sipping a coffee or buying a gift for a loved one.

Many airports and airlines are already transforming towards a greater use of self-service, enabled by biometrics – and biometrics represent a strong focus for airport and airline IT investments. By 2026, over 50% of airports plan to implement biometrics at check-in and bag drop and 70% of airlines expect to have biometric ID management in place. Airports and airlines are aware not just of the need to invest in new technology, but also of the long-term costs of not doing so. Governments, for their part, are well aware of the potential for biometrics to help strengthen security and their borders.

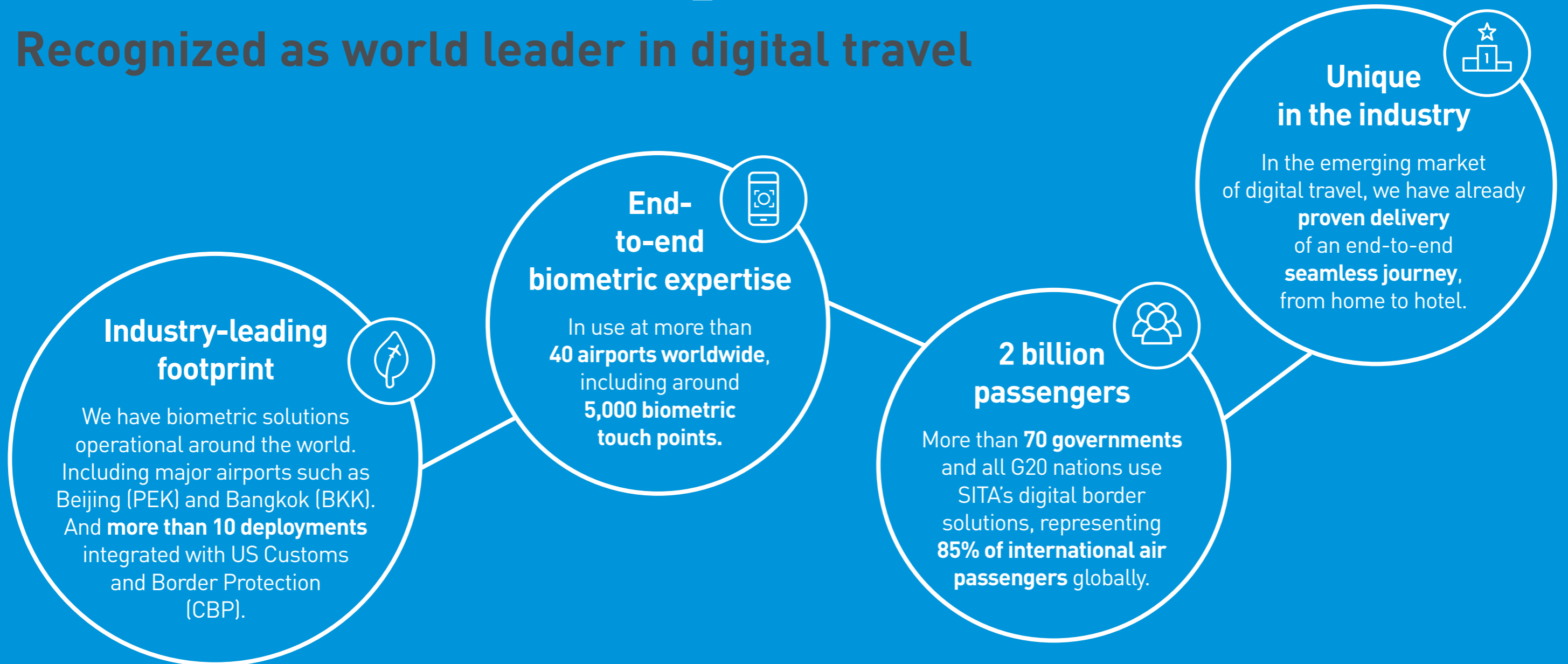
## **Biometrically enabled travel helps you do more with less, delivering:**

- Increased capacity – without major investments
- Optimized resources – focusing staff on higher-value activities
- Faster passenger processing
- New revenue-generating opportunities
- Improved security – through trusted biometric information
- Enhanced scalability

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# SITA: Your partner

Recognized as world leader in digital travel



# CHALLENGES

The goal is to transform safely and ethically to a digital, biometrically enabled future. Using trusted, privacy-preserving, flexible, effective, resilient solutions. To minimize disruption, ensure continuity of service, and help address the challenges facing the industry.

**These include:**

**Space constraints – as passenger volumes double by 2040**

**Staff shortages – especially for specialized skills**

**A rapidly evolving, dynamic environment**

**Complexity – with a dynamic and robust ecosystem of travel providers**

**Customer perceptions of how their biometrics will be used / retained**

**Regulation and standards that are continually changing**

**More demanding, digital-savvy passengers**

**With the whole world going digital, the entire air transport industry is going to be moving this way. We can see it right now, right across the world.**

It's not the right time to make the wrong decisions.

**It's time to face the future.**

## **Space constraints.**

**Digital travel offers a welcome opportunity to do more with less and make the airport experience simpler and stress-free.**

Moving passenger processing activities off-airport, faster passenger processing and smarter touch points all help to reduce the pressure. Meaning that you can handle increased passenger volumes without needing expensive redesigns, new buildings or upgraded terminals. You can also use space formerly needed for passenger processing to improve customer services, adding new facilities to generate extra non-aeronautical revenue through food, drink and retail.

## **Staff shortages.**

**During the pandemic, huge numbers of experienced airport and airline staff exited the industry. But while passenger numbers have bounced back spectacularly, there have been issues re-recruiting enough people with the right skills.**

Biometrics can certainly help. By allowing some processes to be initiated off-airport, and automating others, you can deploy the staff you have where they are most helpful and most needed. This is equally true for border management agencies, who will need fewer staff manually processing passengers – leading to cost avoidance, faster processing times and shorter queues. A good example is the US Trusted Traveler Program.

# A RAPIDLY EVOLVING DYNAMIC ENVIRONMENT

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Digital travel is clearly the way forward for the air transport industry. But biometrics is dynamic and rapidly evolving. You need to be sure that your partner has both deep biometrics experience as well as sound knowledge of the aviation sector, and its specific nuances, technologies and concerns.



## Complexity.

**Every airport has its own challenges and priorities, and by its very nature biometrics technology is complex.**

It needs to be integrated with existing systems, hardware and operational processes. It also needs to comply with local regulations and legislation. As passengers look to perform more activities off-airport, mobile enablement is proving to be a critical part of the picture.

Your partner needs to be able to deliver solutions – whether in the cloud, on-prem, hybrid or as a service – tailored precisely to fit your environment and business. All this while ensuring that a privacy-preserving solution meets all stakeholder needs.

## Customer perceptions.

**Concerns have been voiced over the historical accuracy of biometric algorithms, and the potential for built-in biases – particularly concerning passengers of different ethnicities or ages.**

But algorithms have improved dramatically in the past decade, with a 20-fold accuracy improvement between 2014 and 2018 alone.

Today, biometrics are already confidently used on a daily basis by billions of people on their mobile phones. Passengers want and expect to use biometrics to travel more easily and hassle-free, and IATA's 2023 Global Passenger Survey reported that fully 75% of passengers said they preferred to use biometric data over traditional passports and boarding passes. In the end, convenience wins.

## Regulation and standards.

**After an initially fragmented approach to biometrics, there is now closer coordination in terms of creating and managing future-proof standards.**

The two main global initiatives, supported by many providers, are IATA's One ID initiative and ICAO's Digital Travel Credential (DTC). There are also a number of large individual country initiatives, such as the US Customs and Border Protection (CBP), which is used for the US's biometric entry / exit program, and DigiYatra, in India. Similar programs are in the process of being implemented in many countries, with more expected over time.

# **MORE DEMANDING DIGITAL-SAVVY PASSENGERS**

**SITA**

As air travel continues to grow, passengers are becoming ever more demanding, expecting information at their fingertips, control over their journey, and frictionless travel through the airport. Travelers – particularly leisure travelers – will also increasingly look beyond costs and choose destinations based on ease of travel. More demanding passengers can also benefit airports, however. The growingly large wave of tech-savvy passengers are comfortable doing anything and everything from their mobile devices – and if you offer it, they'll use it.

# FACE THE FUTURE HOW DOES IT WORK?

Biometrics simplify the journey, end-to-end.

## Biometric enrollment.

**Biometrically enabled travel is made possible by the creation of a secure, encrypted digital token.**

This token is created at enrollment by combining a passenger's ID, biometric and itinerary – a process that should take no more than a few seconds.

The digital identity is issued following a self-sovereign identity model, with the data is stored on the passenger's personal mobile device.

Its use is always at the passenger's consent, and it can be securely deleted at any time.

## Biometric identification.

**After enrolling, the passenger can then use their face as their identity at each touch point through the airport, without needing to show travel documents – either paper or on their mobile.**

The process is underpinned by a digital travel credential ecosystem, using next-generation self-service travel

infrastructure, with integrated cloud, mobile, and biometrically enabled self-service touch points.

The process can be extended to include border management, offering passengers the opportunity to benefit from paperless, contactless self-service all the way from their home to boarding the aircraft and on to their destination.



**Passport/ID document**



**Selfie**



**Travel itinerary**



**Personal travel token**

# BENEFITS

**Biometrically enabled travel is a win-win-win for all stakeholders in the air transport industry – from airports and airlines to governments and border agencies, to passengers themselves.**

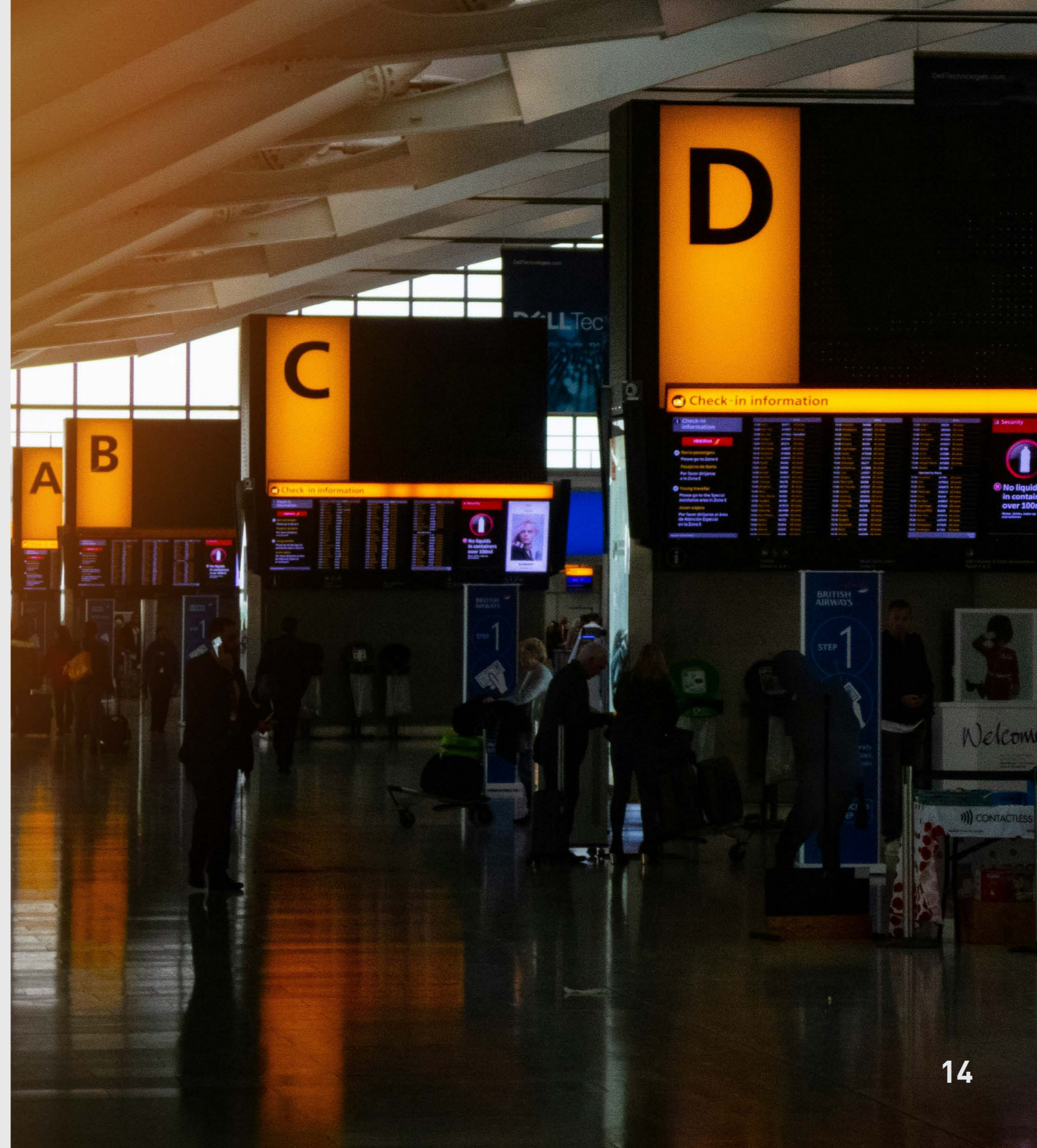


# For airports.

**You can use biometrics to increase capacity within your existing terminals, ease pressure on infrastructure and staff – including ground handlers and security – and help reduce costs.**

Biometrics help you provide a differentiated and distinctive travel experience. So you can improve security and safety while making the most of resources such as automated gates, airside. By reducing queues and providing simple, fast self-service, biometrics give your passengers more choice and more control. And with passengers being 'ready-to-fly', they have more time to spend in retail and dining areas, helping you maximize your non-aeronautical revenues.

Biometric solutions can be deployed in the way that best aligns with your IT strategy. That can be at the airport, as an overlay, to maximize the value your existing airport infrastructure. Or you can choose a future-ready cloud solution, which is even easier to deploy and maintain. Either way, you can be assured of security, flexibility, adaptability, and first-rate service, right across the airport.



# For airlines.

**Biometrics-enabled passenger processing solutions deliver tangible business benefits for the airport's airline customers.**

With straightforward integration into existing airline systems, they add a new level of efficiency and security to airlines while helping get passengers to their gate on time. Biometrics eliminate redundant document checks and automate self-service operations, speeding up passenger flow. And that, in turn, means better on-time performance and fewer missed connections.

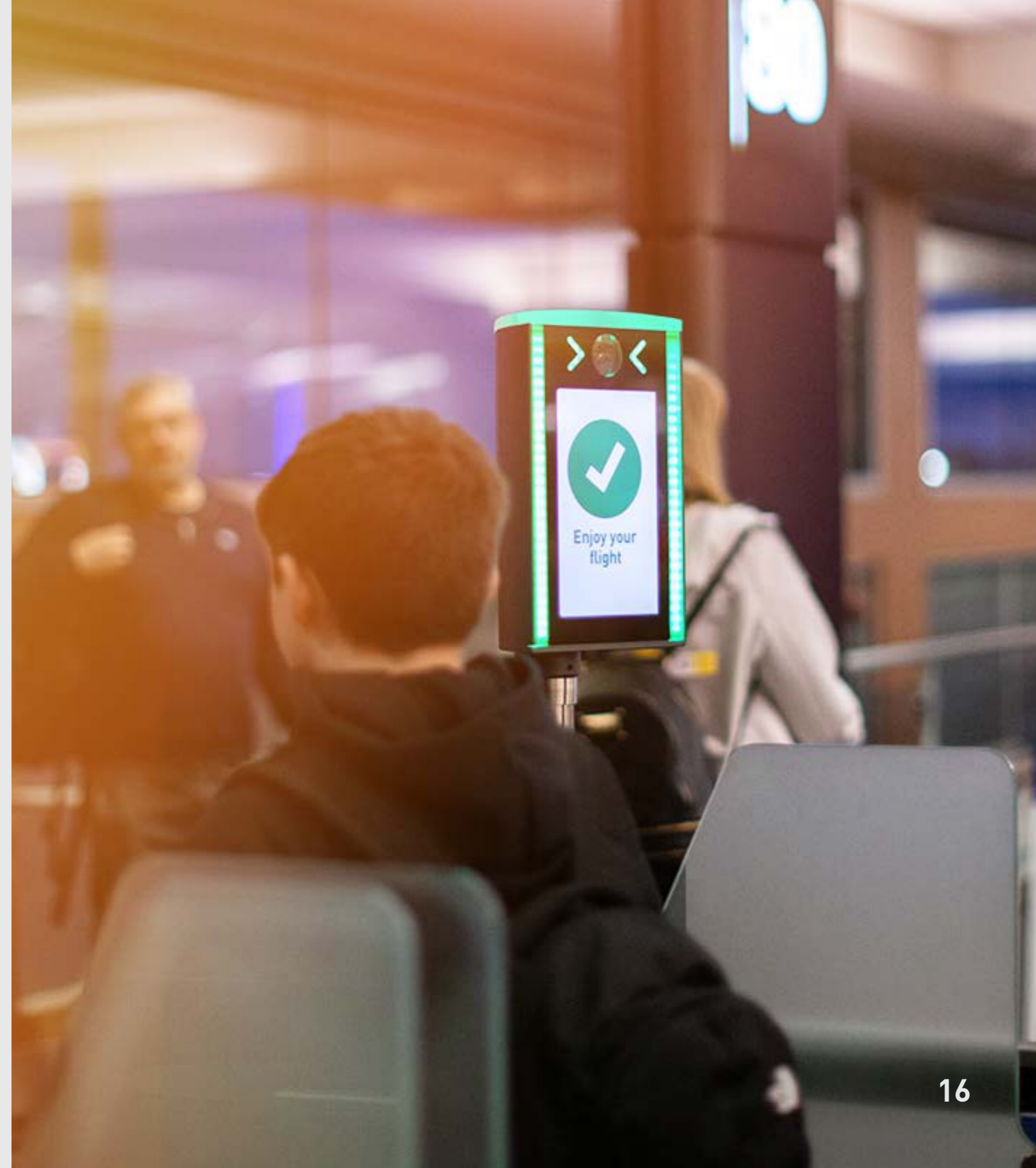
With fewer agents needed behind desks, airlines can focus on the passenger experience and provide assistance, instead of simply processing paperwork. This helps airlines reduce costs, and improve and personalize their passenger services – for example by developing new carrier-bundled, biometrically enabled adjacent travel services. Or delivering new value-added services off-airport as part of frequent flyer programs. With pre-clearance, airlines also no longer have to worry about carrying passengers that might be refused entry at the destination – with fines upwards of US\$ 10,000 per infraction.



# For governments & border agencies.

**Governments and border agencies are just as pressed for budget and improved operational efficiency as any other stakeholders in the air transport sector.**

Biometrics with digital identity is seen as the way forward, whether for travel document checks, or for improvements in border processing. Passenger pre-clearance will be key to reducing friction at the border. Reduction of physical checks can provide a direct benefit to travel and tourism. Imagine a world where a passenger is able to disembark from the aircraft and be at the beach 45 minutes later. Happy passengers spend more.





# For passengers.

**By using their face as their boarding pass – and more – passengers benefit from safe, secure, and stress-free travel.**

Spending less time in queues and more airside dwell time enjoying the airport's retail and dining offers. When biometrics extend to border agencies, passengers can also benefit from seamless entry on arrival – and the ability to use the same digital identity for checking into hotels or other venues.



# YOUR PARTNER SITA

SITA is the world leader in digital travel. We are unique in terms of our rich air transport industry expertise and dedication, combined with our unrivaled biometrics experience. We already digitally transform journeys all around the world. Airports large and small, in every region, actively use our biometric solutions to deliver end-to-end passenger processing, for real flights, every single day.

We lead globally with consistent innovation, backed by a worldwide R&D program second to none. The lessons learned along the way help us to continue developing effective next-generation solutions – including putting the power in the hands of mobile users, built into the mobile apps they're already using when they travel.



# WE ARE THE MARKET LEADER BY A VERY LONG WAY.

**SITA**

We're in the unique position of having been part of the industry for a very long time, yet ahead of the game with new technologies.

**SITA Smart Path is the world's only proven fully end-to-end biometric passenger processing solution. In the cloud, on prem, hybrid or as a service.**

- End-to-end biometric expertise
- 40+ airports worldwide
- 5,000 biometric touch points
- 70+ governments
- All G20 nations use SITA's digital border solutions
- Covering 85% of international air passengers globally.



## **We are the market leader by a very long way.**

**We're in the unique position of having been part of the industry for a very long time, yet ahead of the game with new technologies.**

SITA Smart Path is the world's only proven fully end-to-end biometric passenger processing solution. In the cloud, on prem, hybrid or as a service. We provide end-to-end biometric expertise to more than 40 airports worldwide, including around 5,000 biometric touch points. More than 70 governments and all G20 nations use SITA's digital border solutions, representing 85% of international air passengers globally.

## **We're the only player working end-to-end, across all stakeholders.**

**We deliver digital travel, working globally with airports, airlines, governments, border agencies, industry bodies and more.**

It's not just the biometrics touch points we have today – we also have largest global footprint of non-biometric common use touch points in the world. Almost 500 airports around the world are already SITA-enabled, with tens of thousands of future-proof common use passenger touch points in use globally. Each and every one is ready to embrace biometric enablement. When you work with us, you can be sure that everything's going to work, everywhere.

We also have a major presence in border control. We're doing pioneering work in terms of digital credentials and biometrically enabling interoperable use cases between different environments for airports, airlines, and governments.

## **We understand your world and how to meet your challenges.**

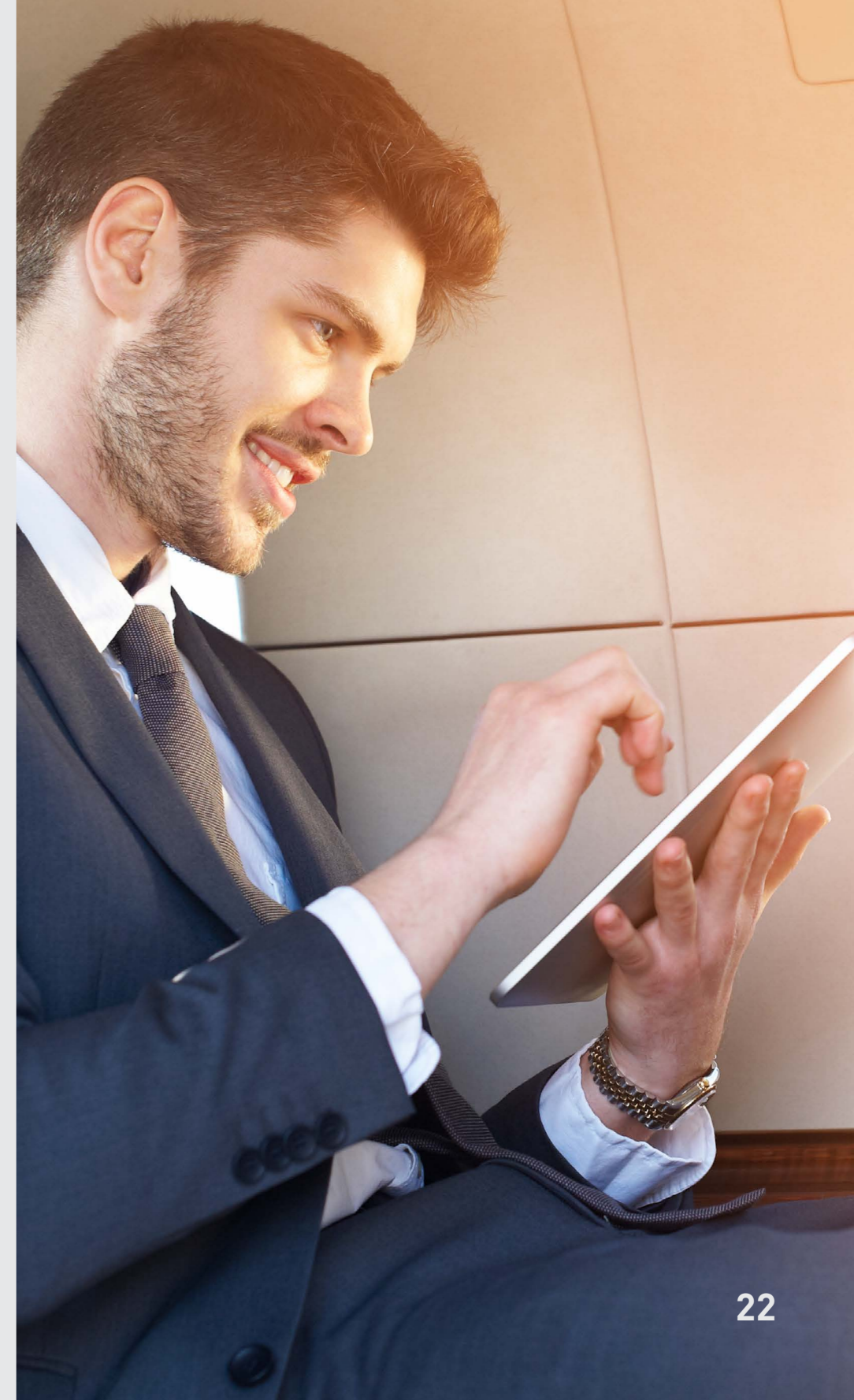
**Our extensive experience working with airports, airlines and governments gives us first-hand insight into the complexity of your operations and the expectations of your passengers.**

We can get biometric solutions up and running fast, and help bring your main stakeholders onboard just as soon as you deploy them. We know what we're doing. So you don't need to be an expert – because we are.

## **We offer unique interoperability.**

**Our biometric and digital identity solutions are unique in the industry.**

We not only work with airlines that have existing biometrics ID programs, but we can also enable derivation of day-of-travel digital IDs from the emerging wave of government-issued digital IDs. The future is full of digital potential, and we can help with that journey.



**WE DON'T  
JUST MEET  
STANDARDS  
WE HELP  
SET THEM**

**SITA**

We help to define rigorous standards around biometrically enabled passenger ID and we're always up to speed with the latest innovations and changes.

**We work with worldwide industry bodies to help make sure standards stay relevant and efficient for the aviation industry.**

We are a member of both main global digital ID initiatives – IATA’s One ID and ICAO’s Digital Travel Credential (DTC). We’re also delivering the ‘first of its kind’ implementation of government border-grade digital credentials.

## **Best in biometric facial recognition.**

For our biometric solutions, we work with the world’s leading facial biometrics providers.

The facial recognition algorithms we use are the world’s most accurate, consistently topping the rankings in vendor tests by the US National Institute of Standards and Technology (NIST).

Our solutions enable a secure walk-through travel experience at airports, leveraging identity management services together with SITA Smart Path and SITA Flex. The person at the front of any queue or crowd can be identified quickly and with a very high-degree of accuracy, even when they are on the move. It’s effective for passengers of all ethnicities, and even accurate for people wearing face masks.





# Unrivaled global support.

**We offer unbeatable support, with SITA Global Support Services, providing a 24/7/365 'follow-the-sun' customer service model to more than 2,800 customers worldwide.**

Our industry specialists ensure the availability and reliability of operational IT infrastructure and solutions. We have an unsurpassed global presence, with 2,000 staff at more than 400 airport sites in 140 countries.

Our flexible, proven service model offers exceptional value for money. Services can be adapted to meet dedicated needs— from delivering end-to-end to managing third-party suppliers and multiple vendors.

Systems can be scaled up or down on demand, to meet changing business and operational needs. We can offer a single disaster recovery plan and a single global response team – adhering to best-in-class processes, infrastructure, monitoring and management tools worldwide.

# OUR SOLUTIONS



# SITA Smart Path.

SITA Smart Path biometrically enables every step of the passenger journey, end-to-end – from mobile enrollment to aircraft boarding and every point in between and beyond.

With facial recognition across as many airport touch points as you need, it provides passengers with unique, touchless, whole-journey identity management, giving them a radically improved travel experience. The simple, intuitive, frictionless travel experience delivers new revenue-generating opportunities for you – and means passengers spend less time in queues or affected by delays.

Smart Path is cloud-enabled, offering touchless integration with your existing hardware and platforms. It is interoperable with third-party biometric services and non-SITA touch points.



# Quick to install and easy to use.

SITA Smart Path combines the best ID management technology and market-leading facial matching performance with over 70 years of industry-leading air travel expertise.



Smart Path builds on your existing infrastructure, so it's quick to install and simple to use.

It integrates seamlessly with SITA Flex, the world's most widely used common use platform, so airlines don't have to modify their applications to work with airport biometrics.

With Smart Path you can deploy biometrics more rapidly and reach more passengers than with any other biometric solution. With easy, speedy passenger processing, air travel becomes more convenient and enjoyable, with fewer delays from the curb to boarding. So passengers have more time airside to shop and dine.

## Leading expertise.

**Our early entry into the market means SITA Smart Path biometrics completed trials years ago, across individual and multiple touch points.**

Today we have an impressive industry-leading footprint around the world. This includes some of the largest airports in the world, such as Beijing (PEK) and Bangkok (BKK), and more than 10 deployments integrated with US Customs and Border Protection (CBP).

## Scalable.

**Whatever the size and budget of your airport, you can benefit from SITA Smart Path.**

You don't have to deploy the whole biometric solution at once – it integrates with your existing infrastructure, so you can add to your solution when timeframe and budget allow. This means you can start small and scale up, allowing you to respond as your goals and challenges change.



## How it works.

### **Smart Path makes it easy to get passengers registered quickly.**

Initial biometric enrollment to create a secure travel token is done in seconds, wherever it's convenient. This can be either at home, using the passenger's own mobile device, or via assisted enrollment or a kiosk at the airport. Once the facial scan is matched successfully with the stored biometrics in the official identity document (such as an ePassport), a unique secure digital travel ID is created. We also work with integrating third-party generated tokens, and we are currently working with both the Star Alliance Biometric program and the Indian government's DigiYatra program.

Whether it's a government issued digital ID token, an airline / alliance token or a private third-party generated token, the system has an easy to integrate Open API architecture. This means these travel tokens are not only accepted for use at a single airport but can be used at any additional airport along the passenger journey where Smart Path exists.

SITA Smart Path hub is the central point to which app devices connect. It contains a database of enrollments and biometric matching software or a connection to an external matching service – such as the US CBP Exit program.

# SITA Flex.

**SITA Flex is a next-generation common-use platform that goes far beyond traditional common-use, helping to deliver low-touch and mobile air travel, and facilitating innovation via APIs. It enables the integration of both mobile and biometric technologies with existing common-use infrastructure and airline applications.**

With SITA Flex, everyone can benefit from common-use, helping to reduce costs, manage staff and resource shortages, delivering a safe and touchless experience, and improved sustainability. Unlock the power of mobility, empower your staff and give passengers greater control of their journey.

SITA Flex is already available in nearly 500 airports around the world. It has been successfully implemented in 46 airports in India, as well as at major airports such as Shanghai (PVG).

Flex allows you to be totally technology agnostic – and it's available in the cloud, hybrid, on-prem, and as-a-service. With SITA Flex, you can scale operations up and down, on- or off-airport, as needed. And you can avoid having to select multiple providers for different use cases, and then having to integrate them all together while relying on multiple support models.

# SITA Border Management.

**At SITA, we've been working with governments, airlines and airports all around the world for more than 25 years to deliver fast and accurate border security. We started with electronic travel authorization in 1996 for the 2000 Sydney Olympics, and most recently delivered Qatar's 2022 World Cup border management solution.**

We work with all concerned government ministries and agencies, as well as police and security services, to deliver sophisticated, future-proofed border control. We help identify risks early, and far from the border, offering flexible solutions that meet and manage countries' land, sea, and air border needs – 24/7.

We are the number one provider globally in passenger data and risk assessment, with truly end-to-end integrated border management solutions. We give governments the information they need, at the right time, in the right place. Our single window gateway connects the world's airlines with governments across the globe.

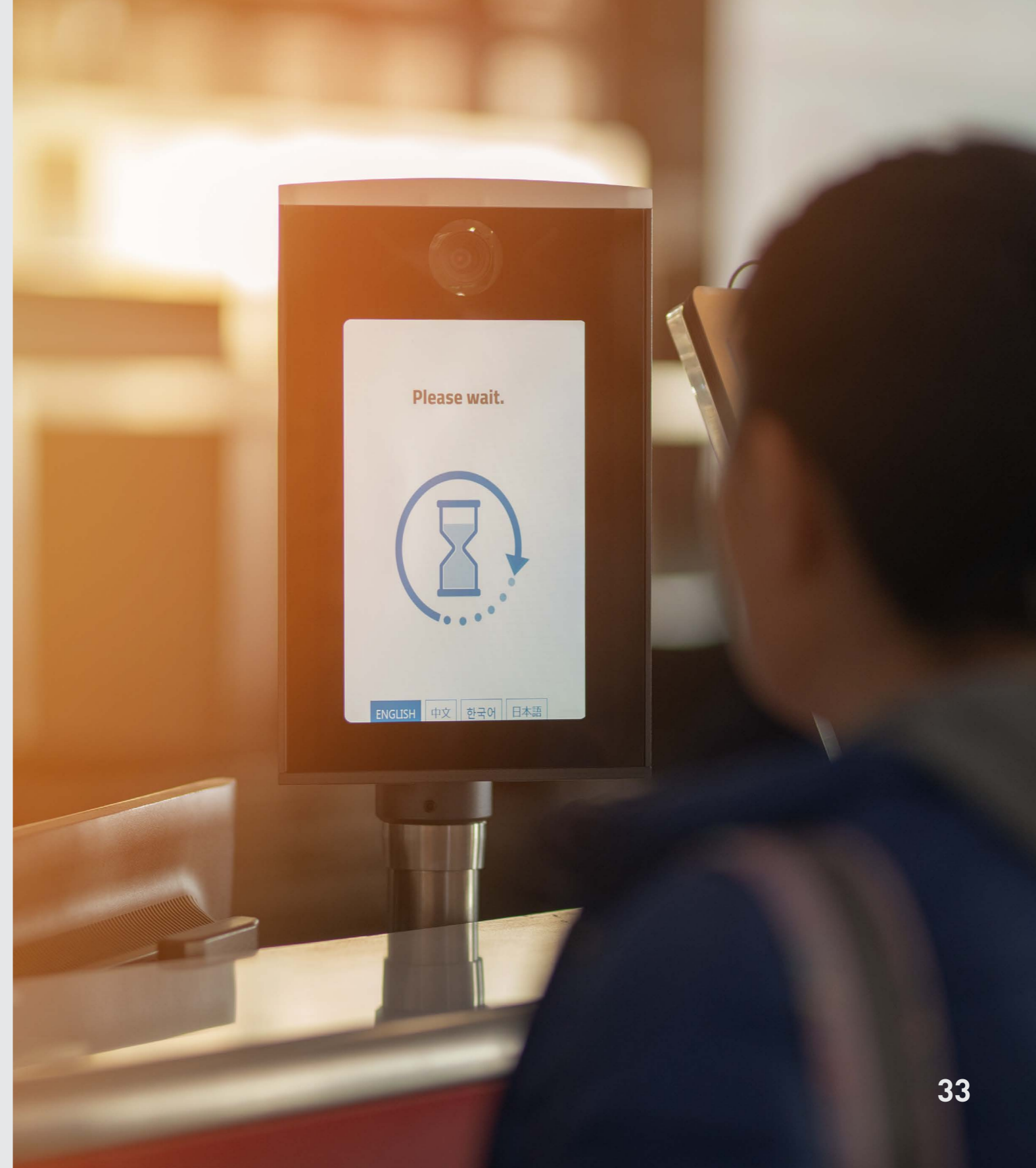
We provide border management solutions to more than 70 countries – and all the G20 nations – enabling safe and secure travel to more than 85% of the world's international passengers. In total, more than 2.2 billion passenger journeys a year are processed by SITA's border solutions. Over 660 airlines connect to governments through SITA's border solutions. Almost two thirds of the world's interactive pre-clearance solutions are SITA's.



# Digital Identity.

**Digital identity, with both biographic and biometric information, shared with passengers' consent, well in advance of arrival, is the future of pre-clearing passengers for a seamless border crossing.**

SITA's proven and trusted solution, based on international standards (ICAO, IATA), provides an easy-to-deploy solution. We have demonstrated that a government can integrate an ICAO DTC into their pre-clearance process within days, test within weeks, and deploy within months.



# CASE STUDIES



# Fraport.

Fraport is the operator of Frankfurt airport, Germany's busiest, which handled 60 million passengers in 2023. More than 90 airlines operate at the airport.

With SITA's help, Frankfurt has become the first airport in Europe to offer biometric touch points to all airline passengers, enabling streamlined, frictionless travel. Passengers can securely register in advance on their mobile device through the Star Alliance biometric app or directly at the check-in kiosk with their biometric-enabled passports. The whole registration process only takes a few seconds.

The service has been offered to Lufthansa and the other 25 Star Alliance airlines since 2020, but has now been extended right across the airport. Star Alliance airlines can link their apps to the Star Alliance Biometrics Hub so passengers can create Digital IDs and link to their tickets, documents, loyalty program and payment cards. Connecting to SITA's Smart Path solution, the Star Alliance Biometrics platform can use SITA's shared airport infrastructure which is already available in nearly 500 airports around the world.

**“Biometrics is key to the next wave of digital travel credentials. And with biometrics itself, we can increase the throughput at various touch points by 30%.”**

**Jens Sanner,  
Program Manager,  
Fraport AG**



## United States Customs and Border Protection (CBP).

SITA has partnered with over ten airports in the United States that have adopted facial recognition for all international flights. We use technology that integrates with the Traveler Verification Service (TVS) from the US Customs and Border Protection (CBP), and operate around 1,000 touch points country-wide.

SITA's pioneering 1-step biometric boarding solution follows CBP rules and was also then extended to other airport touch points like self bag drop beyond boarding. Full system integration provides a seamless hands-free end-to-end passenger experience.

The solution delivers 30% quicker boarding time, with 240 passengers boarded in approximately 10 minutes. They benefit from a facial scan match rate of well over 99%, and an average biometric processing time of under one second. For domestic travel, where CBP is not involved, SITA Smart Path expedites travel with a full solution including passenger enrollment with photo ID such as US Driver's Licenses.



## Biometrics at scale.

This digital initiative aims to provide a seamless and paperless travel experience in one of the world's fastest-growing, most populous nations.

SITA is working with the national airport authority to implement biometrics at 12 major airports.

SITA technology enables passengers to verify their identity at various touch points, without the need for physical documents. Digital travel enhances passenger convenience, reduces waiting times, and improves overall efficiency.

Our SITA Smart Path biometrics solution is fully compliant with the nation's standards. Our dedicated teams include over 250 technicians, implementation specialists and project managers deployed across various airports and excellence centres. Working together, we are expediting the deployment across the country.

## Growing tourism.

SITA and digital identity specialist Indicio worked closely with government bodies in a leading tourism destination to develop cutting-edge digital credential technology.

The solution allows passengers to complete immigration requirements before their flights, using Digital Travel Credentials (DTCs). The technology prioritizes secure data sharing and passenger privacy while enhancing identification and security.

Passengers first create their DTCs on the digital wallet app. The app then simplifies the next steps in their travel preparation by filling out the relevant fields on the embarkation / disembarkation card. This reduces manual entry errors and saves time. As a result, tourists can now disembark at international arrivals and cross the border without stopping or even showing a travel document.

## Seamless journeys.

This globally-renowned Tier 1 international airport handles over 100 million passengers a year. Using SITA Smart Path technology, passenger flow has now been fully automated – from check-in and bag drop through to immigration, security, and finally boarding.

Enabled by facial recognition, passengers only need to enroll once during check-in. Travellers then experience a seamless journey through the airport. SITA has enabled over 600 biometric touch points, covering all international flights, all international passengers, all the time.

The project has improved processing efficiency, meaning shorter queuing time and more social distancing for all passengers.

# FINAL THOUGHTS

At SITA, we believe the future of digital travel is right now – and we're innovating constantly for digital transformation across travel and transportation, worldwide. Biometrics are key to the process.

# SITA biometrics: the benefits of working with the world's #1.



**Proven state-of-the-art** end-to-end solutions **already in operation** at many airports around the world.



**Operational excellence** in delivering and running **mission-critical** airport and airline solutions.



Dedicated team with **unrivalled experience** in technology, airport, airline, and government policy and operations, ensuring a strong **customer focus**.



**Local SITA team** enabling smooth implementation and responsive **on-site support**.

# WE'RE HERE TO ANSWER YOUR QUESTIONS

**SITA**

So come and talk to us. Let's create that end-to-end, biometrically enabled, mobile-powered, digital journey. Together.



# SITA



For more information [click here](#) or email us [xxxx@sita.aero](mailto:xxxx@sita.aero)