

A woman wearing a white hijab and a brown abaya is looking down at a smartphone in her hands. She is standing in what appears to be an airport terminal, with blurred lights and structures in the background. The word "SITA" is overlaid in large white letters on the image.

SITA

SITA ADVANCE
PASSENGER
PROCESSING

Integrated, interactive, dynamic, digital borders for the modern age

Governments face unique and complex challenges in securing their countries' borders. Those challenges come in many forms, including the need to mitigate risks related to: immigration, customs, security, counter-terrorism, biosecurity and, of course, public health. When searching for solutions to these challenges, governments are increasingly adopting digital solutions that reduce risk and streamline processes.

For the past 25 years, our work helping 70+ governments secure their borders – together with our experience of advances in technology transformation – has given us a much clearer roadmap for the border of the future. We know the most effective border systems in the world are: automated, integrated, interactive, dynamic and digital.

Sam Merchant,
Product Manager,
SITA Advance Passenger Processing





Many governments have already deployed automated border control systems, such as biometrically enabled e-Gates to expedite arrival and/or departure processes for specific groups of travelers. And the need for an integrated border management capability has been a constant theme for decades. An integrated border requires national and international cooperation among all relevant authorities involved in border management, immigration, customs and trade facilitation, with a singular goal of delivering effective, efficient and coordinated border security. To create more advanced capability, governments are now increasingly adopting interactive solutions that interface, in real-time, with carrier systems to prevent high-risk travelers from traveling to their country – exporting critical border decisions to the port of embarkation.

Our experience of helping governments respond to COVID highlighted the need for borders to be dynamic. At the height of the pandemic, as our understanding of threats to public health evolved, national governments needed to respond rapidly to constantly changing international, regional, and national requirements. Digital Travel Declarations were rolled out across the world at an unprecedented rate. Governments had to reconfigure entry rules just as quickly – sometimes within just a few hours. Having readily configurable systems and tools enabled them to be truly dynamic in how quickly and effectively new measures were deployed at every border crossing point, across every mode of travel – by land, sea or air.

In this paper, we revisit one of the most vital components of modern, effective border control – **interactive Advance Passenger Information** or **iAPI**. Arguably, iAPI creates the very foundation on which automation, integration, interactivity, dynamism, and digitalization are built. It enables governments to join up, transform and streamline critical business processes throughout the entire continuum of border control functions.

Today, with the advent of the ICAO Digital Travel Credential (DTC)¹ standard (i.e., the first generation of a globally interoperable digital passport), governments around the world will want to examine what the future looks like for their border control systems and processes if they are to seize the benefits of capturing and verifying the digital identity of every single passenger who wants to cross their border or apply for a visa.

Indeed, one of the key challenges governments face as they seek to enhance the security of their borders is the quality of data on which operational decisions are based. With DTCs, passenger data (e.g., name, date of birth, document number, nationality etc.) will be extracted directly from a digital representation of a travel document that has been authenticated (i.e., is known to be genuine) and belongs to a person whose identity has been biometrically verified.

The data derived from a DTC transaction will eradicate many, if not all, of the data quality issues that arise when data is manually entered into a system or extracted from a document that has not been authenticated or whose holder's identity has not been verified. Creating an interactive capability which relies on verified passenger data will deliver a significant increase in a government's ability to confidently make decisions about every passenger who crosses their border, regardless of the mode of transport.

The historical perspective

2023 marked the 35th anniversary of the invention of Advance Passenger Information (API). The world was a different place back in the 1980s. The global travel and tourism sector was returning to growth after suffering a significant recession, largely driven by the energy crisis that lasted for much of the 1970s. The invention of API was a direct response to that growth. It was designed as a tool (originally developed by the then US Customs Service and US Immigration & Naturalization Service together with the airline industry) to collect data on airline passengers ahead of their arrival, to facilitate entry to the United States and speed up processing at the border.

Following the tragedies of 9/11, the global pendulum swung firmly from facilitation to security; and API became a powerful tool to perform large-scale risk assessments on all arriving passengers. API was introduced as a mandatory requirement in the US and Canada the following year. In 2004, the European Union introduced legislation obliging carriers to send API data to EU Member States². And in the two decades since, many other governments – in all regions of the world – have followed suit. Indeed, global adoption rates increased significantly following the United Nations Security Council Resolution 2178³ (2014) which advocated Member States build API capabilities to detect the movement of Foreign Terrorist Fighters to, through and from their territories.

¹ Ref. ICAO Guiding Core Principles for the Development of the Digital Travel Credential (DTC) – v4.4, October 2020

² Ref. Council Directive 2004/82/EC of 29 April 2004 on the obligation of carriers to communicate passenger data

³ UN Security Council Resolution 2178 – Adopted by the Security Council at its 7272nd meeting, on 24 September 2014: S/RES/2178 (2014)

From static to dynamic and interactive:

When and how to make informed decisions about risk

There is no question API, particularly when combined with Passenger Name Record (PNR) data, creates a powerful risk assessment capability. But it does have its limitations, principally in terms of timing – or rather when API data is received; and the amount of time governments have available to do anything about the risks they identify when processing it.

In many instances, API is sent as a single batch message to the receiving government after the aircraft has taken off. That message will contain standardized information on all passengers and crew onboard. For a short, international flight, this often means there is less than an hour to process the data, perform a risk assessment, run watchlist checks, generate alerts on any high-risk passengers (or crew), and deploy resources to mitigate that risk upon arrival.

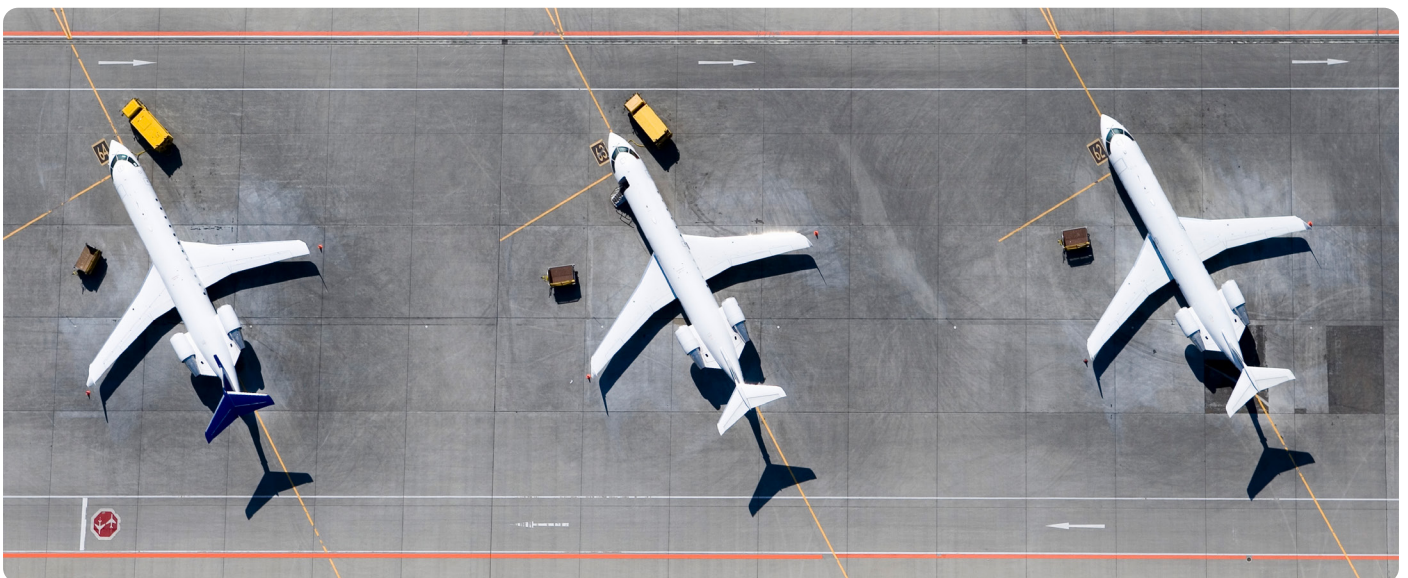
That's not the case with interactive API which, at SITA, we call **SITA Advance Passenger Processing** or **APP**. Among our 70+ government customers, many use SITA's APP and are regarded as world leaders in border security. They not only use APP to secure their borders, but also to provide a seamless travel experience to the millions of legitimate travelers – all of whom have been verified as having the requisite documentation, declarations and credentials – when arriving in, transiting through, or departing from their country.

While most of the data elements in APP are identical to those in API, the key differentiator is that APP is generated as an individual passenger-by-passenger message and sent to all participating governments in the passenger journey (outbound, transit and inbound) during the check-in process – i.e., before the aircraft takes off, before the ship leaves port, or before the train leaves the station.

Participating governments are then able to respond to the carrier (i.e., the airline, train or cruise operator) in realtime, authorizing or denying the boarding of each and every passenger. This is the essence of Digital Pre-Clearance.

In real terms, this allows governments to prevent a threat from ever reaching their border. It allows them to deploy resources more efficiently and effectively by making informed decisions based on the analysis of accurate and timely travel document data as each passenger checks in – in advance of travel.

Simply put, such a risk assessment capability enables a government to export its border to every single point on the globe where passengers can board flights, ships or trains bound for their territory.



Dispelling myths: common misconceptions about APP

Since we first designed APP together with the Australian government in preparation for the 2000 Sydney Summer Olympic Games, several misconceptions have arisen and created artificial barriers to adoption.

We would like to address them here:

Myth #1:

APP only works with an Electronic Travel Authorization (ETA)

Fact #1:

APP does not require an ETA system. Equally, ETA systems work without APP.

While it is true the Australian implementation of its ETA system in 1996 was closely followed by the world's first implementation of APP in 2000, it is also true that SITA manages several live standalone implementations of APP.

Myth #2:

APP only works if the country is a final destination.

Fact #2:

APP can work in any country, including countries with major transfer hubs.

Again, it is possible this myth arose because of Australia and New Zealand being in the Southern Hemisphere and neither having a major transfer hub. Today, SITA's APP government customers are located in regions across the world, including countries such as Qatar and the United Arab Emirates which host two of the world's largest transfer hubs – Doha and Dubai, respectively.

Myth #3:

APP is proprietary and expensive.

Fact #3:

APP relies on long-established airline industry practices and pricing has dropped significantly.

While it is true APP may appear more expensive when compared to older, batch versions of traditional API that do not include critical components such as a 'boarding rules engine', it is also true that decades of investment have resulted in the creation of the latest, next generation, end-to-end APP solution which is fully supported. Consequently, pricing is now an order of magnitude lower than when it was first introduced more than 25 years ago. Furthermore, decisions made by SITA advance passenger processing taken before passengers depart for their country result in a reduction in demand for – and costs associated with – performing secondary inspections upon arrival at the border.

Also, APP, by eradicating the cost of having to process, return and repatriate inadmissible and/or improperly documented passengers, brings measurable savings to governments – both in terms of real costs; and better, more efficient utilization of resources and infrastructure. **For example, within just a few years of its implementation, the Australian National Audit Office (ANAO) reported that APP not only benefited all parties and provided greater border security, but had also driven down the annual cost of airline and shipping companies' non-compliance by \$20m (AUD⁴)**

⁴SOURCE: Australian National Audit Office (ANAO) - https://www.anao.gov.au/sites/default/files/ANAO_Report_2005-2006_34.pdf

Myth #4:**APP is complex and takes years to fully implement.****Fact #4:****APP can be implemented in just a few months.**

This myth has proven to be one of the most difficult to dispel. And that's because there can be complexities and complications with APP implementations. But, with the right approach, these are all readily solvable. Part of this challenge speaks to the regulatory framework that may be in place in the country in question. We have first-hand experience working in countries where regulations needed updating to provide a clear legal basis for both transport operators and passengers when introducing new ways of operating controls at the border. Other implementation complexities can arise when one government department is responsible for implementing the technology; and others are responsible for changing business processes; or training and scheduling staff to work in new roles in the border operational command center. We offer advice and support to help our government customers in all of these areas.

Myth #5:**It is better and less expensive to use PAXLST and CUSRES message standards.****Fact #5:**

APP is an advanced, rules-based solution, not just a basic message format. APP comes with a ready-to-deploy 'boarding rules engine', allowing for a much faster deployment, directly aligned to each government's unique rules and needs. And, unlike PAXLST/CUSRES, APP also supports multiple participating governments (i.e., outbound, transit, inbound) involved in the entire passenger journey.

Much of SITA's work supporting customers in the air transport industry and within the government borders community relies on well-established standards. Indeed, without standards interoperability among carriers, port operators and government control authorities would not be achievable. However, the myth comparing the CUSRES message standard as a direct alternative to APP is incorrect. The CUSRES standard provides

a helpful starting point for governments to design the response messages they intend to send directly to carriers – e.g., 'red light / green light', 'board / do not board' etc. However, SITA advance passenger processing (APP) is a comprehensive solution – not just a message format – and comes complete with rules engines, carrier interfaces and pre-designed risk modules that governments can rapidly deploy and configure.

Myth #6:**APP is just a way of the government checking the watchlist prior to travel.****Fact #6:****APP is designed to perform multiple, parallel, detailed checks, including risk profile patterns, in seconds.**

If it was the case that APP only allowed governments to run data against their watchlists prior to passengers boarding, it would be of minimal value and few, if any, governments would adopt it. The reality is, APP has been designed with the specific purpose of performing multiple, parallel checks in real-time and responding, within a few seconds, directly to the carrier advising them to 'board' or 'not board' each passenger during the check-in process.

SITA builds and manages airline and airport systems all around the world; and we have extensive knowledge of all modes of transport, international high-speed rail, and maritime in particular. We understand the critical importance of every single second of each passenger transaction in terms of throughput, wait times, assuring operational efficiencies, and delivering fast, simple, and seamless passenger experiences. In a single APP transaction, checks can be run against: entry requirements rules engines; electronic travel systems (e.g., ETA, eVisa); digital travel declarations (e.g., passenger health declaration forms); national watch lists; criminal justice and law enforcement databases; and the INTERPOL Stolen & Lost Travel Document (SLTD) database – among others.

Digital transformation of border security:

Digital pre-clearance, powered by APP

Faced with evolving security threats from terrorism and international crime, sharpened by an increased focus on pandemic responses and public health, governments continue to examine and invest in digital ways of working to protect their borders while improving operational efficiency.

At the same time, it remains critically important to consider the importance of managing immigration efficiently and effectively; supporting growth in the country's travel and tourism sector; and sustaining economic development. We know how challenging it can be to find the right balance between these often-competing interests; and adopt a holistic approach that aims to improve both security and facilitation. Indeed, we believe governments no longer need to view security and facilitation as competing interests; rather both can be simultaneously enhanced without one compromising the other.

Exploring how security and facilitation can be simultaneously enhanced requires an examination of how and where APP can be integrated into existing (and redesigned) business processes. If an Electronic Travel System (e.g., ETA, eVisa) is in place or envisaged, APP can enable governments to redesign issuance and control processes to be 100% certain that all those who should have a valid electronic travel authorization, are in possession of one prior to travel.

At time of check-in (at the port of origin in the departure country), APP can enable governments to perform a comprehensive set of background checks in real-time, supporting their critical decision-making function to authorize (or deny) each passenger as they seek to board trains, ships or aircraft bound for their country. And, upon arrival, APP can be further leveraged by creating galleries of all expected arriving passengers, across all modes of transport, so they may be seamlessly processed by an automated border control system (e.g., e-Gate) – and, in doing so, alleviate considerable pressure on the limited resources available at primary border crossing points; and, wherever practicable, eradicate demand on resources needed for secondary inspections.

In the future, increasing volumes of passengers will have (or be able to generate) an ICAO-compliant Digital Travel Credential (DTC) and share that directly with the receiving government control authority. Again, APP can support critical functions in this process by performing the same background checks, responding to the passenger as to their authorization to travel, and – in parallel – advising the carrier of the outcome (i.e., board; do not board); and, where agreements permit, performing all of the above with each of the government control authorities involved in the passenger journey, e.g., at the port of origin, transit, and destination.



One additional thought to consider is how APP can create a truly dynamic border environment. By simply reconfiguring existing rules and/or incorporating new ones, a government can rapidly deploy nationwide change at the border, at every port, station, airport and border crossing point across the entire country.



Dynamic borders – open or closed for business?

Leveraging app to scale up and down when needs demand

This was one of the key learnings derived from our experience helping government customers reopen their borders in the wake of the COVID pandemic. Rules were changing on a daily, sometimes hourly, basis. By reconfiguring APP, governments were able to authorize and deny travel to highly specific cohorts of travelers – for example, all nationals of Country X; all travelers arriving from Country Y; all passengers who have traveled via Country Z; or all passengers not in possession of a valid, verified Digital Travel Declaration.

The opposite is also true: for large-scale events where a government wishes to open its borders and/or relax entry requirements (e.g., all visa nationals eligible for ETA during a specific period), APP rules can be quickly reconfigured and rolled out to welcome delegates, artists, athletes, and performers to events of national importance.

As travel and tourism continue to recover and grow, governments will want to take a closer look at capabilities which allow them to meet growing demand with systems and tools that deliver meaningful improvements in border security and

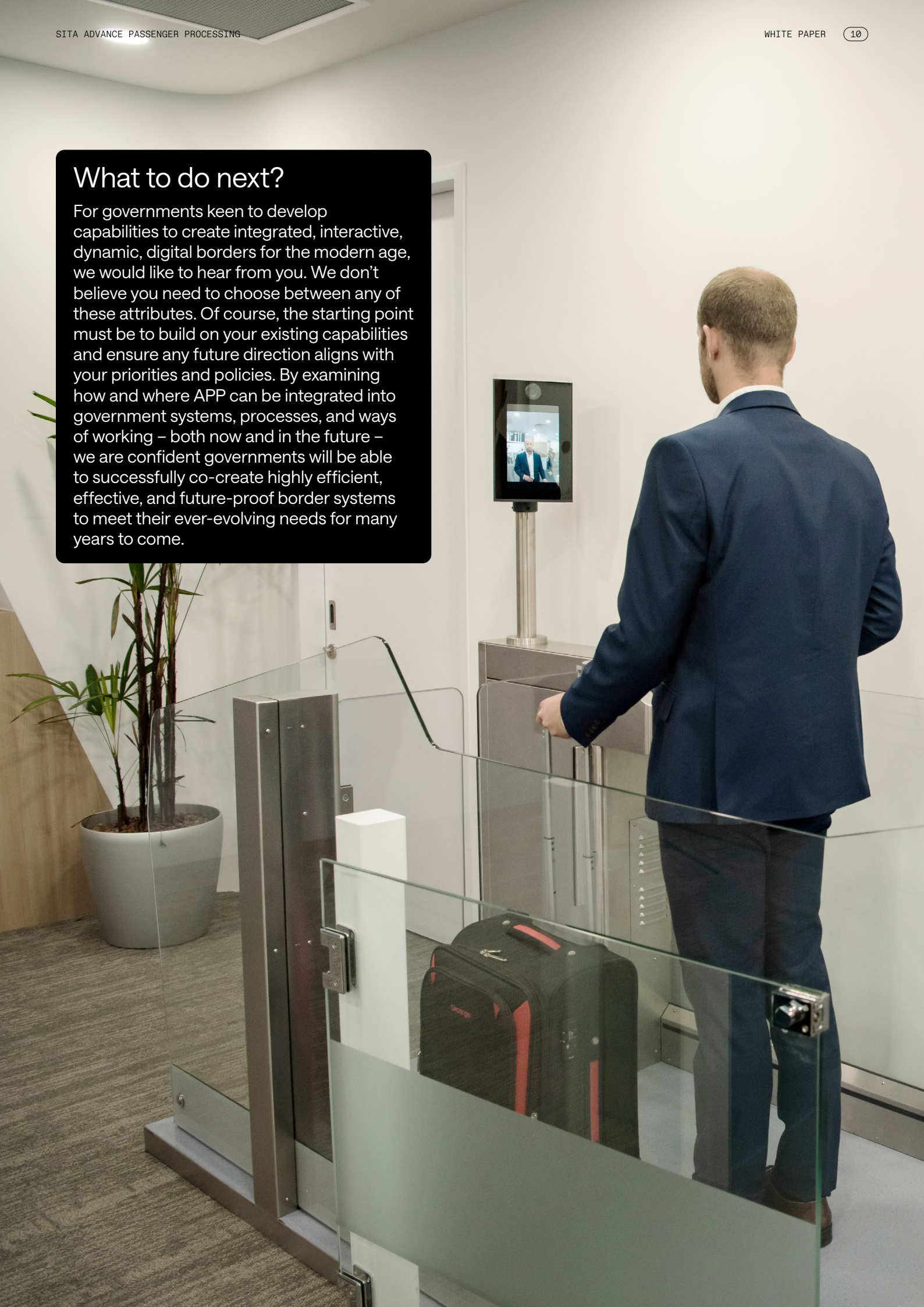
the processing of arriving passengers by whichever mode of transport they choose. Based on our experience, we know SITA Advance Passenger Processing (APP) can deliver their needs – today and tomorrow.



For more information, visit:
[SITA Border Management](#)

What to do next?

For governments keen to develop capabilities to create integrated, interactive, dynamic, digital borders for the modern age, we would like to hear from you. We don't believe you need to choose between any of these attributes. Of course, the starting point must be to build on your existing capabilities and ensure any future direction aligns with your priorities and policies. By examining how and where APP can be integrated into government systems, processes, and ways of working – both now and in the future – we are confident governments will be able to successfully co-create highly efficient, effective, and future-proof border systems to meet their ever-evolving needs for many years to come.





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