SECURING THE BORDER

Real-Time Passenger Data Fusion for Intelligence and Targeting

POSITIONING PAPER

SITA

Identifying risk as early and as far from the border as possible is one of the most complex challenges governments face in their duty to protect the nation.

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SECURING THE BORDER: REAL-TIME PASSENGER DATA FUSION FOR INTELLIGENCE AND TARGETING

But how do you identify risk – mitigate a threat, solve a problem – when it's exceptionally difficult to even know what that risk looks like? That's the challenge government departments, border agencies in particular, confront on a daily basis, every single day of the year.

The answer is complex, layered and nuanced. In fact, when it comes to border security, there is no singular answer to that question. Any meaningful answer is made up of myriad elements: from a country's strategic risk analysis to operational trends, incident responses, vulnerability assessments, open source and human intelligence, and risk analyses conducted across multiple and constantly changing vectors. In short, there is no simple solution and there is no simple answer.

It comes down to **"intelligence"** and the tools and capabilities at the disposal of that government, together with their international partners, to build a robust data fusion platform to deliver intelligence and determine priorities to direct **"targeting"** operations. And for that intelligence to remain of high value, the results of operations must be fed back into the risk engine to understand how accurate it was – invariably determined by whether it resulted in a hit, a seizure, or the identification of criminality in whatever form that might take.

CHALLENGES AND CONSTRAINTS IN FRONTLINE OPERATIONS

An old, and perhaps outdated, saying is to draw the analogy of "looking for a needle in a haystack". This is not good enough. And it's not accurate, particularly when no one can describe what the needle actually looks like; or the haystack is the size of a country, or the entire estate of its external borders, including all ports, airports, train stations and critical infrastructure.

As if that's not challenging enough operationally, government departments are further challenged by demands on their resources, particularly those on the frontline whose job it is to decide when, where and how to launch operations to target high-priority risks – threats to national security, human trafficking, potential attacks on national infrastructure etc.

Getting it wrong means expensive, specialist and exceptionally limited resources have been deployed in the wrong theater, leaving other locations vulnerable. Getting it right requires feeding that intelligence back into the risk engine, updating the strategic analysis, and recognizing bad actors will now almost certainly change their tactics and modus operandi. Integrated border management systems need to rapidly respond to constantly changing threats and passenger dynamics. That means the answer to today's risks needs to be changed for tomorrow's responses.

To ensure security measures deliver the right outcomes in the national interest, it is equally important to recognize that governments need to protect national security while simultaneously promoting travel and tourism to drive economic growth.

For their part, individual government departments, such as those responsible for borders, transport, immigration, customs, and national infrastructure, rightly guard their intelligence sources and risk indicators as if their lives depended on them – for that is the harsh reality. Somebody's life, or the country's economy or national infrastructure, does indeed depend on them.

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CONFIGURABLE FUNCTIONALITY VITAL TO OPERATIONAL SUCCESS

To be successful in tackling crime, detecting fraud, thwarting human trafficking, and mitigating any of the other many and varied risks a government faces on behalf of its citizens, requires tools and capabilities to enable them to do what they are mandated to do – protect the nation. And these tools need to be readily configurable, to incorporate new intelligence and respond to new risks.

It is neither effective nor efficient to be reliant upon a third-party service provider – no matter how capable they may be – to configure new rules or change existing ones to adapt to changing risks, national or global requirements. These vital responsibilities, these core functions, need to be firmly in the hands and under the control of those directing targeting operations and accountable for their successes.

Further, to be effective and efficient at a national level – and support the work of numerous government departments and agencies with varying requirements and priorities – intelligence and targeting tools must be able to acquire and analyze multiple sources of data without compromising its integrity, diluting its quality or allowing it to be viewed or modified by others, including government colleagues in other departments, who neither have the knowledge and skills, nor the legal basis to do so.

> **Machine-learning has come a long way in the last few years. The understanding of algorithms and analytics is far further down the road than it used to be when these terms were mere buzzwords without much evidence or case studies to support them.**

A modern integrated border management system must allow multiple government departments to confidently connect their intelligence sources and databases; and apply risk assessments against a growing set of data involving multiple interactions with travelers and goods. This informs both the strategic risk analysis and operational situational awareness. The system needs to *'learn'*, too. Machine-learning has come a long way in the last few years. The understanding of algorithms and analytics is far further down the road than it used to be when these terms were mere buzzwords without much evidence or case studies to support them.

Today, machine-learning can drive analysis to help model future trends based on specific traffic flows and key performance indicators. It can also identify similarities between a specific set of passenger behaviors in the present when compared against successful interventions in the past. Machine-learning is also a powerful tool to highlight outliers and anomalous behaviors when comparing *'typical'* patterns for a specific route or at a certain time of year.

With this level of capability, more accurate targeting operations can be conducted. Rules, scenarios, and risk indicators are configurable. And government customers are equipped with modeling and decision-making tools enabling them to achieve their objectives with greater accuracy, speed, efficiency, and effectiveness. Reporting from frontline operations to close the final phase of intelligence and targeting that can be uploaded in whatever format is most appropriate for those officers and staff working in the field.

ADVANCED TARGETING CAPABILITIES DESIGNED BY AND FOR GOVERNMENT ORGANIZATIONS

This is the thinking that has driven our engineering and design of our most advanced Intelligence & Targeting solutions to date. Over the course of the past 25 years, we have invested in building a specialist business unit to support the unique and complex challenges of our 70+ government customers responsible for their country's border security.

Applying the knowledge and experience we have garnered from working together, SITA has designed intelligence solutions that deliver advanced targeting capabilities to drive down risk – before, at and after the border.

These solutions include simple yet sophisticated modules for Case Management and Alert Management; are designed specifically with the goal of improving operational performance; reducing the number of *'false positives'*; and have been field-tested by multiple governments to ensure they are both efficient and effective – and capable of continuously evolving and improving as threats and risks change.

To demonstrate this Intelligence & Targeting capability in an operational context, we apply a four-phase methodology to the acquisition and enrichment of traveler intelligence to direct targeting operations before, at and after the border. This methodology is founded on the fundamental premise that intelligence must be *'actionable'* for it to be of value; and frontline operations must be able to report on outcomes to enrich profiling to match evolving modus operandi, improve data quality and enhance intelligence sources to deliver greater accuracy in future targeting operations.

The intelligence methodology have been designed through our work with 70+ governments around the world is built on four phases: **acquire, augment, analyze, action**.

SITA INTELLIGENCE & TARGETING SOLUTION ARCHITECTURE

ACQUIRE

- **SITA API-PNR Gateway**
- **SITA Advance Passenger Processing**
- **SITA Travel Authorization**
- **SITA Border Control**
- **In-country events**
- **Cargo**
- **Other events**

AUGMENT

- **Reference data**
- **Flight status data**
- **Identity data**
- **Relationships**
- **Other sources (e.g. Bag journey)**

ANALYZE

- **Risk assessment**
  - Watch Lists
  - Profile
  - Visa
  - Document
  - Interpol
- **Business rules management**
- **Reporting**
- **Predictive AI**
- **Relationship Analysis**

ACTION

- **Case management**
  - Workflows
  - Alerts
- **Collaboration**

ACQUIRE

The *'acquire'* phase involves the collection, structuring and harmonization of multiple data sources, including (but not limited to):

- Electronic Travel Authorization (ET)
- Electronic Visa (eVisa)
- Digital Travel Declaration (DTD)
- Expected Movement Record (EMR), including:
  – Passenger Name Record (PNR)
  – Advance Passenger Information (API)
  – Interactive API (i.e., iAPI, APP, AQQ etc.)
- Digital Travel Credential (DTC)
- Customs Clearance Documentation
- Pre-Loading Advance Cargo Information (PLACI)
- Airway Bill (AWB)

AUGMENT

During the *'augment'* phase, acquired data and information is transformed into intelligence through enrichment against other data sets, such as:

- Flight status data
- Industry reference data
- Historical event data
- Traveler segmentation aligned with national or regional borders code
- Additional external data sources (e.g., visas, travel document databases)

In this phase, identities are resolved and verified by fusing biographic and biometric data and cross-referencing external identity systems.

It is vital to reduce the number of false positives, improving intelligence value (and data quality); and ensuring an effective feedback loop on alert results. Without this crucial phase, alerts – based on previously known or agreed criteria – will continue to generate workloads for frontline staff and lead to a dilution in terms of the scale and value of successful interventions. Over time, poor accuracy or a high number of false positives undermines the entire targeting operation and erodes confidence in the veracity of intelligence sources.

To maximize operational performance and the overall flexibility of the system, frontline staff need tools to report on outcomes and results. In some instances, this may be transcripts of interviews. In others, it may be photographic evidence or detailed reporting input directly into the Case Management module to augment the profile and ensure future iterations more accurately match evolving modus operandi and emerging threats and risks.

ANALYZE

During the *'analyze'* phase, comprehensive risk assessments are run against the data to ensure compliance with:

- National policy (e.g., public health entry requirements);
- Eligibility rules (e.g., passenger holds a genuine, valid, non-revoked visa);
- Watchlist checks (e.g., passenger is not a person of interest);
- Immigration rules (e.g., passenger has no history of prior immigration offences, including visa overstay, removal or deportation);
- International warnings and alerts (e.g., Interpol);
- Established low-risk historical travel profiles (e.g., PNR analysis);
- Customs rules (e.g., verification of customs declarations, AWB analysis); and
- All other national security rules and policies.

This is where data fusion occurs. And as a result of multiple, dynamic risk assessments, the solution provides comprehensive situational awareness of all expected movements across, departures from, and/or arrivals at the country's border. Crucially, this delivers a **'pre-screening'** capability, enabling governments to respond to threats as early and as far from the border as possible, including the real-time denial of boarding of travelers who are either ineligible or inadmissible (i.e., INAD) or assessed as *'persons of interest'* or *'persona non grata'*.

Continuously throughout the *'analyze'* phase, traveler intelligence is scored against established rules and risk profiles. These are flexible and dynamically reconfigurable by trained staff working in the national intelligence unit, such as a National Targeting Center (NTC) or Passenger Information Unit (PIU).

An important learning outcome from our experience of helping governments re-open their borders following the COVID pandemic, highlighted the importance of staff having the necessary tools and training to readily reconfigure policy rules. In many cases, these were changing on a daily basis in terms of what tests, documentation and/or certification travelers required to travel to/from a particular country.

ACTION

It is during the *'action'* phase that intelligence becomes actionable, priorities determined and targeting operations directed. This is the phase when frontline operations decide when, where and how to launch operations to target high priority risks.

In some instances, these decisions can be automated. For example, if a passenger's name precisely matches an entry on the national watchlist, rules can be configured to automatically deny boarding of that passenger before they even attempt to travel to or through the country. Similar rules can be configured to automatically challenge (and/or deny boarding to) a passenger for whom a valid electronic visa record cannot be found; or who was previously subject to deportation and cannot return to the country for a specified period of time.

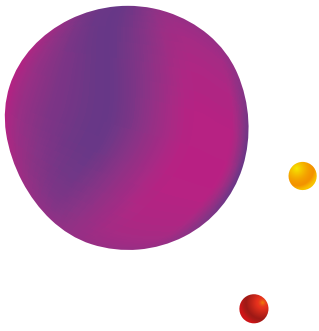
In other scenarios, the value of intelligence officers making these determinations and tasking frontline staff accordingly, cannot be overestimated. Their knowledge, skills and experience are vital to maintaining national security and the integrity of the border. Prioritized tasking directives are transferred to Case Management to provide staff on the ground with a detailed assessment of the risks, together with the actions to be taken. Case Management determines the workload and scheduling of resources on the frontline to drive successful interventions and investigations.

Risk assessment scores over an agreed threshold generate alerts in the Alert Management module. These integrate with Case Management for resolution, action, and ultimately reporting, to resolve the alert, close the final phase of intelligence and targeting and *'augment'* the profile for future targeting operations.

MATCHING CAPABILITY TO ORGANIZATIONAL MATURITY

While there are similarities among the challenges our government customers face, each faces challenges which are truly unique to their country. And while it is true many governments have a well-established track record – and an equally well-established legal and regulatory framework – for working with passenger data to secure their borders, it is equally true that other governments are only just beginning that journey.

Arguably, Australia was at the forefront of integrated border management and comprehensive data-driven risk assessment capabilities when it introduced the world's first Electronic Travel Authorization (ETA) system back in 1996. Only a few years later in 2000, the Australian Government introduced Advance Passenger Processing (APP) – now more widely known as 'interactive Advance Passenger Information (iAPI)' – to support the real-time denial of boarding of inadmissible, ineligible, and high-risk travelers. The United States followed suit in 2002 with the mandatory provision of Advance Passenger Information (API) with the entry into force of the Enhanced Border Security and Visa Reform Act (H.R.3525)[1]. And in 2004, the European Union introduced Council Directive 2004/82/EC[2], obliging transport carriers to communicate passenger data to Member State governments. More than a decade later, the EU went even further with the introduction of the Passenger Name Record (PNR) Directive, 2016/681[3]. In the intervening years, the United Nations Security Council unanimously adopted Resolution 2178[4] (2014) to address the acute and growing threat posed by foreign terrorist fighters, followed, in 2016, by the adoption of Resolution 2309[5] on countering terrorist threats to civil aviation.



Consequently, some governments have 25+ years' experience in integrated border management systems and working with intelligence and targeting solutions to secure their borders. Others have only recently embarked on that journey, and some do not yet have the necessary laws or systems in place. Whatever level of organizational maturity our government customers have achieved, we are able to tailor our offering to support them on the next steps of their journey.

For those governments that are just getting started, we work with them to create foundation capabilities, such as border control systems and watch lists, and help them design their National Targeting Center. Given SITA's presence in some 200 countries and territories, we have a unique ability to recruit and train intelligence and targeting specialists to work in close cooperation with our government customers' teams to configure systems, build capability and transfer essential knowledge and skills to create profiles and implement new ways of working.

And for those governments with many years' experience, we support their evolution by enabling collaboration among multiple government departments; enhancing their existing systems and adding more advanced functionalities to reduce the time and effort required to create effective threat profiles and find any event or individual, together with all related events plus historical and current associations.

1 Ref. https://www.congress.gov/bill/107th-congress/house-bill/3525
2 Ref. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32004L0082
3 Ref. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32016L0681
4 Ref. https://www.un.org/securitycouncil/ctc/content/foreign-terrorist-fighters
5 Ref. https://www.un.org/securitycouncil/ctc/news/security-council-adopts-resolution-countering-terrorist-threats-civil-aviation

EXAMPLE OF USE CASES FOR VARYING REQUIREMENTS

Immigration Watchlists

Passenger Information Unit (API, PNR, iAPI and EES)

Customs

ETA/Declaration vetting
Validated in real time through
Pre-Clearance and at the border.

Integrated Border Management

Immigration, Customs, Law
Enforcement and Intelligence
Risk assessment and validation of
every event on every journey.

NATIONAL SECURITY UPGRADE: EARLY AND QUICK WINS

We understand just how different and unique each government's challenges are. Beyond compliance with legal frameworks or UN Resolutions, the drivers for building an enhanced intelligence and targeting capability vary greatly from country to country.

However, our 70+ government customers readily accept what has become a universal truth: the need to manage risk as early and as far from the border as possible. It is infinitely preferable to identify and manage risk earlier rather than later – when it becomes a problem, in your country.

SITA's Intelligence & Targeting solution immediately delivers a *'pre-screening'* capability to enable governments to do just that: **identify and mitigate risk early** – i.e., before the passenger boards the aircraft or vessel at the port of origin. This delivers an early and quick win in terms of upgrading the country's national security.

From there, we work with our customers to jointly evaluate needs and priorities and deploy solutions – and modules of solutions – to deliver against those needs and priorities. It is our aim to help our government customers achieve the highest levels of accuracy and reduce the number of false positives; provide them with flexible, configurable tools to enable new profiles to be rapidly configured in response to new risks; drive down *'false positives'*; drive up operational performance; and ensure ever-increasing success rates in terms of investigations and interventions. And all of our solutions have been designed and field-tested to ensure governments can protect the nation by identifying and responding to risks at every stage of the journey of both people and goods – before, at and after the border.

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HELPING GOVERNMENTS MANAGE AND PROTECT THEIR BORDERS

At SITA, we understand the importance of governments being able to protect the nation and identify risk as early and as far from the border as possible.

We also understand just how complex a challenge this can be – both in terms of acquiring the data and intelligence to drive targeting operations and building the skills, knowledge, and experience within the national intelligence unit.

Regardless of the capabilities already planned or in place, we meet our customers where they are on their journey and, together, we design the tools and support they need to ensure the success of their intelligence and targeting operations and help them achieve their strategic objectives to protect the nation.

Find out more and contact us **borders.enquiry@sita.aero**

SITA

AT BORDERS

SITA AT A GLANCE

Easy and safe travel every step of the way.

- Through information and communications technology, we help to make the end-to-end journey easier and safer for passengers – from pre-travel, check-in and baggage processing, to boarding, border control and inflight connectivity.
- We work with over 400 air transport industry members and 2,500 customers in over 200 countries and territories. Almost every airline and airport in the world does business with SITA, and nearly every passenger trip relies on SITA technology.
- Our customers include airlines, airports, ground handlers, aircraft, air navigation service providers, and governments.
- Our solutions drive operational efficiencies at more than 1,000 airports, while delivering the promise of the connected aircraft to customers of 17,000 aircraft globally.
- We help more than 70 governments to strike the balance between secure borders and seamless travel.
- Created and owned 100% by air transport, SITA is the community's dedicated partner for IT and communications, uniquely able to respond to community needs and issues.
- We innovate and develop collaboratively with our air transport customers, industry bodies and partners. Our portfolio and strategic direction are driven by the community, through the SITA Board and Council, comprising air transport industry members the world over.
- We provide services over the world's most extensive communications network. It's the vital asset that keeps the global air transport industry connected in every corner of the globe and bridges 45% of the air transport community's data exchange.
- With a customer service team of over 1,700 people around the world, we invest significantly in achieving best-in-class customer service, providing 24/7 integrated local and global support for our services.
- Our annual Air Transport and Passenger IT Insights reports for airlines, airports and passengers are industry-renowned, as is our Baggage IT Insights report.
- We are a certified CarbonNeutral® company, reducing greenhouse gas emissions for all our operations through our UN recognized Planet+ program. In 2022, we committed to setting science-based emission reduction targets aligned to the Science Based Targets initiative Net-Zero Standard.
- We also develop solutions to help the aviation industry meet its carbon reduction objectives, including reduced fuel burn and greater operational efficiencies.

For further information, please visit **www.sita.aero**

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