

# BORDER SECURITY REPORT

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# NEW IDENTIFICATION SYSTEMS HELP MEET TODAY'S BORDER CHALLENGES, LAY THE GROUNDWORK FOR FUTURE INNOVATION

By Declan Trezise, *Babel Street*

## What's a national border for?

Think of it as your country's front door. And like your front door at home, the majority of people knocking are both legitimate and welcome. Your friends arrive for a Saturday afternoon barbecue. Your mom stops by to watch the kids so you and your spouse can enjoy a date. A neighbor drops off some just-picked tomatoes from her garden.

You don't want to make entry hard for these people. You don't ask them

a bunch of qualifying questions or have them pass through metal detectors before coming into your foyer. In fact, you only have locks, alarms, and security cameras to deny passage to the very few people who annoy you, who want to steal from you, or who would do your family harm.

Similarly, the majority of people and goods crossing borders every day do so for completely legitimate reasons. And we want them here: increasingly, our national economies

depend on tourism and international trade. So, we must find ways to enable their easiest possible passage. Concurrently, we need to better stop the terrorists, human traffickers, drug runners, arms dealers, and purveyors of counterfeit goods who seek international passage alongside business travelers and families going on vacation.

Identification systems for matching names and searching publicly available information can help customs and border security agencies meet this two-pronged goal.

Let's take a closer look at current border initiatives; how legacy systems too often fail to support those initiatives; and the new technologies that can overcome the shortcomings of legacy systems.

**Easing passage, improving security**

New identification systems can help customs and border security agencies implement emerging border-protection approaches such as pre-screening and integrated border management.

**Pre-screening to “push the border out”**

AI-powered natural language processing technologies can empower customs and border officials to effectively pre-screen people and businesses — assessing their risk before they or their cargo arrive at a nation's land crossings,



airports, or maritime borders. This capability helps agencies make entry decisions in advance, easing passage as appropriate while improving security.

**Integrated border management**

Integrated Border Management (IBM) is a second emerging approach for concurrently facilitating legitimate passage and improving national security.

In many countries, a vast array of agencies operating from federal to local levels of government take some responsibility for customs and border security. IBM is an initiative to enable significant collaboration among these agencies by integrating border-related information, systems, processes, and people. This collaboration most often takes place among different agencies working at different levels of one country's government. However, it can also occur among neighboring countries.

Data sharing is the first step in IBM.

**The legacy technology hurdle**

Cutting-edge technologies for name matching and searching publicly available information (PAI) are needed to pre-screen travelers and implement IBM. Unfortunately, too many customs and border security agencies lack the right technologies for matching names and obtaining insight from PAI. As a result, these agencies' activities are often hampered by suboptimal name matching capabilities; lack of insight; and lack of communication among legacy systems.

**Suboptimal name matching capabilities**

Often, customs and border security agents rely on ineffective full-text search platforms to match names in structured text, such as when comparing names of incoming travelers against watchlists.





The name matching capabilities of these search engines lie somewhere between binary match determinations and fuzzy matching — a computing approach that improves upon binary processes by considering degrees of truth. Returning only exact or near-exact matches, search platforms are fuzzy enough for general searches, but not expansive or fast enough for optimized name matching.

Glaring shortcomings abound in these systems. They often return an excess of false positives. These false positives require human investigative time to resolve. They typically accommodate only a limited number of languages, making it difficult to match translated names, transliterated names, and names rendered in non-Latin scripts. Finally, they often fail to spot aliases, nicknames, misspellings, honorifics, or out-of-order names.

### Lack of insight

“Publicly available information” is any data that is freely accessible by the public. This data includes social media posts, news stories and videos, information appearing on websites, and more. In a world where people spend 27 percent of their time online<sup>1</sup>, creating more than 2.5 quintillion bytes of data daily<sup>2</sup>, there is an unfathomable amount of PAI available for search.

Searching, monitoring, and analyzing PAI in real time can help customs and border security officials better identify potential threats. These officials can use PAI systems to detect and track illegal cross-border activity; monitor the movements of individuals and groups of interest; and aid in real-time threat intelligence and response planning.

These capabilities help border

officials better manage both potential and present threats. Consider a State Department official pre-screening travelers for United States visas. That official can use a PAI platform to examine social media posts and other content to determine whether the applicant is in any way associated with a criminal appearing on a watch list. Benefits are even clearer to those charged with preventing present danger. If a PAI system detects someone tweeting, “Just saw a woman abandon a bag @JFK Airport, Gate 8,” it can trigger an alert to airport authorities.

While some customs and border security organizations currently use PAI systems, those systems are often suboptimal. They may only scan a limited number of data sources; serve up poor quality data; and prove incapable of handling the vast amounts of data necessary for true insight.

### Lack of communication among legacy systems

Efforts to pre-screen travelers and integrate border management are further hampered by legacy systems’ inability to communicate with each other. One outdated system simply cannot work well with another to find and present the data needed to pre-screen travelers and businesses, then to communicate findings among agencies. Replacing these systems, or retooling them to communicate better, can be prohibitively expensive.

## The right tech improves border processes

New technologies to match names and obtain insight from publicly available information bolster pre-screening and IBM efforts. The best of these technologies is also easily deployable on legacy technology, and enables sharing among legacy systems.

AI-powered name matching systems match names across a broad variety of languages and scripts, detecting aliases, nicknames, and misspellings. To disambiguate names in structured text, (to find the right “John Andrew Smith” among a sea of “John Andrew Smiths”) they apply additional identifiers to each record. These identifiers help to differentiate between the teacher John Andrew Smith hoping to see Westminster Abbey with his family and John Andrew Smith, known human trafficker. Similar capabilities help link corporate names to their nicknames and to names of their subsidiaries. In doing so, these systems both improve matching capabilities and dramatically reduce instances of false positives — saving investigative time.

The best name matching technologies also provide clear scores, helping you to understand why two names have been deemed a “match” or a “mismatch,” thereby giving you confidence in the match obtained. They empower you to adjust match parameters according to your organization’s needs.



Automated PAI solutions trawl for information across all layers of the internet. Information examined comes from a broad array of web sites (including those hosted on the deep and dark web), social media sites, and real-word interactions generated on chats, online comments, and social media posts. Innovative PAI solutions also search their own large and diverse libraries of enriched data from commercially available sources. In conducting these searches and coalescing data, they help to resolve entities — matching names found in unstructured text to entities appearing in a public knowledge base or the knowledge bases maintained by your organization.

All the insight in the world does border and customs officials no good if it’s presented in a language they can’t understand. This is obviously true for news articles, social media

posts, and other pieces of PAI. It is also true for names. It’s a safe bet that very few American customs and border officials would recognize the name “Владимир Путин” as “Vladimir Putin.”

The best PAI and name matching solutions automatically transliterate names and translate content from an array of different languages, helping customs and border security officials to monitor names and online content from across the globe.

As discussed earlier, interoperability with legacy systems is a significant issue for those who want to deploy new PAI and name matching solutions. API-based solutions make deployment easier. They work on top of legacy systems to facilitate sharing from one application or data silo to another — avoiding the need to replace or re-tool older systems.

Charting a path to the future

Innovative name matching and PAI solutions help today's customs and border security agencies meet the dual goals of easing passage for legitimate visitors and cargo, while better securing their nations against terrorists, human traffickers, and other criminals. They also lay the groundwork for future innovation.

Many border officials now envision a frictionless border – one in which a combination of pre-screening, X-ray technologies and biometrics enable the free passage of legitimate travelers and goods.

What would a frictionless border look like? Imagine arriving at JFK, rushing for a flight to Sydney. Imaging systems automatically X-ray your car and your luggage. Before entering the terminal, you stand at a biometrics station. It scans your retina. With your identity confirmed and your possessions examined, you simply walk onto the plane. Or suppose you're an importer/exporter whose trucks regularly travel from the United States to Mexico and back. You enter a government program labeling your company a trusted international trader. Your cargo may be automatically scanned at the border, but your drivers roll right through.

The road toward frictionless borders and other innovations begins here, with prescreening and integrated border management processes. And optimal prescreening and IBM depend on improved name matching and PAI.

### **Endnotes**

1. Salim, S, *Digital Information World*, "More than six hours of our day is spent online – Digital 2019 Reports," accessed January 2023, <https://www.digitalinformationworld.com/2019/02/internet-users-spend-more-than-a-quarter-of-their-lives-online.html>

2. SG Analytics, "2.5 Quintillion Bytes of Data Generated Everyday — Top Data Science Trends 2020," accessed May 2023, <https://us.sganalytics.com/blog/2-5-quintillion-bytes-of-data-generated-everyday-top-data-science-trends-2020/>

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