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PEOPLE-SCREENING

Helping International Customs Agencies Fill A Critical Gap In Border Security

A Whitepaper from Thruvision

October 2019

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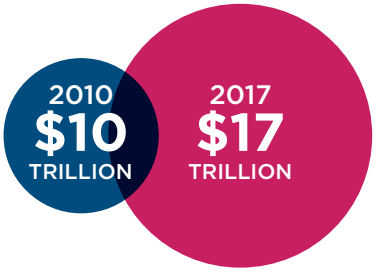
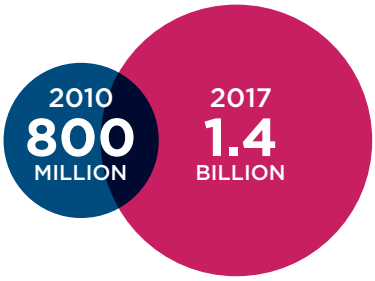
Executive Summary

International customs and border security agencies have traditionally used screening technologies to inspect baggage, vehicles, mail and cargo containers for illicit goods and contraband. Screening of pedestrians at ports of entry has often been a lower priority, in large part due to the lack of viable solutions. As a result, pedestrian-based smuggling of items such as currency, opioids, narcotics and other illicit items is a point of vulnerability for border security and customs enforcement.

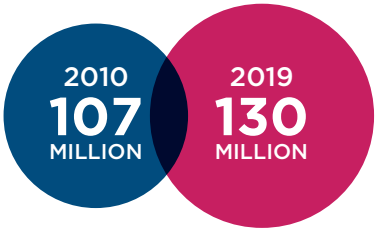
This white paper provides an overview of the reasons why international customs agencies need to address this and explains how passive terahertz people screening technology offers the first operationally proven solution for this requirement.



Increase in value of cross-border trade



Increase in international tourist and business travel arrivals



Increase in permanent cross-border migration

Background: Customs Agencies Face Growing Tide of Illicit Trade and Smuggling

As the global economy has evolved, cross-border trade, travel and migration has increased dramatically. According to the World Trade Organization, for example, the value of cross-border trade increased from $10 trillion in 2010 to over $17 trillion in 2017 – a 70% increase.[1]

At the same time, international tourist and business travel arrivals increased from approximately 800 million to 1.4 billion – a 75% increase.[2] Permanent cross-border migration has also risen, from 107 million persons in 2010 to 130 million persons in 2019.[3]

International customs and border security agencies are on the frontline of dealing with these trends. Along with the economic and social benefits that have been created by increased international travel and trade, there have been significant challenges. These include the increase in smuggling of goods and contraband to evade customs duty collection, as well as criminal trafficking in weapons, currency, and narcotics.

The most recent data[4] from the World Customs Organization (WCO) and other sources highlights the magnitude and growth of these smuggling activities:

- Narcotics and Opioids: Depending on the substance, increases in seizures ranged from 8% (Cannabis) to Opiates (30%)
- Currency: The United Nations estimated that approximately $870 billion in illegal cross-border currency flows were tied to criminal activity.
- Contraband: The WCO reported that seizures of the most common types of smuggled goods increased by over 23% from 2016 to 2017.

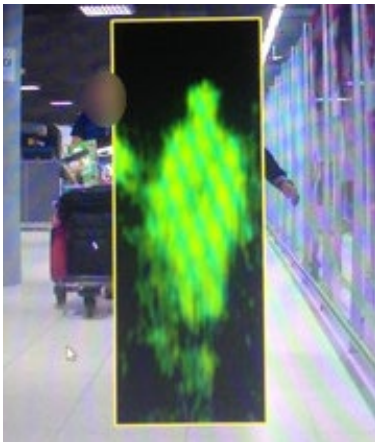
1 WTO World Trade Statistical Review, 2018.
2 UNTWO International Tourism Results, 2019.
3 UN Population Division, International Migrant Report, 2019.
4 WCO, Illicit Trade Report, 2017.

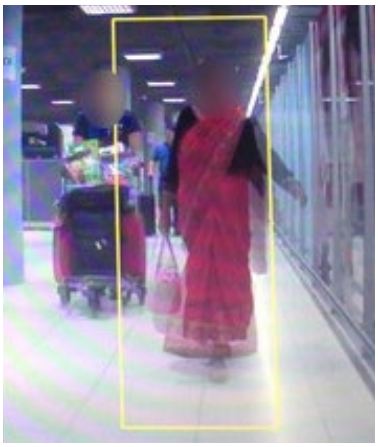
“Pedestrian” Smuggling of Contraband: A Serious Problem

Most smuggled goods are transported by vehicles of some type: trucks, cars, rail, air cargo, and maritime transport. As a result, customs agencies have understandably focused their inspection staff and technologies on these modes of transportation, often investing millions of dollars in large, high-energy X-Ray systems that can scan vehicles, cargo containers and even moving rail cars. In addition, many customs agencies perform periodic inspections of baggage at airports, seaports and in some cases, land-border crossings, using checkpoint X-Ray systems.

Routine screening of people, on the other hand, to detect concealed contraband and threats has not been as widespread in the customs environment. In some ways this is understandable. Vehicles can transport much larger quantities of all types of illicit goods, compared to an individual pedestrian, and using traditional security checkpoint screening approaches to check large volumes of people in a very short period of time, i.e. during flight arrivals or at high-traffic land border crossings, is almost impossible to implement.

Nevertheless, there is evidence that the lack of people screening by customs is a serious gap in customs enforcement and border security. For example, for narcotics, opioids, currency, precious metals, and other high value goods, pedestrian-based smuggling is common and represents approximately 20% of the volume of seizures made world-wide.[5] Considering the impact that such smuggling can have, this represents a major problem that needs to be addressed.





For some types of contraband, pedestrian smuggling accounts for up to 20% of seizures made world-wide[5]

Leading Southeast Asian Customs Agency Relies on Thruvision for Pedestrian Screening

Situated in one of the world’s fastest growing and most heavily traveled regions, this international customs agency has long been known as a leading innovator in customs and border security technology. “Thruvision’s passive terahertz pedestrian screening solution has helped customs officials make seizures of narcotics, counterfeit items and smuggled goods that would otherwise have been impossible,” comments Colin Evans, Thruvision CEO.

Unique Challenges In Tackling Pedestrian Smuggling and Customs Evasion

There are several factors that make it challenging for customs and border security agencies to tackle pedestrian-based smuggling of illicit goods, and in turn impact customs inspection technology solutions that can be deployed.

First, each point of entry – land border crossing, airport, or seaport – can have different characteristics in terms of types of pedestrian traffic, peak hour volumes, and real estate available to support screening operations.

Second, pedestrian “non-compliance” is a serious problem. Unlike airport security checkpoints, where only a tiny fraction of travelers pose a potential security threat, and virtually all persons comply with screening protocols, smuggling by pedestrians is endemic in the customs and border security environment. Smugglers vary from travelers over-stepping their duty-free allowance, to sophisticated crime gangs smuggling for material gain, to “innocents” being coerced into running drugs across a border. To make matters worse for customs agencies, professional smugglers change their tactics in response to new border security measures. In practice, this means customs agencies must engage in a continual “cat and mouse” struggle against sophisticated criminals.

Finally, the type of contraband being smuggled can change over time and can include an incredibly wide range of items – from adulterated baby formula, through counterfeit smartphones, to weapons, currency, gold, and narcotics.

These challenges have important implications for potential technology solutions. Customs agencies need pedestrian screening solutions that can support both detection and deterrence. They need to be able to operate at high visibility fixed checkpoints (for example, a land border crossing) and at random ‘mobile’ checkpoints (for example on an air bridge as passengers leave an aircraft). Covert screening, with appropriate legal safeguards, is also an important approach for covering known smuggling locations.

5 WCO, Illicit Trade Report, 2017.

Thruvision reliably detects non-metallics, like cash and narcotics, and well as guns and other metallic items.

The ideal technology should have proven detection performance for all types of material down to relatively small sizes (for example wads of bank notes or small packets of drugs), be easily deployable for both fixed and pop-up operations in a wide range of environments, and capable of screening travelers quickly and effectively. It needs to be safe and respectful of an individuals' privacy, particularly when smugglers are known to often conceal items in their groin area to minimize risk of discovery through physical search.

Available People Screening Technologies For Customs and Border Security

To meet these requirements, international customs and border security agencies have several potential technology solutions at their disposal:

- **"Walk through" metal detectors** – a mature, relatively inexpensive technology, but which cannot detect non-metallic items such as narcotics, opioids, paper currency and other non-metallic contraband;
- **"Stand inside" active millimeter wave scanners** – used in airport checkpoints, these offer proven detection performance but are large, immobile, with low throughput and no covert inspection capability;
- **"Stand-off" passive terahertz cameras** – a new, but already proven pedestrian inspection technology that has been successfully deployed by customs agencies worldwide. Passive terahertz technology provides high throughput while being comparable in threat detection performance to "stand-inside" scanners. In addition, the technology can support covert screening, is compact and is highly deployable.

How can a customs or border security agency determine which of these solutions best fits their people screening requirements? The following are common-sense criteria based on our experience working with international customs departments worldwide.

Flexibility of Operation

Being able to support a wide number of concepts of operation in a range of different environments is critical for tackling the range of different types of smuggler.

Combining the use of high visibility fixed, and mobile 'pop-up' inspection checkpoints offers an effective mix of deterrence and detection. The technology solution used needs to be flexible enough to be used at land pedestrian border crossing points, for screening coach passengers as they disembark at a border, in cruise liner and high-speed railway terminals, at other ferry ports, and in a range of different locations in airports including at point of disembarkation from the aircraft, at immigration desks, in secondary inspection areas, and at baggage reclaim areas.

Thruvision's passive terahertz technology, is used by eight international Customs agencies in each of these environments, resulting in seizures every day.

Proven, Independently Validated Detection Performance

Proven threat detection performance is the most important criteria. After all, any people screening solution can achieve excellent throughput – if it does not detect concealed items on a consistent basis.

While all people screening systems claim excellent detection capabilities, customs officials need to consider what types of contraband and illicit goods they are targeting and ask detailed questions:

- Has the system been evaluated by US Department of Homeland Security, generally considered the "gold standard" for security testing?
- Which other customs and border security agencies are using the technology?
- Does it detect non-metallic items, such as opioids, narcotics and paper currency?

A technology should have independently validated data – ideally from multiple sources – showing how well the technology detects concealed items of different types of material (metal, plastic, ceramic, gel, liquid, powder and paper), at different sizes, and concealed in different locations on the body. Detecting a large improvised explosive device (IED) on the torso of a person is far easier than detecting a small packet of drugs on the inside of a person's thigh.

Thruvision's ability to detect small quantities of high value narcotics and opioids at a port of entry differentiates it from all other potential inspection technologies.

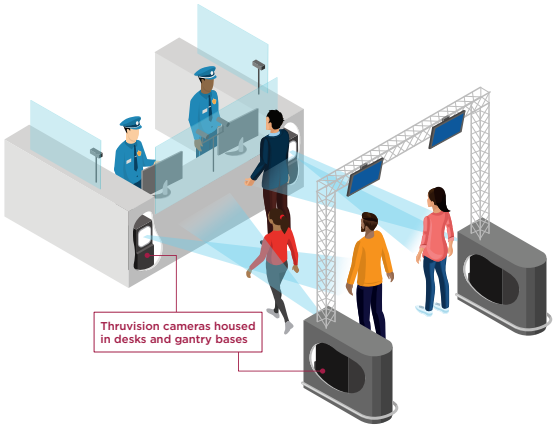
Thruvision's passive terahertz technology is industry leading in this regard. The system's detection performance has been extensively tested by US DHS, the UK Government and a leading Asian Customs Agency. It has been successfully deployed and is generating seizures of smuggled goods at customs organizations globally. These results – as well as customer references – are readily available to customers evaluating its solution.

Throughput

To support legitimate trade and commerce, ports of entry need to handle large volumes of people quickly. Long, airport-style queues are unacceptable. To be effective, screening technologies need to help customs officers quickly find "unusual" concealments, generally items that given their position on the body, are clearly not in pockets and therefore suspicious, in overt or covert screening applications.

Thruvision's technology allows customs and border security staff to see the size, shape and location of concealed items and determine if the concealed item needs further investigation. Because of this capability, Thruvision can screen up to 600 pedestrians per hour.

Typical Inbound Screening Process



Mobile Camera Deployment in Airport Jetway

Health, Safety, and Privacy

From a public and operator acceptance standpoint, health safety and privacy are important considerations. "Stand inside" body scanners, used in airport security checkpoints, have struggled to gain broader market acceptance in part because they "actively" emit millimeter wave radiation during the screening process to create a high resolution image of the person screened. And like walk-through metal detectors, these systems can require a physical inspection or "pat down" to resolve an alarm.

Eight International Customs Agencies use Thruvision to tackle Pedestrian Smuggling at Ports of Entry.

By contrast, people screening solutions that use passive terahertz technology, such as Thruvision, emit no radiation, making employee health and safety concerns a non-issue. Thruvision measures the thermal contrast between the heat emitted by a person's body, and objects concealed in a person's clothing. This information is presented as the outline of a person from which a customs official cannot distinguish the age, gender or ethnicity of the individual in question, but does allow operators to see, in real-time, the size, shape and location of concealed objects. This is an especially important benefit considering that smugglers may hide contraband in their groin area. This safety and privacy enhancing capability reduces false alarms and enables non-intrusive, no-touch 'virtual pat-downs'. Individuals can remove and show any suspicious concealed item without a physical search.

Return on Investment Via Seizures

A critical measure of customs inspection technology is its ability to increase seizures of smuggled and illicit goods. Passive terahertz technology has demonstrated this capability in actual deployments by international customs agencies. For example, Its ability to detect even small quantities of high value narcotics and opioids concealed on a pedestrian at a port of entry differentiates it from all other potential inspection technologies. In addition, Thruvision's passive terahertz technology is designed for a low total cost of ownership. It has a smaller physical footprint than active millimeter wave systems, can be battery-powered, and is easily moved to meet changing security requirements. It requires fewer staff than other solutions – in many configurations, a single person can both operate the system and resolve alarms quickly.

Conclusion: Thruvision Can Help Customs Meet The People Screening Challenge

Customs and border security agencies worldwide have the dual challenge of a growth in pedestrian based smuggling of items such as drugs and paper currency, with the need to handle ever rising volumes of people crossing their borders. Until recently, there have been no cost-effective people screening technologies to address these requirements. However, the emergence of Thruvision's passive terahertz people screening technology offers customs agencies an operationally proven solution that is safe and affordable. Thruvision has been successfully deployed for customs, border security and other people screening applications in 20 countries around the world.

About Thruvision

Thruvision is the leading provider of next-generation people-screening technology. Using patented passive terahertz technology, Thruvision is uniquely capable of detecting metallic and non-metallic threats including weapons, explosives and contraband items that are hidden under clothing at distances up to 25ft. Addressing the growing need for fast, safe and effective security, Thruvision has been vetted and approved by the U.S. Transportation Security Administration. Operationally deployed in 20 countries around the world, over the last five years for applications including mass transit and aviation security, facilities and public area protection, customs, and border control and supply chain loss prevention. Thruvision has offices in Oxford, Washington DC and Sydney.
To learn more, visit **www.thruvision.com**.

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