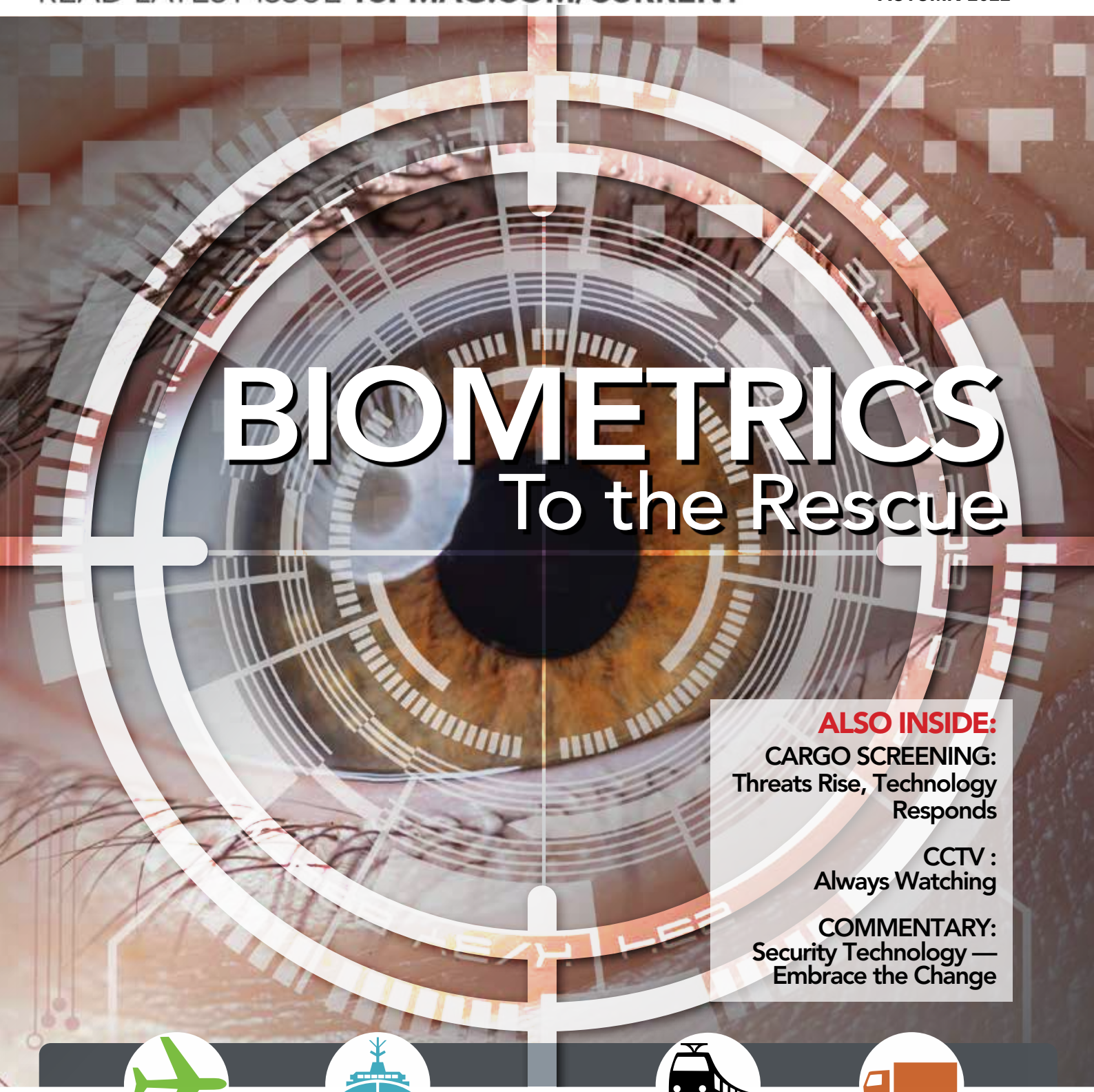
TSI TRANSPORT SECURITY INTERNATIONAL

READ LATEST ISSUE TSI-MAG.COM/CURRENT

INCORPORATING AVIATION SECURITY INTERNATIONAL

COUNTER TERROR GAZETTE

AUTUMN 2022



BIOMETRICS
To the Rescue

ALSO INSIDE:

CARGO SCREENING: Threats Rise, Technology Responds

CCTV : Always Watching

COMMENTARY: Security Technology — Embrace the Change

AVIATION MARITIME RAIL ROAD

THREAT DETECTION THROUGH ELECTROMAGNETICS

SAMDEX®

SHOE EXPLOSIVE (SED) AND METAL (SMD) DETECTOR

DfT APPROVED

STAC CERTIFIED

SED & **SMD** integrated unit

MAIN FEATURES

- **CERTIFIED** against relevant detection standards for explosive and metallic threats
- **BULK DETECTION**, based on actual material properties measurement
- **CLEAR "OK/ALARM"** result for each shoe inspected to avoid missed analysis
- **INCREASED CHECKPOINT THROUGHPUT** by elimination of shoe divestiture and X-ray check
- **INCREASED COMFORT**: passengers keep their shoes on
- **ERGONOMICS**: simple and stress-free use
- **ANALYSIS TIME**: 2 sec. typical/shoe
- **NETWORK**: Ethernet connection and NetID compatible

For more information, contact your CEIA representative at **infosecurity@ceia-spa.com** or call us today at **+39 0575 4181**

www.ceia.net

CONTENTS

AUTUMN ISSUE 2022

TRANSPORT SECURITY INTERNATIONAL
READ LATEST ISSUE TSI-MAG.COM/CURRENT

COVER STORY

CATEGORIES

AVIATION MARITIME RAIL ROAD

Transport Security International is published quarterly by Aerospace & Security Media. POSTMASTER send address changes to Transport Security International at pcalderon@aerospace-media.com. The editor welcomes articles, engineering and technical reports, new product information and other industry news. All editorial inquiries should be directed to the editor at jfinnegan@aerospace-media.com. Subscriptions: Free to qualified individuals involved in the aerospace industry. All other prepaid subscriptions, see www.tsi-mag.com.

AEROSPACE & SECURITY MEDIA
www.aerospace-media.com

EUR +44 (0)20 3892 3050
USA +1 920 214 0140

Transport Security International
is published quarterly by
ASI Publications Ltd.
1 Coyners Avenue, Birkdale
PR8 4SZ, UK

Owner/Publisher
Adrian Broadbent
CEO - Aerospace & Security Media
DDI +44 (0) 203 892 3051
abroadbent@aerospace-media.com

Editor-in-Chief
Joy Finnegan
+1 202-549-7618
jfinnegan@aerospace-media.com

Sales Director
Sam Stokes
+44 (0) 20 3892 3056
sstokes@asi-mag.com

Accounts Payable
Maria Hernanz-Reyes
DDI +44 (0) 203 892 3051
maria@asi-mag.com

Design
Lisa Garrison
lgarrison@aerospace-media.com

Printing
Gemini Print

Mailing
UK Postings Ltd., UK

www.tsi-mag.com
UK Company registration no 5999781
UK VAT no GB227106044

Editor's Note

BY JOY FINNEGAN
EDITOR-IN-CHIEF

It's Personal

Last year in our autumn issue I used the opportunity of publishing right around September 11th to introduce myself as the new editor of this publication. It was the 20th anniversary of 9/11 (and of course this year marks 21st anniversary). For those of us who were working in aviation at that time, I guess we will always have a visceral reaction to that date and the memories of that time.

I take every opportunity to publicly reminisce about my college friend, David Charlebois, who was one of the pilots on American Airlines Flight 77 that was hijacked and crashed into the Pentagon on that fateful day. So, I want to mention him again here. David was a super smart, motivated guy, pursuing his dream of becoming a captain for a major legacy airline.

But, when I knew him, he was a friend with like interests — mostly flying. We shared that love of the sky and a passion for slipping the surly bonds of earth, traveling, adventure and the idea of a non-routine job that didn't require sitting at a desk all week. David was motivated to get his ratings, build flight time and get hired by a legacy airline.

He was also a planner. He had a very defined plan for his path to achieve that goal. Talking to him about that plan gave me my own ideas and helped me formulate what I hoped would come next in my path after graduating from Embry-Riddle Aeronautical University where we were studying and training. He was also a person with a sharp sense of humor and I remember laughing about some of his very specific and unique ideas.

David was a son, a brother and an uncle. On the Pentagon Memorial page, his write up says, "He will be remembered fondly by many friends for his kindness, loyalty and positive attitude." I can confirm that is how I remember him: kind, funny, loyal, hard-working, motivated.

As I sit and write this, it's September 11, 2022. Twenty-one years ago, American Airlines flight 77, along with three other airline flights, was hijacked by terrorists and deliberately crashed into the Pentagon as part of the September 11 attacks. Here is a brief recap of what happened on that flight as written by Patricia Bauer in the Brittanica entry, "American Airlines flight 77" (edited for length).

"The Boeing 757-200 took off at 8:20 am. There were six crewmembers and 58 passengers. Unbeknownst to all, five hijackers boarded the flight. One of the hijackers was a trained pilot. Approximately half an hour after takeoff, the hijackers took control of the aircraft. At 8:54 the westbound plane turned to the south, deviating from flight plan. Two minutes later the airplane's transponder was turned off. Radar contact was also lost. An air traffic controller at the Indianapolis Air Traffic Control Center tried repeatedly to make contact with the pilot; receiving no response, he contacted American Airlines, but was also unsuccessful. Unaware of the earlier hijackings, the air traffic controllers began notifying other agencies that the plane might have crashed. At 9:09 the Indianapolis ATC notified the FAA that it had lost contact with the flight. At 9:12 one of the flight attendants, Renee May, used her cell phone to call her mother; she asked her mother to tell American Airlines that the flight had been hijacked. Another passengers, Barbara Olson, a Washington pundit phoned her husband, a politician to tell him that the plane had been hijacked and that all the people aboard had been herded to the back of the plane. Shortly after, Indianapolis ATC learned from American Airlines that other planes had been hijacked. A discussion ensued between the FAA command center and Indianapolis, and another confused conversation took place between the FAA and the Northeast Air Defense Sector. During that time, flight 77 traveled undetected back toward Washington for 36 minutes. At 9:32 air traffic controllers at Dulles found an unidentified aircraft traveling east at a high rate of speed and notified their compatriots at Reagan National Airport. FAA officials at both airports notified the Secret Service and controllers at Reagan ordered a National Guard aircraft that was already airborne to find and follow the (as yet) unidentified aircraft. At 9:34 flight 77 was 5 miles (8 km) west-southwest of the Pentagon; it executed a sharp turn and quick descent and dove toward the Pentagon, crashing into it at 9:37.

The plane hit the outer wall between the first and second floors and smashed through three of the Pentagon's five concentric rings. The jet fuel exploded into a fireball, and about half an hour later a section of the building above where the plane hit collapsed. By that time, most people working there had been evacuated. However, 125 people working in the building were killed, as were the 64 crew, passengers, and hijackers on the plane. The impact, fire, and collapse of the affected part of the building destroyed most of the aircraft, leaving only a few pieces of wreckage."

I think of my friend David, how aviation and travel changed after September 11 and where we are now, every year at this time. For some, security is nothing more than a pain and an inconvenience they experience when flying somewhere. But for me, it's personal. Never forget. TSI

e-lectio

A global Provider of Innovative e-Learning Solutions

Online training courses suited to all positions and levels of expertise

high-quality, regulated security eLearning solutions

unrivalled knowledge of the aviation market

World leaders in x-ray training simulation and image capturing

Full suite multi-lingual training catalogue

Advanced reporting and data analysis capabilities

EU Regulated Security Training

X-Ray Training Simulation

Cyber Security Training

Cargo & Handling Security Training

EAGLE7

The only Learning Management System designed specifically for security training.
The first choice for some of the world's leading brands.

Scan QR Code to get in touch.

www.e-lectio.com

ICTS EUROPE

Part of the ICTS Europe Group

SECURITY INTEL

AVIATION

FAA Moves Secondary Flight Deck Barrier Requirement Forward

The U.S. Department of Transportation's Federal Aviation Administration (FAA) has proposed requiring a second barrier to the flight deck on certain commercial airplanes. The additional barrier would protect flight decks from intrusion when the flight deck door is open.

"Flight crews keep us safe when we travel to visit loved ones, explore new places and conduct business. They, too, deserve to be protected, and this rulemaking is an important step forward," U.S. Transportation Sec. Pete Buttigieg said.

The proposed rule requires aircraft manufacturers to install a second physical barrier on airplanes produced after the rule goes into effect and used in commercial passenger service in the United States.

"Each additional layer of safety matters. Protecting flight crews helps keep our system the safest in the world," FAA Acting Administrator Billy Nolen said, a helicopter pilot and former commercial airline captain.

Last year, the Biden-Harris Administration put the secondary flight deck barrier on its priority rulemaking list. During 2019 and 2020, the FAA worked with aircraft manufacturers, labor partners and others to gather recommendations that are included in today's proposal. The Administrative Procedures Act requires FAA to follow the full rule-making process for this mandate that Congress included in the 2018 FAA Reauthorization Act.

The public has 60 days to comment on the proposed rule once it is published in the Federal Register. The FAA will publish a final rule after the comment period closes.

Koniku and Airbus Expand Partnership to Re-imagine Aviation Security

Koniku and Airbus Americas have announced the expansion and deepening of their collaboration, which began in 2017, to advance aviation safety and security from curbside to gate for billions of travelers globally.

Koniku has created "smell cyborgs" that detect a range of compounds in the air in real-time, empowering Airbus to design a touchless and seamless traveler experience. The 24-month collaboration marks a pivotal milestone in the companies' joint go-to-market strategy. The Konikore by Airbus solution will enable a seamless travel experience from curbside to gate while expanding safety beyond traditional areas and enhancing existing security measures.

Jeff Knittel CEO, Airbus Americas, and Osh. Agabi, Koniku Inc. CEO.

Airbus joins the Koniku Technology Integrator Ecosystem (KTIE) to build on Koniku's proprietary wetware technology stack. The Konikore smell cyborg weighs less than 600 grams and embeds engineered living biological neurons capable of reading the air and detecting volatile organic compounds—replicating the function of a dog's nose. The technology is IoT enabled, streams data to the cloud, and provides numerous functionalities, including reporting, a machine learning backend, and more.

Beyond security, Konikore is applicable in the areas of health, diagnostics, manufacturing, food safety, industrial and other verticals. Notably and beyond explosives, the Konikore can detect drugs like amphetamines, fentanyl, and hundreds of other compounds. Over time, the smell cyborg will be adjusted to detect contrabands, viruses and pathogens. When a respective molecular compound comes in contact with the Konikore an alarm is triggered. So through the rapid development of a Minimum Viable Product, Airbus Americas will provide a real-time explosive detection solution that uses Konikore.

"We're delighted to expand our partnership with a 'best in class' market leader like Airbus. The Airbus leadership team, including Airbus Corporate Security, has repeatedly reinforced to Koniku the paramount importance of passenger security, safety, and positive experience on the ground and at 30,000 feet," said Osh. Agabi, Koniku's CEO. "We feel excited about bringing such revolutionary technology into the real world."

Duke Robotics Introduces IC Drone for Maintenance of Critical Infrastructure

Duke Robotics signed an agreement with the Israel Electric Corporation (IEC), a public and 99% government-owned company that generates, transmits, and supplies electricity to all sectors of the State of Israel. Duke Robotics will introduce a first-of-its-kind robotic, drone-enabled system for cleaning electric utility insulators. This new system – the IC Drone – is under development and is based on Duke Robotics's advanced intellectual property (IP) and know-how that integrates algorithms, autonomous systems, and robotic technologies used in mission-critical applications. The above marks Duke Robotics' first collaboration for its civilian application.

Maintenance of high voltage electrical infrastructure requires routine cleaning of insulators in order to optimize system efficiency and prevent power outages. Currently, the global standard for routine cleaning of insulators involves the use of helicopter fleets and crane trucks.

IC Drone offers a revolutionary, cost-efficient, and safer method for this essential infrastructure service. UAS Drone expects its IC Drone system will be operationally launched in H2 2023, and revenues are expected to commence in H2 2023.

"We believe our high-performance, mission-critical drone technology and know-how have untapped potential in the civilian market. IC Drone, for electrical infrastructure maintenance, is the first product that will be released in the civilian market," said Yossef Balucka CEO of UAS Drone Corp. "We are pleased to work with the Israeli National Electricity Company and believe this collaboration regarding IC Drone will benefit both parties."

TSA Executive Joins K2 Security Screening Group

K2 Security Screening Group is excited to announce that Keith Jeffries, formerly the Federal Security Director (FSD) at Los Angeles International Airport (LAX), will be joining the company next month as Vice President. Jeffries will lead K2's Security Innovation Advisory Program (SIAP) team which was recently created to help airports, cruise lines, mass transit systems and other transportation industry operators develop and sustain effective, efficient, and innovative security capabilities. "Keith's extensive operational security expertise will be a huge asset for our team," said Kathy Yurkunas, president, Security Screening Group. "His expertise will be indispensable in the evaluation and enhancement of security for a wide range of transportation nodes."

Jeffries has distinguished himself as an exceptional security professional in the government and military for more than 40 years. He has held numerous leadership roles during his career which has spanned six presidential administrations and he possesses deep expertise in strategy and policy development, training, analysis, and implementation. "I have worked with the K2 Security Screening Group for many years and have been thoroughly impressed by the professionalism and dedication of its team members," said Jeffries. "Heading up K2's new Security Innovation Advisory Program is an exciting opportunity. I believe we can play an important role in the homeland security mission."

As the Transportation Security Administration's (TSA) Federal Security Director at LAX, Jeffries was responsible for five other airports, one of the largest transit systems in the country, as well as the ports of Long Beach and Los Angeles. During his tenure, Jeffries was the Senior TSA official for most of Southern California and oversaw nearly 3,200 uniformed and non-uniformed personnel across 8,100 square miles. He created partnerships with local, city, state, and federal partners to exchange vital information, detect, deter, and mitigate threats and enhance public area security in aviation, cargo, mass transit, freight rail, and pipeline transportation sectors.

Keith Jeffries

Prior to becoming the FSD at LAX, Jeffries served as the Assistant Federal Security Director for Screening (AFSD-S) and then the Deputy Federal Security Director (DFSD) at Orlando International Airport (MCO), where he supervised every aspect of the TSA security operations. Previously, Jeffries was the Deputy Director for Field Operations at TSA Headquarters in Washington, D.C., where he administered a $3 billion budget and managed 43,000 officers across 452 federalized airports in all 50 states and territories.

Jeffries received TSA's Honorary Award for Leadership and is a member of the Senior Executive Service. Before joining TSA, Jeffries served for 20 years in the United States Marine Corps.

SITA Embarks on a New Path to Growth

Air transport IT provider SITA has launched a partnership program aimed at joining hands with key partners as it embarks on a new path to growth.

Through the new partner platform, Launchpad, SITA has outlined four key areas where it seeks to build new partnerships: digital identities, advanced analytics and data management, security and safety at airports, and sustainable alternative energy sources. Each of these areas is in response to the changing demands of air travel today and where SITA has already made notable strides in innovation and development.

Over the past two years, airlines and airports have faced significant challenges and changing passenger behaviors, requiring the industry to adapt how it operates. Surging fuel prices and volatility have increased sharply while passengers demand the same digital experience when traveling that dominates every aspect of their everyday life.

To meet this demand, SITA is accelerating its investment in new solutions that deliver smarter ways of working using existing and new technologies. At the same time, SITA is looking to collaborate with partners inside and outside the air transport industry to complement SITA's expertise, drive innovation, or trial new sustainable solutions within their operations.

"We are committed to enabling the growth of the air transport industry through smart technology and solutions," said David Lavorel, CEO of SITA. "We have looked carefully at the market and identified key areas where we can have a significant impact and help our customers work smarter. We have a strong investment and innovation program to support these areas which are central to the growth of SITA. To accelerate this program, we are inviting new partners working in these four areas to join us so we can reshape the air travel industry together."

LAM LHA Adds Scott Mulligan in U. S. Office

Security consulting specialists, LAM LHA, has announced Scott Mulligan has joined as a director in their U. S. office. Mulligan brings more than 20 years of experience in the homeland security sector, most recently serving as an assistant administrator with the U.S. Transportation Security Administration (TSA).

Mulligan's background as a Department of Homeland Security (DHS) executive "gives him unique insight into the role of technologies, processes and people in security and how each can be used to drive impactful change," the company says.

Smiths Detection Equips di Vinci Int'l. Airport in Rome with Advanced Carry-on Baggage Screening Technology

Smiths Detection has begun installing 30 HI-SCAN 6040 CTiX carry-on baggage screening systems at Leonardo di Vinci International Airport in Rome. The installation of this world-leading technology reflects the airport's high standards for passenger service excellence and process automation, having recently been awarded the ACI Best Airport in Europe for the fourth time in the last five years.

Smiths Detection's HI-SCAN 6040 CTiX is a computed tomography (CT) X-ray scanner producing high-resolution volumetric 3D images for quicker and deeper baggage assessment and low false-alarm rates. The scanners allow for electronics and liquids to remain in bags, speeding up passenger screening and reducing touchpoints.

The combination of the CT X-ray scanners, alongside 45 already supplied Smiths Detection IONSCAN 600 trace detectors, will further improve security and operational efficiency. The IONSCAN 600 is a highly sensitive, non-radioactive, lightweight, portable desktop system that detects and identifies trace amounts of explosives and narcotics.

The HI-SCAN 6040 CTiX can be equipped with Smiths Detection's object recognition software, iCMORE, which uses advanced algorithms to reduce the burden on operators – and potential errors – by automating the detection process for prohibited items.

"We are delighted to supply Leonardo di Vinci Rome International Airport with 30 HI-SCAN 6040 CTiX scanners," Stefano Scardigli, senior key account, Smiths Detection said. "Utilizing 3D imagery, our scanners offer the advanced screening of carry-on baggage, enhancing security and improving operational efficiency. Being able to leave electronics and

liquids in carry-on baggage will help expedite the screening process, especially in light of the well documented staffing pressures at airports around the world."

Marco Stramaccioni, CEO of ADR Security for Leonardo da Vinci Rome International Airport added, "Aeroporti di Roma looks forward to being a frontrunner for passenger experience and security at Leonardo di Vinci Rome International Airport. As passenger numbers increase, we will be well placed to efficiently screen passengers, reducing the burden on our operators. By harnessing the power of CT technology, we have futureproofed our security checkpoints."

Smiths Detection's HI-SCAN 6040 CTiX is certified by the U.S. Transportation Security Administration (TSA) under the Accessible Property Screening System (APSS) program to detection standard 6.2, Level 1, permitting the scanner to operate at an enhanced level with lower false alarm rates, as well as ECAC and STAC EDS CB C3 approval.

MARITIME

Oil Tanker Ice Energy Crew Released

The crews of two oil tankers seized earlier this year are being released. Iran seized the two tankers in May and now says the crew members will be returning to their countries of origin beginning the week of 12 Sept., a Greek merchant marine group said on Sunday.

A Greek delegation visited and the agreement was reached in those talks, according to a Greek Union of Merchant Marine Sailors statement on its website.

Greek and U. S. authorities, working together, stopped an Iranian tanker, the Lana, and confiscated its cargo in late May. It is believed that Iran retaliated by seizing the two Greek tankers in Persian Gulf waters. They diverted the ships into Iranian waters two days later, on May 27. The tankers reportedly were carrying one million barrels of oil.

First Foreign Ship in Port in Ukraine Since Invasion

The first foreign-flagged ship to arrive in Ukraine since the war started in February came into port on Saturday, August 6. The ship was loaded with grain according to a statement by Ukrainian Infrastructure Minister Oleksandr Kubrakov.

Ukraine began grain exports in August and they are being monitored by a Joint Coordination Center in Istanbul with Russian, Ukrainian, Turkish and United Nations personnel overseeing them.

The U.N. and Turkey made an agreement after the U.N. warned of possible famine due to a lack of grain from the Ukraine region. Russia and Ukraine together accounted for approximately one third of wheat exports in the world, prior to Russia's invasion.

Leidos to Design Future Medium Unmanned Undersea Vehicle

Leidos was recently selected by the U.S. Naval Sea Systems Command (NAVSEA) to design and build a medium-size unmanned undersea vehicle. The single award, cost-plus-fixed-fee contract holds an approximate value of $358 million if all options are exercised. Work will be performed primarily in Lynnwood, Washington.

"Our decades of experience fielding unmanned technology coupled with our familiarity with the ever-changing needs of the fleet, enables us to provide this critical capability to our warfighters at speed and scale," said Mike Rickels, Leidos senior vice president of C4ISR Solutions. "We look forward to building upon our long-standing relationship with the Navy and supporting their critical national security mission."

The medium unmanned undersea vehicle will support intelligence preparation of the operational environment by providing submarine-based autonomous oceanographic sensing and data collection for the Navy. The MUUV will also provide surface-launched and recovered mine countermeasures.

Leidos will work with several partners to deliver this critical technology, including L3Harris Technologies.

"This partnership with the Leidos team provides the Navy with an advanced, agile unmanned undersea vehicle system that leverages our proven Iver technology," said Rosemary Chapdelaine, president, Maritime, L3Harris. "The Leidos and L3Harris team successfully recovered AUVs through a submarine torpedo tube and we're excited to bring this dynamic launch and recovery capability to real-world missions."

Cuba's Matanzas Oil Terminal Inferno Out, Disruptions Ongoing

The huge blaze that destroyed four of eight large storage tanks at the Matanzas Oil Terminal in Cuba was brought under control after days ablaze. The fire, which was started by a lightening strike, hindered marine terminal operations and forced tankers to divert to other ports.

Columns of fire were reported rising from the site and thick black smoke spewed for days. Explosions occurred as tanks collapsed or imploded. Mexico and Venezuela sent firefighters to assist and the U. S. provided technical consultations.

It took a full week of work to finally get the fire under control and put it out. Six firefighters were killed while working to put the blaze out and more than 130 people were injured during the incident.

"The U. S. is relieved that the Matanzas fire has been contained. We wish a speedy recovery to all the individuals and families who have been affected. We hope that any significant environmental impact on the people of Cuba can be easily mitigated," the U.S. Embassy in Cuba said in a statement.

RAIL

Trevelyan Appointed Secretary of State for Transport UK

Anne-Marie Trevelyan

Anne-Marie Trevelyan was appointed Secretary of State for Transport in the UK on 6 September 2022. She was Secretary of State for International Trade and President of the Board of Trade from 15 September 2021 to 6 September 2022.

Previously Trevelyan was the UK International Champion on Adaptation and Resilience for the COP26 Presidency between 7 November 2020 and 6 September 2022. She was Minister of State (Minister for Energy, Clean Growth and Climate Change) at the Department of Business, Energy and Industrial Strategy from January 2021 to September 2021 among other posts.

Trevelyan was first elected as Member of Parliament (MP) for the Berwick-upon-Tweed constituency at the 2015 general election.

A chartered accountant by trade, she sat on the House of Commons' Public Accounts Committee from July 2015 to May 2017 and December 2018 to July 2019. She has previously served as the Parliamentary Private Secretary to the Secretary of State for Defence. As an MP, she has campaigned with colleagues for greater autism awareness and has focused on the Armed Forces Covenant.

The EU to Allocate €270 million to Member States for Customs Control Equipment Over the Next Three Years

The first call for proposals was launched in October 2021, resulting in a total funding of more than €270 million for over 240 strategic Border Crossing Points and customs laboratories across the EU. This will allow Member States to purchase, maintain or upgrade state-of-the-art customs equipment such as new scanners, radiation monitors, teams of sniffer dogs and other non-intrusive detectors for border crossing points as well as a variety of laboratory equipment for goods analysis.

Part of the Integrated Border Management Fund, CCEI supports Member States to finance detection equipment for goods crossing the EU's external borders. The initiative has the twin aims of improving customs performance by contributing to adequate and equivalent results of customs controls throughout the EU, while helping EU customs authorities act as one single entity. The instrument is part of the long-term EU budget for 2021-2027, with a financial envelope of €1 billion.

Biden-Harris Administration, USDOT Make an Unprecedented $1.4 Billion in Rail Grants Available Through Bipartisan Infrastructure Law

The U.S. Department of Transportation issued a Notice of Funding Opportunity (NOFO) announcing the availability of over $1.4 billion in Consolidated Rail Infrastructure and Safety Improvement (CRISI) Grant funding. The CRISI Program, which is administered by the Federal Railroad Administration (FRA), advances projects that modernize America's freight and passenger rail infrastructure, allowing people and goods to move more safely and efficiently and helping make goods more affordable for American families. This year, President Biden's Bipartisan Infrastructure Law more than triples funding for the CRISI Program – a much-needed step to meet the heavy demand for rail funding from States and local communities. The program allocates at least 25% of total funds for projects in rural areas.

"Freight rail is a critical part of our supply chains, and when shipping costs come down, families pay less for goods," said U.S. Transportation Secretary Pete Buttigieg. "Today, because of President Biden's Bipartisan Infrastructure Law,

we're thrilled to announce the biggest-round of funding ever to make both passenger and freight trains across America safer, faster, and more reliable."

Higher funding levels enabled by the Bipartisan Infrastructure Law will also accelerate progress in building up infrastructure resilience and strengthening the supply chain, which in turns makes it less expensive to transport goods. The influx of new grant opportunities will allow FRA to invest in a wide range of projects that will mitigate passenger and freight rail congestion; enhance multi-modal connections; and improve and establish new intercity passenger rail corridors. Furthermore, CRISI grants are a major source of funding for short line railroads, whose operations bolster local economies and are crucial for supply chain fluidity. These nationwide investments will advance the Department's key goals of infrastructure safety, efficiency, economic vitality, equity, and resiliency.

"Projects funded by these CRISI grants will generate economic opportunities and improve the travel experience in communities across America, whether urban or rural, large or small," said FRA Administrator Amit Bose. "With the Bipartisan Infrastructure Law's massive boost to the CRISI Program, the funding made available today will help launch our country's new rail revolution and maintain our rail network's unmatched standards for safety and efficiency."

In addition to projects that improve and expand freight and passenger rail infrastructure, CRISI grants will focus on safety projects such as grade crossing enhancements and rail line relocations and improvements as well as other priorities, including workforce development and training, regional rail and corridor planning, environmental analyses, and research and deployment of railroad safety technology. New project eligibilities also include measures to prevent trespassing and to rehabilitate, remanufacture, procure, or overhaul locomotives for emissions reduction projects.

ROAD

New EU Rules on Ukrainian Driving Documents

New temporary rules have been implemented by the European Union in hopes they will ensure people fleeing Ukraine can continue to use their Ukrainian driving license, without needing to exchange it for an EU driving license or to sit for a new driving test. The new Regulation sets specific rules on expired, lost and stolen Ukrainian driving licenses to reduce the administrative burden for those residing in the EU under the temporary protection regime, following Russia's war of aggression. Digital driving licenses issued by Ukraine (DIIA) may also be recognized once verification tools have been made available and deployed by Ukraine.

The measures also ease requirements for professional drivers, allowing them to work in the EU during the period of temporary protection and to help export Ukrainian goods and facilitate bilateral talks in the context of the EU-Ukraine Solidarity Lanes. Ukrainian lorry and bus drivers will be able to have their professional qualification, obtained in Ukraine, temporarily recognized in the EU following a short training course and a test.

The new rules were proposed by the European Commission in June. Following their adoption by the Parliament and by the Council in July, they were entered into force five days after publication.

SITA Unveils eVisa and ETA to Transform Borders and Boost Growth

SITA has launched SITA eVisa and SITA Electronic Travel Authorization to meet the rapidly growing demand from governments for digital visa systems to stimulate national economies after COVID-19, strengthen security and improve the travel experience.

Governments globally are shifting to modern travel authorization solutions, like electronic visas and Electronic Travel Authorizations (ETAs). According to the World Travel & Tourism Council (WTTC), traditional visas – applications made via a consulate or embassy – decreased from 77% in 2008 to 53% in 2018. There is a growing demand for digital travel solutions.

The advantages of digital authorization solutions include improved security, reduced administrative burden, easier travel, and increased visitor flows, promoting spending that benefits local economies and creates employment. For example, one government's introduction of an eVisa scheme covering 40 plus countries in 2014-2015 led to a 21% increase in international visitor arrivals and the creation of 800,000 jobs accounted for around 20% of the growth seen in the country's travel and tourism over the period.

SITA has deployed border management solutions for more than 25 years to support cross-border mobility while safeguarding borders. In 1996, SITA pioneered the first ETA system for the 2000 Sydney Olympics. The aim was to give authorities advance visibility into the huge influx of tourists crossing the border, helping to reduce immigration bottlenecks.

For one major government customer in Asia Pacific today, SITA says its ETA system enables more than three million ETAs to be issued each year, 96% of applications result in the automatic issuance of an authorization, and 99% of all applications are successfully processed in less than 12 hours.

The mobile capability of SITA's new eVisa and ETA capability allows travelers to make applications and provide their biometric information using their personal devices before they travel. For travelers, this is simpler, more convenient, and less time-

consuming than applying for more complex traditional or on-arrival visas. For governments, they can biometrically verify the applicant's identity. The mobile app also creates ICAO-compliant Digital Travel Credentials (DTCs) – a development in digital identity for travel that may replace physical passports in the future.

SITA's eVisa and ETA solutions provide visas containing ICAO's Visible Digital Seal (VDS), an encrypted bar code that enables visas and ETAs, paper or electronic, to be digitally verified for authenticity, offering enhanced security and fraud prevention.

"Adopting eVisa and ETA supports national prosperity," said Jeremy Springall, head of SITA AT BORDERS. "We've productized our proven and robust travel authorization systems to benefit more nations around the world as they shift to digitalize and future-proof their borders. The solutions help countries to cope with growing passenger volumes, improve security and efficiency, and deliver a more seamless travel experience that travelers demand, removing the complexities of applying for traditional visas."

Dutch Farmers Blocked Roads, Ports in July Protest

Dutch farmers, angry about new government regulations, used their tractors and trucks to block roads and distribution centers Monday, July 4. The protests were spurred by anger towards the government for plans that would require them to use less fertilizer and reduce livestock, as well as plans to slash emissions.

They also targeted Schipol Airport, the country's largest hub, also advised people planning to travel during the protests to use public transportation to reach the airport as they believe the airport would be a target of the protesters.

Several traffic jams were reported on highways in the east of the country and on ferry routes in the north, but none near Schiphol during the morning commute.

Fishermen also joined the farmers in protesting the emission targets. They blocked the port in Harlingen with trawlers. Ferries to the islands of Terschelling and Vlieland could not leave for hours, news reports verified.

Shrimp fishermen, in particular, said they will have problems

as a result of the government's new regulations because next year they require applying for new fishing permits. Without making the required changes to their vessels, the permits might be withheld.

Pledges to UN Road Safety Fund at UN High-Level Meeting Raise $15 million

The UN Road Safety Fund is supporting the UN High-level Meeting on Global Road Safety and hosted its first pledging event on this summer at the UN Headquarters in New York. In total, 16 partners pledged more than $15 million to fund road safety projects in low- and middle-income countries during 2022-2025.

Countries including Armenia, Iran, Jamaica, Kenya, Nepal and Qatar have added their voices to the call for increased financing to the fund. The pledges highlight the important value that the Fund's growing multi-stakeholder partnership places on investing in safe, resilient and sustainable road safety systems for those countries and regions most in need.

Donors announcing new pledges to the fund during the UN High-level Meeting plenary session were Croatia, the European Commission, Hungary, Luxembourg, Nigeria, Russia and Slovakia. At the Fund's event, pledges were made by private sector donors Autoliv, Bridgestone, FIA Foundation, Keep Fighting Foundation, La Nuez, Michelin Corporate Foundation, Pirelli, Revel and TotalEnergies Foundation.

To date, the fund is financing 25 high-impact projects in 30 countries and five regions worldwide and more funding is needed to continue to scale up these evidence-based interventions and close critical road safety gaps. Thanks to the pledges made by donors, as well as online donations from small business owners and individuals, the Fund is expanding its reach to actively support better urban planning for school zones, low emission non-motorized transport, speed management and cleaner safer used vehicle standards in developing countries.

"More funding can and must be channeled towards road safety solutions to stop the senseless loss of lives still occurring on our roads each and every day," commented Jean Todt, the UN secretary general's Special Envoy for Road Safety. "These pledges are a welcome part of building our coalition for change, and we urgently need to bring more players on board to join the Fund's partnership, scale our investments and drive change in still more countries. We know the price of inaction for our children, our cities, and our planet. We must act today."

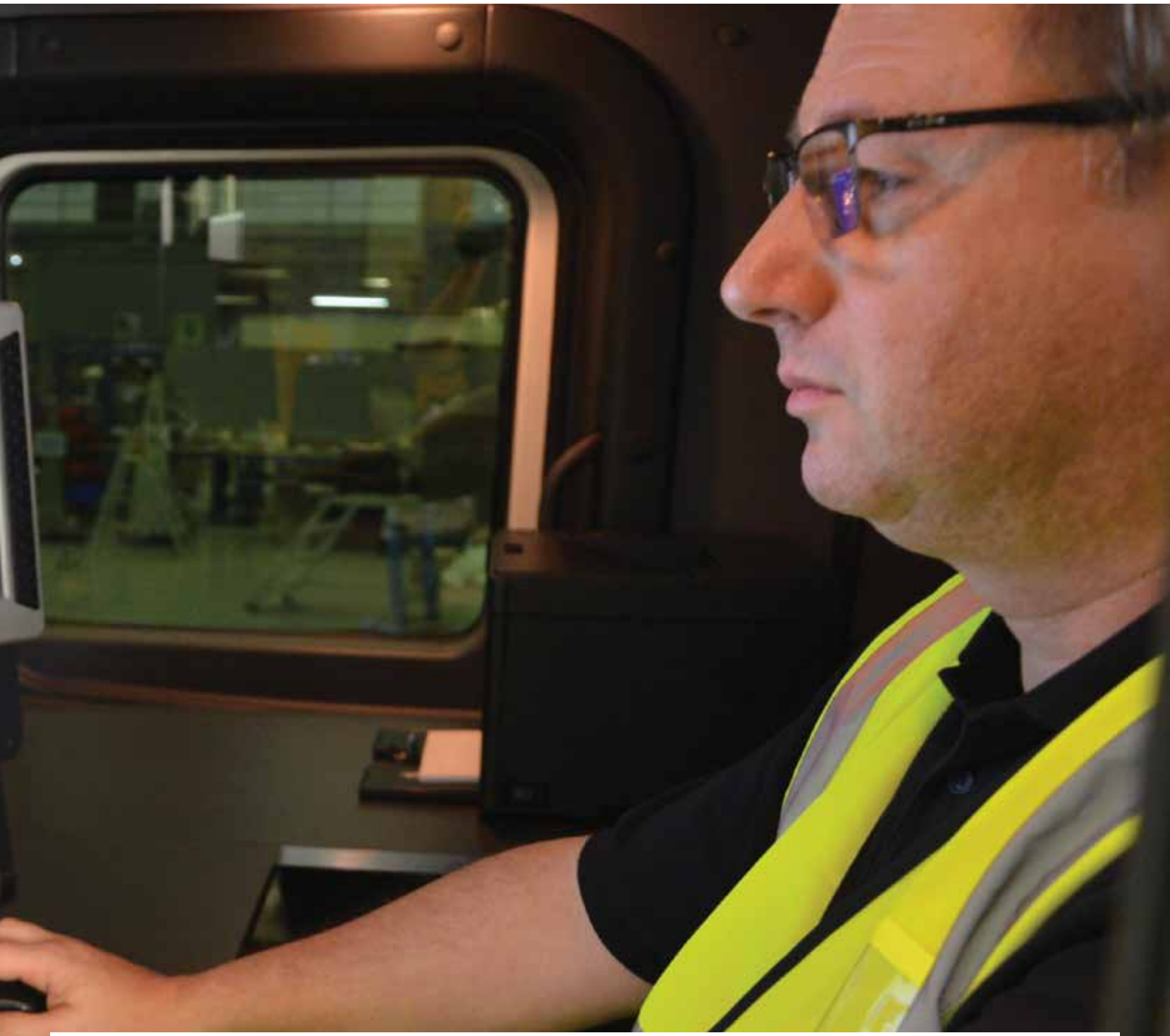
"We are grateful to all our partners who voiced their commitment to support the UN Road Safety Fund and pledge funding that will save the lives and livelihoods of vulnerable road users in many more developing countries," said Nneka Henry, head of the UN Road Safety Fund. "With the additional US$ 15 million pledged, we will continue to accelerate our efforts to ensure safer, accessible and inclusive roads for all. We need to build on this momentum and ramp up our financing efforts to scale up our impact to where it is still needed."

"Road Safety is a key development issue, costing developing countries between 2-5% of GDP every year. So, without roads that are safe, there can be no sustainable development," stated Olga Algayerova, executive secretary, UN Economic Commission for Europe. "I call on every country in the world to apply as a minimum set of rules the '7 Key UN Legal Instruments on Road Safety.' To deliver our commitment to halve road traffic deaths and injuries by 2030 and make safe and sustainable mobility a reality for all, countries must integrate road safety into all relevant national policies, in areas ranging from urban planning to education, and ensure proportionate national budget allocations."

TRENDS IN CARGO SCREENING TECHNOLOGY

As the threats facing cargo screening go up, vendors respond with technological advances.

By James Careless



Whether in small parcels in air cargo, or large containers on ships, trains, and trucks, smugglers are always trying to find new ways to evade detection. "It's a chicken and egg situation," said aviation security consultant Steve Wolff, president of Wolff Consulting Services. "Smugglers will try something and then, when they get found out, they'll try something else."

As a result, the range of items that need to be detected by cargo screening technology is wide and varied. "The common threats faced include explosives, weapons, narcotics, contraband, undeclared or misrepresented goods, currency, agricultural items, cultural artifacts, items presenting environmental risks, counterfeit goods, and weapons of mass destruction," said Huayu Li, assistant president and general manager of international civil aviation with the security scanning technology company, Nuctech.

When it comes to smuggling via large containers, the usual motive is profit, which is why the emphasis in screening ls is on the detection of illegal and banned goods. The same criminal motive plays a role in air cargo smuggling, but it is often accompanied by a desire to inspire terror through

DSA Detection:
A Model of Small Business Innovation

In transportation security, it is easy to get lost among the giant defense and security contractors. In the field of security innovation, few companies can stand equal to DSA Detection LLC. Founded in 2005 to create high-quality consumable products for trace detection systems, the company has expanded throughout the years into all areas of checkpoint security operations, from screening bins to X-ray correct training aids.

An example of innovation is the development and manufacture of the Dual-Mode Verification Trap for the QS-B220 explosive trace detection instrument, currently in use at over 100 airports and other secured facilities worldwide (ref. Figure 1). This simple verification technique eliminates the need for original equipment manufacturer (OEM) A and B canisters and reduces clearing time to complete this task from minutes to seconds. Taking advantage of the onboard software, this simplifies verification, saves time and money, and reduces the risk of cross contamination. This technique and product are approved by the DHS/Transportation

Figure 2.

Security Laboratory (TSL). All DSA products that require TSL approval have documentation letters issued by the world's leading laboratory for trace detection instruments.

Figure 1.

DSA routinely resubmits its products critical to levels of detection to the TSL for re-evaluation as part of a voluntary quality check. DSA's trace product approvals have never been reversed.

In addition to products for trace detection, DSA instituted a best-practices acronym for sampling techniques for analytic harvesting (ref. Figure 2). This is called "STOP" to remind screeners how to correctly sample items of interest - Single use of the sample media, Target the area likely touched, swipe Once in one direction, and apply proper Pressure. Poor sampling techniques will adversely affect detection results.

In 2014, DSA identified a systemic training problem and launched its X-ray correct training aid product line for simulated explosives used in X-ray training. In the past, training aids did not exhibit in an X-ray system like true explosives. DSA's X-ray correct inert explosive simulants were engineered to have the same characteristics (feel, look, density and Zeff) as target explosives (ref. Figure 3). Because of this development, organizations no longer needed someone who could build IED training aids. Instead, they could simply put the components together and have a training aid that was perfect for situational training.

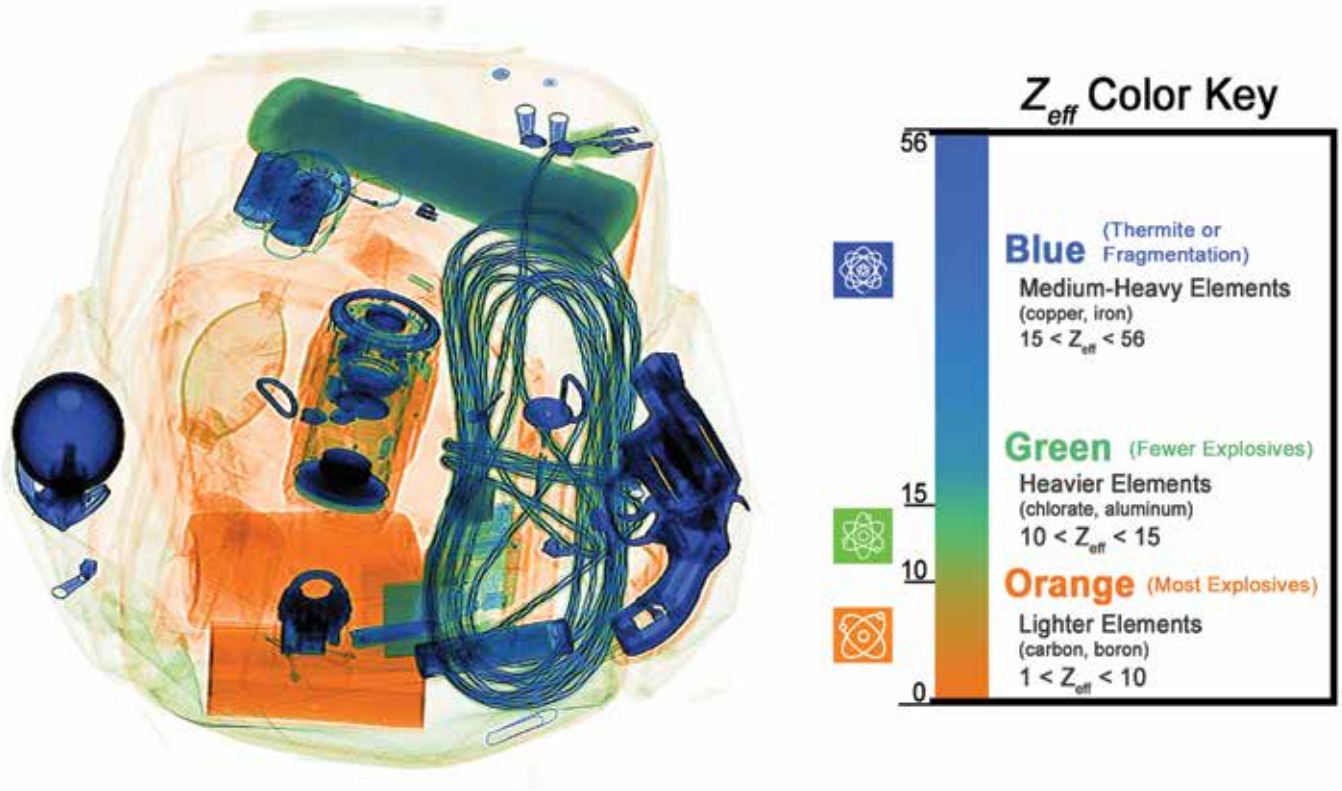


Figure 3.

DSA training aids and larger kits containing multiple devices are in use around the world. In the United States, kits are being used by DHS, the U.S. Marshals, the FBI to name a few, as well as professional sports teams and arenas. DSA employs subject-matter experts in all facets of the business–a 26 employee, small business that is nimble in function and customer-focused in thought. DSA is renowned for its lightning-fast shipping of trace detection consumable products.

Small businesses find niches in markets and respond easily to unusual or bespoke requests. DSA was once given a verbal description of a live IED removed from an airliner in Australia. Over a weekend, DSA technicians mocked up an X-ray correct model and shipped it to a government customer in Europe where it was X-ray tested and found to exhibit the exact features of the real device. Even though no photographs were available, the DSA product was remarkably similar.

From training aids to training courses, DSA created live, in-person X-ray image training. Creating simple, repeatable tasks, operators can now visualize X-ray images to decipher threat objects from safe ones. The operator is also able to apply DSA's developed process to previously unseen or unknown objects. Unlike training that focuses on image recognition, DSA's process allows for changes to the prohibited items list without requiring staff retraining.

As a leader in checkpoint security innovation, DSA utilizes its knowledge, skills, and abilities to respond to requests for other types of training aids and training. DSA created product lines to support metal detector operations. At the behest of a Fortune 300 client, DSA created training, training aids, and even policy to protect the company's intellectual property. DSA was able to take existing screening technology and adapt it to the detection of data storage devices. This program is currently protecting this client's valuable data around the world.

When conducting business with DSA Detection, you are dealing with a small business that treats your business as if its life depended on it. **Visit www.dsadetection.com**

DSA Detection®
SINGLE FOCUS. SINGLE SOURCE.

Smiths Detection's HI-SCAN 145180-2is, shown above, has two 160kV generators in 90° opposition providing a horizontal and vertical view of the object for shortened inspection time and high-quality images, the company says. Smiths Detection image.

acts of mass destruction. "This is why the most common threats confronted by air cargo screening are explosives in their different forms," said Harald Jentsch, head of Airports & Baggage Screening and interim head of Air Cargo Screening for Smiths Detection, a global leader in threat detection and screening technologies. "Beyond that, other contraband and dangerous/prohibited items like narcotics, currency, fireworks, and bio-threats are being met with increasing demand."

Harald Jentsch
Smiths Detection

Balancing Security and Speed

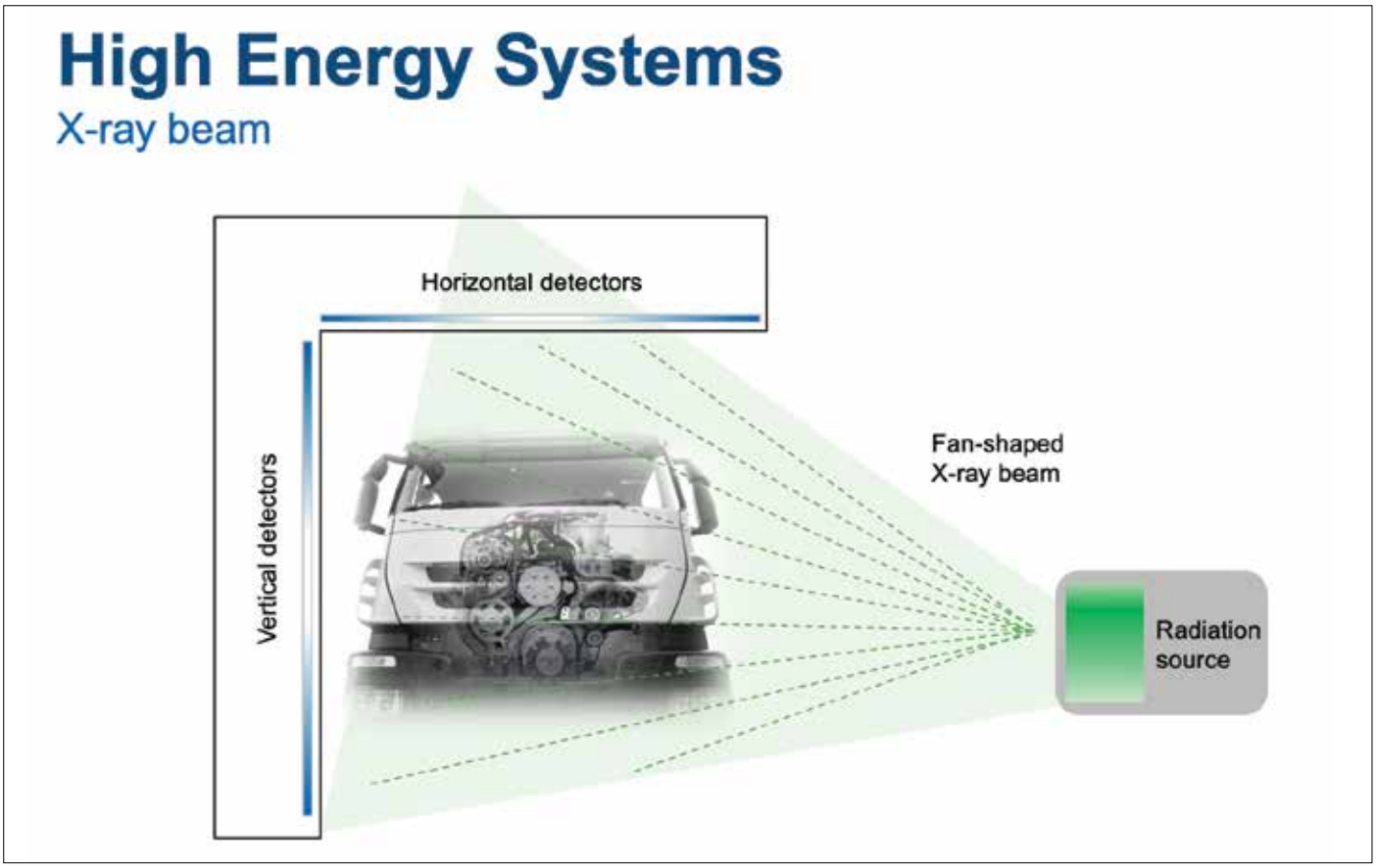
In a perfect world where time and money didn't matter, it would be possible to painstakingly screen every piece of air, land and sea cargo using human-based examinations and searches. But we live in the real world where time and money do matter. So, to screen cargo in an economically viable manner, cargo inspections must be done in a timely yet thorough manner.

"Customs and border control agencies are always challenged to balance national security and economic interests," said Mathieu Guillebaud, product development director with Leidos, a global provider of enterprise security technologies and solutions. "The facilitation of legitimate trade and travel are essential, but they also need to rapidly assess the legitimacy of cargo and travelers."

Mattieu Guillebaud
Leidos

This is why security personnel rely on 2D x-ray scanners and their 3D Computer Tomography cousins (aka CT, which employs a combination of x-ray scans from different angles and image processing by sophisticated scanning algorithms) to speed up the process while ensuring its thoroughness and accuracy. And because goods are moved using all shapes and sizes of containment, these scanners ran the gamut from small conveyor-belt type systems for air cargo to large drive-through rigs for trucks, trains, and seaborne shipping containers.

"When it comes to x-ray/CT systems we can split them into two big



categories," noted Sara Bracceschi, head of Consulting and Services for Customs at the Center for Adaptive Security Research and Applications (CASRA). "There are the low energy conventional systems that are used at airports for mail screening, baggage and air cargo. And then we have the high energy x-ray/CT systems that are used for shipping containers and vehicles such as cars, trucks, and trains."

Whatever the cargo scanning system, vendors of this equipment are constantly making improvements and advances to keep up with smugglers, and get a step ahead of them whenever they can. Here are some of the technology trends that are making this possible.

Adopting Baggage Innovations

In the wake of 9/11, the terrorist security risks associated with air passenger travel have driven this sector to the forefront of automated, technology-based screening. But now everyone else is catching up: "Air cargo is starting to implement all the advances in technology that we've seen in airports," said CASRA's Bracceschi. "So 3D CT scanners for baggage, for mail, and the like are finding their way through to air cargo."

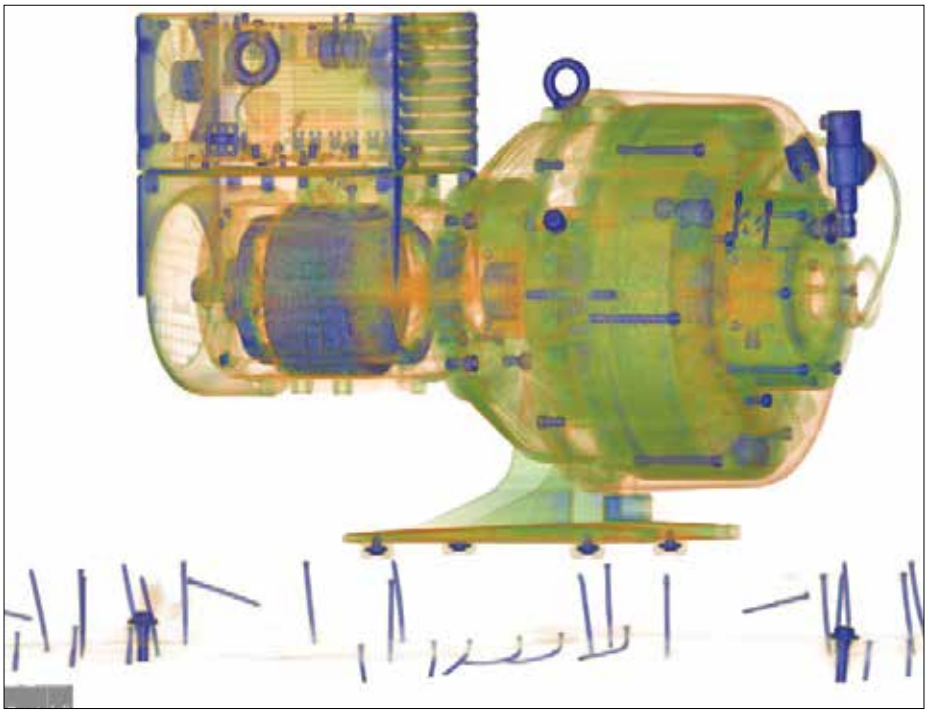
Sara Bracceschi CASRA

As for ground cargo? "The bigger the object that has to go through the screening tunnel, the bigger the machine to scan it," she said. Here too, advances in x-ray scanning equipment have made their way to the cargo market. "The original high energy system would only provide one view of the vehicle," Bracceschi explained. "But now we have dual view systems, and sometimes these views can be combined with top and bottom views as well. In addition to x-ray systems that focus on penetration, security screeners are using 'backscatter' x-ray systems that can reveal details inside containers based on the dispersion of x-rays, which allow lower doses to be used."

Getting More Out of CT

When it comes to scanning large

Dual view systems can be combined with top and bottom views according to CASRA's Sara Bracceschi. In addition to x-ray systems that focus on penetration, security screeners are using backscatter x-ray systems that can which allow lower doses to be used. CASRA image.



This example shows a crate containing an electric motor (top image). The IDSS CS320 scanner lets screeners see not only that the box really contains a motor, but allows screeners to see the motor's internal detail so that the operator can tell if anything has been hidden inside (bottom image). Note the detail of the electronics and cooling fan in the image's upper left, as well as the details of the motor's rotor structure in the middle right of the image. IDSS images.

cargo at the airport, size is an issue; specifically "the size of the rotating slip ring in the CT," said Nuctech's Li. Cargo that is too big to be scanned within the CT's rotating slip ring "needs to be manually separated, screened and repacked before it can be allowed through, which consumes a lot of manpower, time and valuable space at the airport."

In order to solve the above problems, Nuctech has developed a new generation of static CT scanners that don't require rotating slip rings to do their jobs. The three new models are the WooKong H, WooKong L, and CTitan.

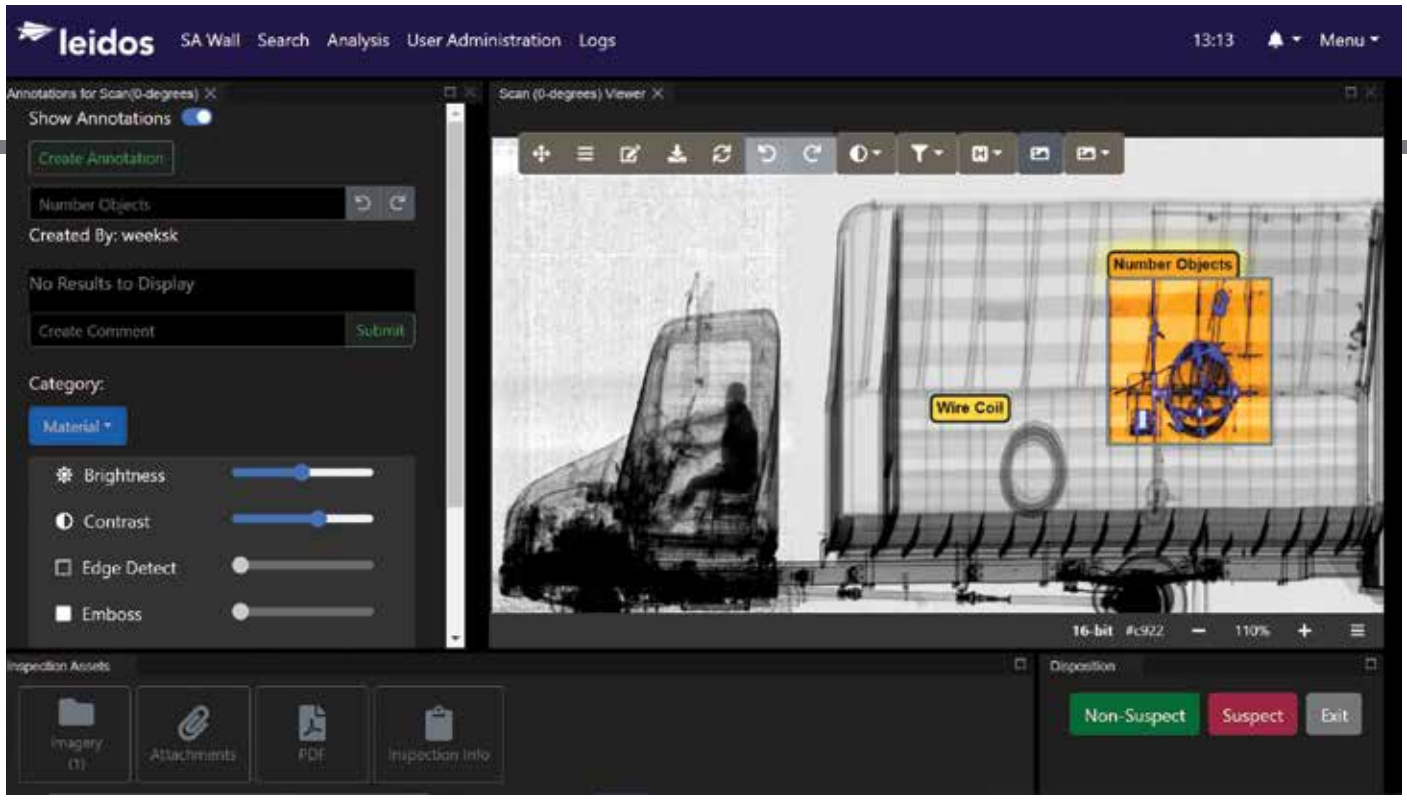
Jeff Hamel IDSS

"CTitan is the world's largest CT security inspection equipment capable of scanning ULD (unit load device)or pallet-consolidated cargo as whole items," Li said. "With a high-energy X-ray source, CTitan can scan ULD or palletized cargo up to 4.73m long and 3m high, capable of displaying a full 3D images of the entire ULD and detecting explosives automatically."

Taking A Different Angle

Pallets/skids are a very common way to ship cargo, and one that can confound security screeners who need to do thorough checks while keeping goods moving though their facilities. To solve this problem, Integrated Defense and Security Solutions (IDSS) is developing the IDSS DETECT CS320 Scanner, with partial funding coming from the US Department of Homeland Security (DHS) Science and Technology Directorate (S&T).

What makes the CS320 different is that it is designed to scan entire pallets from a horizontal position. "This solution thus reduces the footprint required of a typical X-ray or pseudo CT scanner that requires a skid to pass through the X-ray field," said IDSS President and CEO Jeffrey Hamel. "As such, it will eliminate the need for break bulk scanning



and significantly improve throughput in a 100% screening environment."

While reducing the space and time required to screen pallets, the CS320 will provide high resolution fully rotatable 3-D images to operators "with the most comprehensive non-intrusive inspection tools to quickly identify explosives, and weapons hidden within full-sized packaged cargo pallets or skids without breaking them down," said an IDSS news release. "The Artificial Intelligence (AI) detection algorithms will be enhanced to provide automated detection of potential threats and items of interest."

The Leidos VACIS IP6500 system's FullScan feature allows scanning of entire vehicles, bumper to bumper and roof to tires, including the occupants. The company says it is ideal for seaports and other high-volume cargo facilities. Leidos image.

The Leidos VACIS MLX Mobile Light X-ray Inspection System features a short wheelbase and light weight for better maneuverability and handling, an industrial chassis designed for firetruck duty, a global support network and an advanced high-energy imaging system with material discrimination, the company says. Leidos image.

Going Handheld

For years, the sheer size and weight of x-ray/CT scanning systems have been limiting factors in their use in tight and/or spread-out locations. But things are changing: "Some vendors have developed small backscatter x-ray devices that are portable," Wolff said. "These units are small enough that you can pick them up with two hands, walk to a container, and then place the device against the container wall to see what's inside."

Multi-Energy Portals

Torn between deploying low portal scanning systems that won't hurt humans or high-power systems that can see what's inside steel-walled containers? Then why not do both? In today's multi-threat, time-sensitive screening environment, "flexible, multi-energy portals (MEP) are vital for automating the commercial cargo inspection process for customs and border control agents," said Leidos' Guillebaud. "These systems provide a low energy scan for the passenger cab and higher penetrating X-ray dose for the container or trailer. With automation, MEPs help ensure all cargo is efficiently screened while maintaining a high throughput rate at inspection checkpoints."

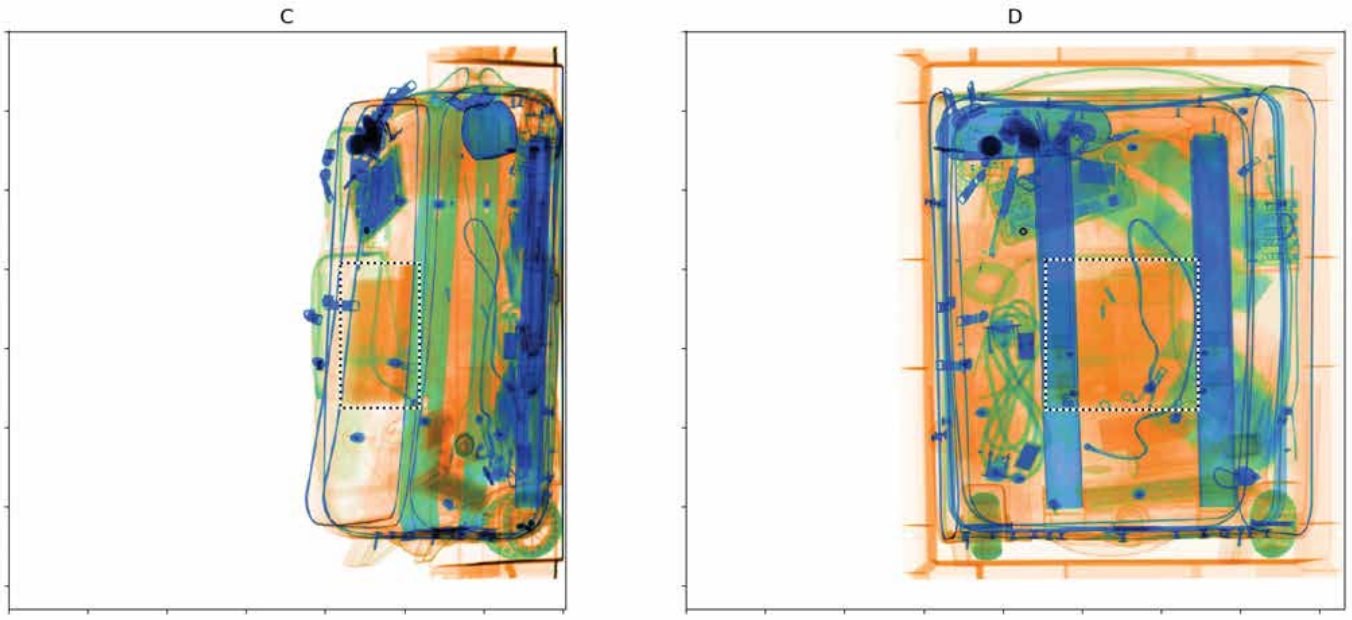
Not surprisingly, Leidos offers a MEP solution for these kinds of situations. "The Leidos VACIS IP6500 MEP was the first of its kind and has been deployed by the U.S. Customs and Border Protection," Guillebaud said. Better yet, the Leidos system also accesses driver immigration information and truck manifest automatically using RFID and/or QR code technology. "As this information is combined into a single integrated data package, officers can adjudicate the cargo or conveyance without the driver exiting the cab," he noted.

Doing the Neutron Dance

Forget the Pointer Sisters: In those situations where x-rays/CTs have a difficult time penetrating truly dense materials, neutron-emitting scanning systems can provide security screeners with the 'in-sights' they need to detect dangerous materials and contraband.

"If someone's shipping a whole bunch of engine blocks, it's very hard for the x-ray machines to penetrate, to see what's actually inside those blocks," said Wolff. "But neutrons can penetrate dense objects very easily. Where they tend to fall down is in the very light stuff, but this is an area where x-rays excel; making the two technologies complementary to each other."

"There's other things you can do with neutrons as well," he added. "For example, you can use neutrons to do elemental spectroscopy. This allows you to look at the elemental



The iCMORE family offers automatic detection of an ever-expanding list of dangerous, prohibited and contraband goods. Its capabilities not only help to reduce the burden on image analysts, but also improve detection performance, Smiths Detection says. Smiths Detection image.

composition of items inside the container." This is a faster alternative to breaking open boxes and/or running dogs around the containers during secondary searches, after primary searches point to something suspicious.

Getting More From The Data

Today's modern CT scanning systems rely on image-processing algorithms to translate the raw x-ray data into viewable, intelligible images. "Companies such as Smiths Detection are constantly improving algorithms for the automatic detection of dangerous goods, prohibited items, currencies, wildlife, and counterfeit products," said Jentsch. "Advancements such as iCMORE (the company's latest generation of detection algorithms) will only continue to advance the specificity of screening."

In addition to enhancing its image-processing algorithms, Smiths Detection is doing what it can to improve overall image quality and resolution, as well as making its user interface more intuitive. The company's goal is to speed up the air cargo screening process without compromising security.

That's not all: "Increased networking capabilities, the advancement of data-analytics, connectivity, and operational management will deliver strong operational advantages for air cargo operators," Jentsch said. One such advance is the adoption of Open Architecture (OA) software, which enables the interoperability and interfacing of security screening algorithms, and screening hardware from different suppliers within one solution. "OA is progressing to gain acceptance once regulatory requirements are fulfilled," he noted.

Bring On The AI

With its ability to crunch massive amounts of data quickly and derive useful analyses from these efforts, artificial intelligence (AI) is proving to be a very useful tool for automated cargo screening

A case in point: "Cybersecure and operationally resilient software platforms — with AI-based analysis algorithms for threat detection — are beginning to accelerate and force-multiply customs operations," said Leidos' Guillebaud. "Leidos' enterprise software platforms utilize these capabilities to enable customs agencies to centralize and leverage their scan data. They can also correlate scans with other internal data sources, apply AI assistance at scale, and deliver that information securely within their organization or with other trusted organizations. Furthermore, these innovations support remote analysis and manifest verification in operational environments."

Nuctech sees similar benefits from harnessing AI to automated cargo

IDSS says they have developed systems to deal with large stacked pallets, like the one shown here, that eliminate the need to unpack skids in order to support screening. IDSS image.

screening. "When it comes to image and dangerous goods recognition, AI technology can provide a great deal of help," Li said. For instance, AI can reduce the impact of human error by avoiding omissions and security vulnerabilities caused by security personnel fatigue and other factors. It can also improve screening efficiency because an AI's computing speed is much faster than the human brain, and AI can perform a vast number of repetitive tasks accurately without the need to rest; reducing labor costs in the process.

This being said, AI is not a 'magic bullet'. "Although AI recognition is developing rapidly, the role of human beings cannot be completely replaced, because complex and/or unknown situations still need to be manually handled," said Li. "In addition, when it comes to safety and safety issues, the conclusions drawn by an AI-enabled screening system still needs to be judged by a human security inspector."

"AI is not a panacea," Wolff agreed. "It works best when you have a controlled population and you're trying to figure out something within that population, like doing facial recognition for a company like Amazon. You collect facial data on the entire population of Amazon, and then apply AI as a security screening device. In this context, it works very well."

Where AI starts "falling down" is in uncontrolled situations, he continued. "If something comes in that's not in the data set, the computer reacts in unfamiliar ways. I call it 'computer panic': The AI-enabled computer doesn't know what to do because it has not seen that test case before. So, it kind of panics and throws out something that's quite often very, very strange."

More Innovation Is Coming

Although the many advances made in cargo screening to date have made the process faster, reliable, and able to handle large volumes of shipments, the quest to perfect this technology is unceasing. This is why the future development goals of cargo security inspection is to continually improve the safety levels and the speed of security clearance, while reducing the use of human operators in the system.

"For instance, CT equipment is already the highest level of security equipment for cargo scanning in the industry, so the future may be improved by the combination of CT and other security inspection technologies," concluded Li. "There is also plenty of room to improve AI recognition functions, including the accuracy of AI recognition and expansion of the recognition range." TSI

ENABLING YOU TO T.R.A.P.® THE THREAT

T·R·A·P·

TACTICAL RISK ASSESSMENT OF PEOPLE

Some call it '**behavioural analysis**', others '**behaviour detection**'. Some call it '**differentiation**', others use the term '**profiling**'.

Green Light's solution is called Tactical Risk Assessment of People, in short: T.R.A.P.®

Common sense-based security which empowers both security and non-security personnel to focus on people and situations that demand further investigation.

GREEN LIGHT

WWW.GLTRAP.COM

The Forces Driving CCTV Technology Development

Increasing threat levels are motivating CCTV manufacturers to move beyond passive CCTV camera feeds watched by human monitors. In the transport sector in particular, process optimizations driven by increasingly powerful analysis and AI systems, are the future.

Virtual/remote tower solutions like the one shown above can optimize processes, help reduce the number of false alarms and ultimately reduce costs. Dallmeier image.

By James Careless

CCTV security systems are becoming sharper (in image resolution), smaller (in form factor), and smarter—thanks to artificial intelligence/AI that can detect intruders automatically. For the transportation sector, these advances offer the opportunity to enhance security, personnel, and property protection at any locations where their aircraft, ships, trains, and trucks are vulnerable.

To put these advances into context and to better understand the threats that they are now addressing, TSI magazine posed questions to experts in the CCTV industry. Here is what they told us

What is Driving CCTV Development?

Judging by what the experts told us, there are a myriad of factors shaping the development of CCTV technology today.

The fundamental force is the deteriorating state of security and safety across the globe.

"The threat situation and the geopolitical situation have changed and in many cases have become more acute," said Josua Braun, marketing director with Dallmeier, a manufacturer of video security products/solutions. "Accordingly, the demands in security are increasing, especially for video systems. Many of our customers report — in addition to the actual protection and security function — that the potential threat from insecure or deliberately open systems is playing an increasingly important role; namely cybersecurity."

The need to cope with these increasing threat levels are motivating CCTV manufacturers to move far beyond passive CCTV camera feed watched by human monitors. "In the transport sector in particular, in addition to 'classic' security applications, we are increasingly seeing process optimizations driven not least by increasingly powerful analysis and AI systems," Braun told TSI. "Examples of this are virtual/remote tower solutions, systems for the detection of watercraft in port areas, and AI-object classification that help reduce the number of false alarms in perimeter protection, thus optimizing security and the cost situation for clients."

Johnson Controls is a global player in the transportation security market, offering products and solutions for air, land, sea, and port management. "We provide

Virtual/remote tower solutions and systems for port areas are becoming more commonplace as their efficiencies are recognized.

sensors, cameras, and video management, access control and intrusion solutions that integrate with a wide list of third party products to enhance small, large and enterprise security operations," said Nathan Floyd, the company's director of vertical solutions. "We help some of the largest and heaviest trafficked in the transportation industry identify, face and defend against the most substantial risks."

Asked about the factors driving CCTV technology development these days, Floyd offers a laundry list of trends. "They include AI, cloud management, fusion (3D) cameras, increased volume and sophistication of cyber-attacks, increased governmental regulations, operational efficiency (do more with less), employee shortages, and evolving threats," he said.

Simon (Sam) Samuels is principal consultant with SGW Safety and Security Consultancy in the UK. His assessment of factors influencing the CCTV technology sector is a negative one. "Key trends are (the) defective use of pixel density as a design criteria," said Samuels; in other words, "relying on manufacturers' data sheets rather than the requirements of relevant standards and recommended practices."

Coming from CCTV technology development from an entirely different angle, Mark Steinberg is senior technologist at B&H Photo Video Audio, a consumer/business AV equipment retailer based in New York City. "The IoT (Internet of Things) is of growing interest and becoming increasingly integral to many surveillance products and systems," he said. For instance, clients want their CCTV camera feeds to be accessible using voice commanded apps and smart speakers, and to be able to see these feeds on their own mobile devices and monitors. "Remote access is paramount for small and medium sized businesses as well. It is also becoming increasingly important in real estate for vacation homes, rental properties and landlords in general," said Steinberg. In addition, "I have experienced a noticeable uptick of requests for CCTV cameras that can be solar powered."

How CCTV Suppliers Are Responding

Faced with so many customer needs to be satisfied, CCTV equipment manufacturers, vendors, and consultants are responding to their demands in a variety of ways.

Dallmeier is taking a Big Picture approach to this situation. "We develop and manufacture CCTV camera systems, recording and management and analysis software," Braun explained. "A key differentiator of our technology is the way we cover large areas with video technology."

A case in point: "Thanks to our patented 'PANOMERA' multifocal sensor cameras, our customers need a significantly smaller

number of camera systems than with conventional solutions – and with better detail resolution," he said. "This increases objective security, especially in the port/airport and logistics sector, provides the basis for good analysis results and significantly reduces the 'Total Cost of Ownership'."

Meanwhile, "Johnson Controls' disciplined approach to product lifecycle management allows us to continually innovate with breakthrough edge devices like the Illustra Multisensor camera, a device with four independent motorized cameras built into a single easy-to-install housing," said Floyd. "With its deep learning AI-enabled capability, the MultiSensor is designed for complete coverage with a faster installation, lower total cost of ownership and consistent software product releases that improve efficiency and add features." He added that Johnson Controls' development and operational processes ensure that its software and hardware are well tested and properly supported by a timely assessment of vulnerabilities and over-the-air deployment of patches.

Over at B&H, their strategy is to serve a wide range of business and consumer CCTV customers, rather than one specific sector such as transportation. As a result, "we offer thousands of products in our surveillance category," Steinberg said. "We offer mostly off-the-shelf and plug-and-play solutions that appeal to the broad security market."

Finally, Samuels is working to improve the ability of CCTV systems to accurately capture and process video images. "CCTV has been a security tool for many years,

Dallmeier's patented Panomera multifocal sensor system safeguards large open expanses such as perimeters with a defined image quality in each square-inch of the area, a prerequisite for court-proof evidence and sufficient image quality for analytics. Dallmeier image.

and the best tool for assessing the quality of CCTV images has been the Rotakin Test, a 1600mm x 400mm target developed by the UK's Home Office in the 1980s," explained his online article, 'CCTV Video Image Calculator (VIC) & Screen Assessment Matrix (SAM)'. "The new CCTV Video Image Calculator (VIC) & Screen Assessment Matrix (SAM) has been designed within the requirements of IEC 62676-4 (the new measurement standard), to provide the tools necessary for measuring the image quality of CCTV systems, camera setup, commissioning and auditing of CCTV fields of views, which provides for quantified, consistent and repeatable results." The entire article can be viewed at sgw-consulting.co.uk.

Sam Samuels
SGW Safety and Security Consultancy

(Note: IEC is the acronym for the International Electrotechnical Commission, the international standards organization that prepares and publishes international standards for all electrical, electronic and related technologies.)

AI and CCTV

The use of AI-enabled processing to enhance, interpret, and recommend action on specific CCTV images has already been touched on in this article. However, this trend is so important that it deserves its own section.

When it comes to CCTV security as a whole, "the analysis of video footage by AI systems is becoming increasingly important," said Braun. "The areas of application are theoretically limitless: On the one hand, AI can serve as assistance systems in the classic sense to improve objective security performance. On the other hand, there are more and more AI application scenarios that contribute to the optimization of processes, especially in the transport and logistics sector, and thus offer a high cost-saving potential."

"Artificial Intelligence is extremely beneficial in the transportation market today and will change the industry going forward," Floyd agreed. "Using deep learning algorithms to build confident models, Johnson Controls systems allow operators to perform daily tasks more efficiently like forensic searches. Captured by cameras with AI now being used as advanced edge sensors that bring near real time escalations or alerts to professionals for evaluation and action."

Whether for business or consumer CCTV applications, AI-aided cameras with built-in video analytics and/or thermal imaging are regularly requested by B&H customers. "AI cameras that zoom, pan, and rotate without any human input are proving valuable as they can save payroll and human capital while providing safety in hazardous conditions/environments," said Steinberg. "Combined with thermal cameras and deep learning, AI can provide public safety by detecting people with raised temperatures in all kinds of public spaces like schools and entertainment/sporting venues. AI CCTV applications can be used in healthcare for contactless examinations. AI-assisted cameras and storage systems can provide invaluable assistance to the police, public transportation, traffic control, waste management, marine applications, mining operations, oil rigs, and a host of other businesses and applications."

This being said, the current level of industry understanding about AI's full potential in CCTV surveillance leaves something to be desired, Samuels noted. "AI is useful in assessing both behavior analysis (movement, left object, missing objects) and facial recognition," he allowed. "However, there is a disconnect in the processing and assessment of images which is addressed within IEC 30137-1. Unfortunately, as with IEC 62676, there is a lack of competence within the CCTV industry to comprehend the intent and benefit of these standards"

What's Next

As we have seen, the state of CCTV technology has moved far beyond low-resolution black and white cameras and monitors, which were watched by human operators often bored out of their minds by the tedium of the job. Thanks to HDTV, computers, and AI, CCTV surveillance has become a proactive and precise science, with AI-enabled systems doing the 'heavy lifting' of watching camera feeds for anomalies. Only when something seems amiss are humans called in to make decisions and take action, thus removing

The future of CCTV will include more open standards wrapped with cloud technology that bring together the smarts of intelligent systems, buildings, and cities, image.

boredom from the security equation.

The CCTV technology industry never sleeps. They are constantly striving to make CCTV surveillance systems even sharper, smaller, and smarter.

So, what's on the horizon? "There is a move to higher and higher resolution cameras," said Samuels. "This is driven by manufacturers and gullible clients. It would be better to improve the quality of images and optimize them to a single resolution (2160 or 1080) with high speed capture capability." He also predicted "a deterioration of the quality of images due to the need to over-compress the resultant large files." plus a "continued deterioration of the quality of installations and designs."

Samuels isn't the only expert puzzled by the push for higher resolution cameras. "Funnily enough, camera manufacturers have not really thought about how to optimize the use of the valuable resource of 'resolution'," Braun observed. "We still have far more pixels than necessary in the front image area, and too few in the back. Dallmeier has broken through this seemingly 'physical truth' with our multifocal sensor technology — to the advantage of customers, who have a much better overview with fewer cameras and absolute detail accuracy."

At Johnson Controls, Nathan Floyd is expecting significant advancements in automated CCTV responses without human intervention. "Automated responses reduce time delays while improving safety and security when threats are present," he said. "The future will also see more open standards wrapped with cloud technology that bring together the smarts of intelligent systems, buildings, and cities."

B&H's Steinberg believes that the latest generation of mobile telephone transmissions — 5G — should significantly improve the performance and accessibility of wireless CCTV cameras connected over these networks. "5G is 100 times faster than 4G, handles more devices with less bandwidth and at lower bit rates, handling them all simultaneously," he explained. At the same time, optimized encoding will help lower bit rates and bandwidth use, thereby lowering the amount and cost of CCTV video storage, thus providing users with better returns on their investment, said Steinberg. "Improved AI and deep learning integration will help implement, deploy, and maintain surveillance and access systems lowering the overall acquisition costs and maintenance costs."

Another trend that will affect CCTV's future: "The convergence of imaging and analysis techniques is only just beginning — we will see many more interesting applications here!" Braun said. "At the same time, of course, we also expect new regulations when it comes to things like facial recognition. The world of video technology is and will remain exciting!"

The bottom line: "CCTV is a critical component to securing the transportation vertical," said Floyd. Its importance in enhancing this security will only grow in years to come as the threats become more diverse and dangerous, and the technology more adept at anticipating and foiling them. TSI

AVIATION MARITIME RAIL ROAD

BIOMETRICS TO THE RESCUE

HOW TECHNOLOGY MAY PREVENT ANOTHER SUMMER OF CHAOS AT AIRPORTS ACROSS THE GLOBE.

By Miquel Ros

Lorries queueing for miles on end at Dover awaiting their turn to board the ferry to France, Amsterdam's Schiphol airport forced to shelter thousands of passengers in tents as passport control lines stretch all the way to the parking lot, major airports taking the unprecedented step of capping the number of passengers in a desperate attempt to avoid infrastructure collapse…these are just some of the situations those travelling in Europe have had to endure this summer.

Throughout the continent, passport control counters became a trap for millions of unsuspecting travelers and it's hard to attribute this dire state of affairs to a single cause. Brexit seems to have played a role as far as movements between the UK and the rest of Europe are concerned, since it brought about more cumbersome border checks. In other places understaffing may have been the key factor.

After two years of abnormally low traffic flows due to covid, travel demand has bounced back with a vengeance, catching many in industry and governments utterly unprepared. It takes time to hire and train new border security and airport staff and additional security vetting requirements may slow down the recruitment and onboarding process even further.

Looking ahead, and with international air travel demand right on track to get back to its ascending pre-Covid trend, there's a distinct possibility that things will just keep getting worse over the long term. Even back in 2018, IATA's One ID key principles paper was pretty blunt about the risk of passport control becoming a bottleneck that strangles passenger flows saying: "current infrastructure is incapable of supporting forecasted growth without finding innovative methods and processes to support this growth."

The more or less universal wish to streamline the airport experience must be squared with the strong pressure most governments face to keep their borders secure and travelers safe. It's a fine balancing act. Are industry and

More cumbersome border checks put in place due to Brexit and understaffing at the checkpoints may have been key factors in back ups at borders this summer in Europe.

regulators able to prevent scenes like those of last summer from becoming a permanent feature of air travel?

Identity Verification Technology to the Rescue

Border control procedures are still designed around that good old classic, the passport, which remains, to this day, the basic document for international travel. To be fair, today's passports are way more than a piece of paper. Issuing governments keep adding sophisticated security features, from holograms to special inks, that are designed to make them hard to forge. There is an arms race between authorities and counterfeiters, to the point that the numerous features in a passport can be too much to handle by even a trained person.

The degree of sophistication is such that some manufacturers of passport scanning technology, such as Latvia-based Regula Forensics are marketing photo-spectral scanners able to capture the passport's details in so much detail that it is possible for border control officers at an airport to request remote support from highly trained specialists. These can verify the authenticity of the passport with pretty much the same degree of confidence they would have if they had it in their hands.

It is not the purpose of this piece to describe in detail the myriad of different security features of varying complexity modern passports incorporate - those have been already described thoroughly in some earlier articles - but to explore, more broadly, the different ways in which technology may be soon streamlining the cross-border travel experience. Like pretty much every other human activity, passport and border control technology has gone digital…up to a point.

ePassports have been around for more than fifteen years and given us a first glimpse of what a digitally-enhanced border control may look like. But, as we shall soon see, we are, so far, just scratching the surface of what's possible.

When it comes to introducing new technology in an area as sensitive as international border crossings and air travel, with its many national security implications, some sort of international agreement is necessary. ICAO's Doc 9303, for example, describes the framework that is what has made possible the almost universal adoption of epassports.

Machine readable personal data and RFID chips containing biometric data as well as a small antenna able to exchange data with passport reading machines have brought about some of the most

London, UK - April 15, 2018: Air travelers pass through automated passport border control gates at Heathrow Airport.

tangible changes for passengers going through airport checkpoints.

Automated eGate and kiosks, for example, are becoming ever more common at airports, streamlining immigration procedures by performing biometric checks on incoming passengers.

According to SITA's 2021 Air Transport IT Insights report, 59% of polled airports plan to have automated border control equipment in place by 2024. What's more, nearly three quarters of airports consider biometric and ID management solutions to be a priority area for investment.

OCR readers are seeing demand go up in non-aeronautical fields too. Csaba Nagy-Amigó, business development director of Adaptive Recognition, a maker of optical character recognition (OCR) readers based in Budapest and with a presence in more than 150 markets, explains how heightened security concerns are driving demand for their devices. For example, in Hungary, Adaptive's home market, hotels are now required to scan their guests' passports rather than filling a paper form upon arrival.

OCR readers are also able to extract the biometric information contained in the passport, which can then be matched to a fingerprint, face or iris scan. "What the machine does is check your biometric data and check that it matches the parameters contained in the document you are presenting at that time and place," explains Alexander Zahn, managing director at Desko, a German manufacturer of passport-scanning machines, which is one of the leading players in this market.

"Once it has been established that the person is, indeed, the holder of that document, government agencies may perform further checks against their own databases to see if that person is allowed to proceed further or gets flagged for some reason," he elaborates. The system is, thus, not yet fully digital, a physical passport must still be presented.

Zahn is careful to establish the difference between automated and touchless technology. In the former there is no human intervention, but you would still be required to manually manipulate some equipment, for example placing a passport on a reader.

For obvious reasons, touchless processes became popular during the pandemic. They have already entered our daily lives through applications such as mobile payment and banking apps that would have your phone scan your face or the iris of your eye to greenlight an operation. Touchless applications, however, usually require some sort of

"Facilitation programs are not mandatory, but they provide a small scale testing ground for new technologies that may later pass onto the regulatory domain," according to Guillaume Xavier-Bender, associate director at LAM-LHA Consulting.

prior onboarding process with the user consenting to biometric data being collected and linked to a specific identity.

This is the case, for example, of opt-in programs where members voluntarily submit some personal data and in exchange get a streamlined experience. These include government-run programs, such as the CBP's Mobile Passport Control app in the U. S., but also those run by private operators (albeit in close cooperation with government agencies) such as Clear, which offers fast-tracking at tens of airports across America.

"When we are talking about the provision of personal data there is a difference between what falls within the realm of passenger facilitation and that of regulatory requirements. We talk about facilitation when the traveler volunteers personal data in exchange for a better experience. Facilitation programs are not mandatory, but they provide a small scale testing ground for new technologies that may later pass onto the regulatory domain," explains Guillaume Xavier-Bender, associate director at LAM-LHA Consulting, a consultancy firm specializing in aviation security and innovation.

Data privacy is, of course, a sensitive topic and one over which it is easy for people to harbor conflicting opinions. For example, the 2021 IATA Global Passenger Survey indicates up to 73% of air travelers are interested in using biometric information instead of the combination of passport and boarding passes for the different airport procedures. At the same time, the same report found that more than half of them are also concerned about personal data loss or worried about not knowing how and by whom their personal data is handled.

Rather strikingly, while 88% of respondents were willing to share immigration data with the relevant authorities in order to expedite the procedures, only 51% were inclined to share biometrics with third party operators, such as travel service providers. This is not a trivial point, since some of the boldest projects right now in the field of border control technology are based on the idea of travelers using a single biometrics-based digital identity throughout the whole travel journey.

Biometrics: Beyond Border Control

CBP Completes Simplified Arrival Expansion at All US Airports

U.S. Customs and Border Protection (CBP) has completed the expansion of biometric facial comparison technology at all international airports across the United States to further secure and streamline international travel. This innovation effort is a critical milestone for the biometric Entry/Exit program and complements biometric boarding, which is currently at select departure locations.

Simplified Arrival is an enhanced international arrival process that uses facial biometrics to automate the manual document checks that are already required for admission into the United States. This process provides travelers with a secure, more touchless travel experience while fulfilling a longstanding Congressional mandate to biometrically record the entry and exit of non-U.S. citizens. In addition, foreign travelers who have traveled to the United States previously may no longer need to provide fingerprints, as their identity will be confirmed through the touchless facial biometric process.

"I am very proud that CBP accomplished this critical milestone to deploy facial biometrics at entry at all U.S. airports and continues to play a significant role in the travel recovery efforts," said Diane J. Sabatino, deputy executive assistant commissioner, Office of Field Operations, CBP. "The use of facial biometrics for identity verification brings travelers one step closer to a truly touchless process that is secure and streamlines travel while protecting their privacy and enhancing the customer experience."

CBP and its stakeholder partners have been expanding the use of facial biometrics through public/partnerships to further secure and streamline travel well before the COVID-19 pandemic to meet the biometric exit mandate while supporting air travel modernization efforts. Given the need for safe and touchless processes in air travel, CBP expedited the expansion of Simplified Arrival to provide travelers the benefits of secure, touchless technology, which became even more critical during the pandemic.

The biometric facial comparison process occurs only at a time and place where travelers are already required by law to verify their identity by presenting a travel document. When a traveler arrives at an international airport, he or she will pause for a photo at the primary inspection point. A CBP officer will review and query the travel document, which will retrieve the traveler's passport or visa photo from government holdings and compare it to the new photo. This enhanced process using facial biometrics only takes a few seconds and is more than 98% accurate.

CBP is committed to its privacy obligations and has taken steps to safeguard the privacy of all travelers. CBP has employed strong technical security safeguards and has limited the amount of personally identifiable information used in the facial biometric process. New photos of U.S. citizens will be deleted within 12 hours. Photos of most foreign nationals will be stored in a secure Department of Homeland Security system.

U.S. travelers and foreign nationals who are not required to provide biometrics and wish to opt out of the new , biometric process can simply notify a CBP officer as they approach the primary inspection point. These travelers will be required to present a valid travel document for inspection by a CBP officer and will be processed consistent with existing requirements for admission into the United States.

Customs Border Protection and its stakeholder partners have been expanding the use of facial biometrics through public/partnerships to further secure and streamline travel well before the COVID-19 pandemic to meet the biometric exit mandate.

More than 171 million travelers have participated in the biometric facial comparison process. passport-photo.online image.

Simplified Arrival pairs one of the industry's highest ranked facial comparison algorithms (as assessed by the National Institute of Standards and Technology) with trained CBP officers who are skilled at verifying the authenticity of travel documents. If a traveler cannot be matched to a photo on record using the Simplified Arrival process, the traveler will proceed through the traditional inspection process consistent with existing requirements for admission into the United States.

To date, more than 171 million travelers have participated in the biometric facial comparison process at air, land and seaports of entry. Since September 2018, CBP says it has leveraged facial biometrics to prevent more than 1,450 imposters from illegally entering the United States by using genuine travel documents that were issued to other people.

The passport verification industry is taking into consideration the need to integrate their systems with the broader travel services ecosystem.

Identity verification going entirely paperless would have massive implications for air travelers, which is why both ICAO (the International Civil Aviation Organization) and IATA (the International Air Transport Association) are working in parallel on digital identity projects.

The Digital Travel Credential (DTC) is a project of ICAO, the civil aviation agency of the United Nations.

Developed in cooperation with the International Standards Organization (ISO) and other partners, the DTC aims to provide a digital equivalent to the traditional travel document.

The DTC has two components, a physical and a digital one, that are linked cryptographically. It would be issued by the same government bodies that issue conventional travel documents and contain the same data and security features that electronic machine-readable travel documents (eMRTD), like epassports, do.

There are three types of DTC depending on the degree of independence from the existing passport format.

The first, most basic, version, the so-called DTC Type 1 was already endorsed by ICAO in November 2020. It would allow the user to self-generate the DTC, but the physical component will still be the passport, which will need to be presented when requested. DTC Type 2 would see a government-issued token that could be presented on its own, but always keeping the physical passport as a backup for reference purposes. Finally, Type 3 would do away with the physical passport completely. You would be able to travel around with the DCT on your mobile phone. At this stage, the physical component of the DTC is not the passport, but the smartphone.

The potential of DTC not only resides in its ability to streamline immigration procedures, but also in the capability to integrate other touch points along the travel journey that require identity verification, from airline check-in and boarding to vaccination status verification or even lounge access. It is not surprising then, that IATA has also taken an active interest in the matter, with its One ID program moving in a similar direction.

Just as in the aforementioned opt-in schemes, adoption of DTC and other digital identity formats by private businesses will likely be a gradual process.

Fast-track to Business Opportunities?

The passport verification industry is already taking into consideration the need to integrate their systems with the broader travel services ecosystem.

For example, Vision-Box, a Portuguese firm that has installed eGates at airports such as Dubai and Singapore's Terminal 4 has designed its Orchestra identity verification system so that it can communicate seamlessly with other third party systems.

Even in this highly regulated environment, government agencies rely heavily on private operators to develop and run most of these technologies.

"This is a competitive market: on one hand, there is a group of firms that have a long tradition of working side by side with national governments in developing identity and authentication solutions, on the other, a handful of younger companies which have been making inroads in the market through innovation," explained LAM-LHA Consulting's Xavier-Bender.

Nagy-Amigó, of Adaptive, confirms the role of startups in driving innovation forward in this space, "Everyone in this industry pay attention to entrepreneurs, you often see small teams working on interesting deep science problems which end up being acquired by the incumbents," he explained while describing how some of the hottest technologies of the moment, such as artificial intelligence and neural networks, are employed by the passport verification industry. "Our scanners use a form of artificial intelligence. You train it to recognize the different forms, shapes and patterns that are added to passports to enhance their security," Nagy-Amigó added.

An immediate area of opportunity for companies operating in this space is the upcoming implementation of the European Entry/Exit System (EES). EES is, in essence, the EU's visa-waiver program, which will require visitors from outside the bloc (including the U. S., UK and Canada), to pre-register their details electronically in a way similar to the U. S. ESTA. Preparations for the implementation of this system, which will cover the EU's external borders, are already under way with a view to a general roll out in May next year.

Yann Tremeac at Thales advises to expect a wave of investment in border control technology as European states prepare their international gateways for the EES rollout.

"We anticipate a wave of investment in border control technology as European states prepare their international gateways for the EES rollout" explained Yann Tremeac, product line manager for Borders at Thales. The European aerospace and defense giant, which in 2019 acquired the Dutch firm Gemalto, one of the leaders in the identity solutions space, is marketing a new generation of passport kiosks that include many of the state-of-the-art biometric technologies that are ready for deployment.

Thales has also been running pilot tests at several airports and railway stations in Spain and France, with biometrics playing a major role. For example, at the test being run at Adolfo Suarez Madrid-Barajas Airport, biometric checks are done through tablet-type devices, an approach that will limit physical contact and is expected to accelerate throughput.

Just as the pandemic accelerated the adoption of many digital technologies, will the introduction of the EES act as a catalyst for the popularization of the digital identity programs?

What seems likely is that as governments push for travelers to use digital identity documents, new opportunities will open in this market in years to come for established operators and startups alike. TSI

The WATCH

AVIATION

30 April
Over France

Two ITA pilots allegedly fell asleep en route from New York City to Rome in May. The plane, an Airbus A330 at 38,000 feet, was transporting around 250 passengers when air traffic control tried to make contact with the pilots. They got no response for more than ten minutes. One pilot was reportedly on a designated sleeping break but the airplane's captain fell asleep too, according to the investigators. ATC became concerned and started to scramble fighter jets in case of terrorist involvement, but they were eventually able to get an answer. French military fighter jets were deployed at 3:56am, to do a wellness check on the plane and look into the cockpit, according to reports. At 4:02am the pilots once again became responsive. ITA Airways (formerly Alitalia), said the captain reported that the radios stopped working. Investigators found "strong inconsistencies between the statements made by the captain and the outcome of the internal investigation," according to a statement. The plane did land safely at its destination.

3 June
Charlotte, North Carolina

A man, 22-year-old Alexander A. Lopez-Morel, a lawful permanent resident of the United States arrived in Charlotte on a flight from the Dominican Republic but was shortly thereafter when he was stopped in the airport with more than 23 pounds of cocaine. The drugs were hidden in the seat cushions of a motorized wheelchair. The man had arrived at Charlotte Douglas Intl. Airport from the Dominican Republic. His answers didn't match up. His physical purported handicap did not match up. That was a telltale sign that there was something suspicious," said Mike Prado, Homeland Security Investigations deputy on WSOC-TV, a local television interview.

6 July
Atlanta, Georgia

Around 200 guns have been found trying to go through TSA security checkpoints so far this year at the Atlanta Hartsfield Intl. Airport (ATL) in Atlanta, Georgia – the most in the nation. This is however, slightly slower pace than last year's at ATL. Of those found, 175 of those were loaded, according to the TSA. Traveling with a gun is allowed if the rules are followed including being packed in a locked case in checked luggage, being unloaded and declared to the airline with proper paperwork. "If it is brought in carry-on baggage, it is a violation of federal law," said Ryan Buchanan, U. S. Attorney for the Northern District of Georgia.

18 July
Ho Chi Minh City, Viet Nam

A screener at the Tan Son Nhat International Airport in Ho Chi Minh City was suspended for failing to detect a passenger who had a knife in her carry-on luggage. The knife made it onto the flight and was observed being used by the passenger. The 20cm knife was used to peel fruit while aboard a plane. The incident took place on flight VN208 from Ho Chi Minh City to Hanoi in July. The airport authorities said the knife which was put in a hard-to-see position in the passenger's hand luggage and the officer failed to see it during the screening process, in spite of following regulations when conducting the screening. This was verified using the video surveillance system at the screening checkpoint.

In August

U.S. Rep. Jim Langevin was denied boarding on a flight due to his wheelchair. He was booked on a Lufthansa flight out of Boston but the Lufthansa agents stopped him due to the type of batteries powering it. Langevin, a quadriplegic, serves as a chairman of the House of Representative's Armed Services committee and was headed out on a flight to Italy as part of his duties to visit military bases. His iBot wheelchair is powered by lithium-ion batteries. "The ticket agent would not allow the chair to travel, saying the lithium-ion batteries weren't going to be allowed on the plane," Langevin told NBC 10 News. Lithium-ion batteries have been given green light to fly by FAA and international aviation officials. Langevin said they had checked ahead of time to alert the airline of the wheelchair's battery and ensure it was allowed.

17 August
En Route From Neward to Costa Rica

An unruly passenger caused a United Airlines flight from Newark Liberty Intl. to divert to a Virginia airport while flying to Costa Rica, officials said. United flight 1080 departed Newark airport around 8:30 a.m. and diverted to Dulles Intl. Airport in Virginia, where the plane landed around 11 a.m. The aircraft continued to the gate and the disruptive customer was removed, according to a statement from United Airlines.

22 August

Atlanta, Georgia

A woman shot and killed two people in Midtown Atlanta. A third person was injured. The woman fled and a huge police search ensued. Raissa Djuissi Kengne was later arrested at Hartsfield-Jackson Atlanta International Airport. Police officers recovered a semiautomatic handgun and did not immediately discuss a possible motive. "We do not believe these were random acts of violence," Darin Schierbaum, interim chief of the Atlanta Police Department, said at a news conference that day. "We believe individuals were likely targeted that were harmed today." Mayor Andre Dickens said "strong coordination and professionalism" of law enforcement agencies and the "vital support and information from the public" helped the police find the woman. The police added the "extensive camera network" in the area had also been instrumental in the search. "I want to state clearly that the security of the airport was never compromised," Mayor Dickens said at a news conference. "The suspect was apprehended prior to being in any controlled areas of the airport."

22 August

En Route From Seattle to San Diego

Alaska Airlines Flight 558 was diverted back to Seattle shortly after takeoff, according to a statement from the airline. The flight "reported an unusual vibration on the left side of the aircraft soon after departure," a representative for Alaska Airlines said in the statement. "The aircraft returned to the airport and landed safely." It was in the air for less than 30 minutes and it was determined that part of the cowling had detached from the engine, the airline said.

3 September

Tupelo, Mississippi

A man was taken into custody and "being charged with grand larceny and making terroristic threats," Tupelo Police Chief John Quaka said at a press conference Saturday 3 September. "We do anticipate that the federal government will proceed with federal charges in the very near future," Quaka said. The man, an employee at a local airport, allegedly stole a twin-engine plane at the city's airport early on Saturday, took off and then threatened to crash into a local Walmart. He eventually landed the aircraft in a field, the police chief said. The man was identified as Cory Wayne Patterson of Shannon, Mississippi. "We do not believe he is a licensed pilot. That is still ongoing to discover this," the police chief said. The man had worked at Tupelo Aviation for 10 years as a lineman fueling aircraft, Quaka said.

7 September

Air Canada flight AC1934 en route to Toronto from Saskatoon had to make an emergency stop in Winnipeg so that two out of control passengers could be removed by police. According to the RCMP, Winnipeg Airport police were alerted to two disruptive passengers on board the flight. The two male passengers were reportedly intoxicated, disruptive and refused to follow the crew's directions.

11 September

Richmond, Virginia

A North Carolina resident was arrested by the police after Transportation Security Administration (TSA) officers at Richmond International Airport caught him with a loaded handgun in his carry-on bag yesterday (Sept. 11), on the 21st anniversary of the 9/11 terrorist attacks on the United States. The .45 caliber handgun was loaded with five bullets including one in the chamber. TSA officers stopped the man when his carry-on bag triggered an alarm in the security checkpoint X-ray unit. Upon spotting the weapon, TSA alerted airport police, who responded to the checkpoint, confiscated the handgun and arrested the man.

14 September

A woman from the Bronx who pled guilty to shoving a flight attendant and spitting on another passenger while on a flight from Los Angeles to Dallas last year, was sentenced to four months in prison, according to U.S. Attorney's Office in Arizona. Kelly Pichardo, 32, of The Bronx, pleaded guilty to a charge of interference with flight crew members following the 2021 flight during which she and co-defendant Leeza S. Rodriguez became unruly and violent while traveling as first-class passengers on an American Airlines flight. Pichardo was also sentenced to three years of supervised release. She was also fined $9,123 in restitution to American Airlines.

MARITIME

7 June
Chittagong Seaport, Bangladesh

A blaze erupted at a container depot near a port city in southeastern Bangladesh, killing 49 people. Nine of those killed were firefighters responding to the scene. More than 100 people were injured and the fire burned for a second night as the fire brigades struggled to get it under control. The incident took place at the BM Inland Container Depot and broke out around midnight on Saturday following a chemical explosion. The depot is located near Chittagong Seaport, 134 miles southeast of Dhaka.

16 June
Honolulu, Hawaii

A yacht owned by Russian Suleiman Kerimov arrived in Hawaii's Honolulu Harbor flying an American flag in mid-June. The yacht, dubbed Amadea, was seized by the U. S. in response to the war started in the Ukraine by Russia. The U. S. won a legal battle fought in Fiji to take the vessel. It is worth an estimated $325 million. After the legal matter was settled, the yacht was immediately sailed to Hawaii.

27 June
Aqaba Port, Jordan

A gas leak at Jordan's port of Aqaba killed 13 and injured more than 260 others, according to a state media report. A crane malfunctioned while moving a storage container filled with chlorine gas, the state reported. CCTV footage captured the event and showed the container being hoisted into the air and then slipping off of the crane hook and the ensuing explosion of yellow gas. The cloud of yellow gas is seen spreading through the ship, over the ground, and sent bystanders and workers running for safety. State media said as of Monday night, 123 of the injured were still being treated at hospital for chemical exposure. Some of those were in critical condition.

2 July
South China Sea

The engineering vessel Fujing 001 and its 30 crew members were carrying out work when Typhoon Chaba hit on Saturday, July 2. The vessel was caught in the storm and snapped in half, then dragged anchor, the anchor chain broke and the vessel floated away, eventually sinking.
Rescuers saved at least four people, however, 12 bodies were recovered approximately 50 miles south of the area the vessel sank. The vessel was a floating crane with 30 people on board. The search for survivors or bodies was ongoing.

31 July
Off the Coast of the Bahama Islands

At Least 17 Haitian migrants heading for the United States died when their boat capsized. The incident happened off the coast of the Bahama Islands on Sunday, July 31.
Bahamamian defense forces were called when witnesses observed the situation in the early morning hours. "Rescue teams recovered 17 — sadly — 17 bodies from the water," Prime Minister Philip Davis, said. He added 25 people were rescued from the water.

7 August
Near Pingtan Island, China

Close to a dozen Chinese and Taiwanese boats from each country's navy were reportedly staying close to the median line of the Taiwan Strait near Pingtan Island amid heightened tensions between the two countries. The Chinese boats repeatedly "pressed" into the unofficial buffer, while Taiwan's navy stayed close-by to monitor the movements, according to a source. The source, who is familiar with the security planning in the region, said the two were exercising restraint. Taipei's military said 68 Chinese fighter jets and 13 warships crossed the median line that runs down the Taiwan Strait during August 5, 2022 military drills by Beijing's forces.

17 August
Off the Coast of Sicily

A group of migrants were rescued by the Spanish charity group Open Arms after nine days at sea. The migrants, 101 mostly Egyptian male migrants in a rickety wooden boat, had been adrift for days. One man needed immediate medical attention and was release to hospital. The others had to await their fate but eventually were released into the country of Italy.

22 August
Mediterranean Sea

Video of a superyacht completely sinking into the Mediterranean Sea went viral online in August. The 40-metre vessel apparently began to struggle off the Catanzaro Marina in Italy.
The Italian coastguard were able to rescue the nine people on board - four passengers and five crew. It was reportedly heading from Gallipoli to Milazzo when it sank. An investigation into the reason the yacht sank is ongoing.

31 August
Suez Canal, Egypt

An oil tanker was briefly stranded in Egypt's Suez Canal but tugboats were able to refloat it. The tanker was said to have had a technical fault with its rudder, according to the Suez Canal Authority (SCA) which caused the mishap harkening back to the Ever Given fiasco which ran aground and was stuck in the canal for

six days in March of 2021. Both incidents occurred in the same stretch of the canal. The vessel, the Affinity V, was blocking the southern section of the canal, two navigational sources said, but the SCA said that it had been refloated and traffic had returned to normal.

23 August
Gibraltar, Spain

A superyacht reportedly worth $75-million and linked to Russian steel billionaire was auctioned on 23 August in Gibraltar. This sale is the first of its kind since Russia invaded Ukraine in February of this year. The yacht, Axioma, was impounded by authorities in March after JPMorgan said its alleged owner, Dmitry Pumpyansky, had reneged on the terms of a $20 million loan. He was sanctioned by Britain and the European Union shortly after Russia invaded Ukraine.

2 September
Miami Beach, Florida

The crew of the Coast Guard Cutter Vigorous offloaded approximately 22 pounds of cocaine and 1,256 pounds of marijuana, worth an estimated $3 million, on 2 September at their base in Miami Beach. The drugs were interdicted in the international waters of the Eastern Pacific Ocean by crews from Cutter Vigorous and Cutter Legare. "Vigorous is glad to have been able to make an important contribution to the Coast Guard's counterdrug mission," said Cmdr. Ryan A. Water, commanding officer of Vigorous. "I'm incredibly proud of the hardworking Vigorous crew's proficiency teamwork and devotion to duty that enabled the detection, interdiction and boarding of a vessel suspected of drug smuggling."

6 September
Green Cay, Bahamas

A cruise ship passenger from died after being attacked by a shark. The passenger was snorkeling according to authorities. The woman, in her 50s, was cruising on the Royal Caribbean ship, Harmony of the Seas, and was attacked in Green Cay, off the coast of Nassau, as confirmed by the Royal Bahamas Police Force Superintendent Chrislyn Skippings. While the cruise ship was docked in Nassau, the family booked an excursion with a local tour company that took them to a popular snorkeling area, she said. Family members then saw a shark attacking the woman and rushed to her aid. The mother had suffered bites to her "upper extremities," Skippings said at the time. Paramedics responded to the scene but the passenger perished.

14 September

U. S. Coast Guard and federal, state, local agencies and industry organizations from Puerto Rico and the U.S. Virgin Islands conducted a functional area maritime security exercise Wednesday, 14 September, throughout the Captain of the Port Zone area of responsibility. The exercise was part of the nationwide Area Maritime Security Training Exercise Program. Agencies focused on their capacity to alert, mobilize and activate personnel, facilities, and resources for an emergency response.

RAIL

27 June
Brentwood, California

Three people died and two others were seriously injured when an Amtrak train collided with a car in Brentwood, California, over the weekend according to the East Contra Costa Fire Department. The two people who were wounded (one was a child), suffered serious injuries and were taken to a local hospital, according to officials.

28 June
Mendon, Missouri

Three people died and another 50 were injured when an Amtrak train derailed after hitting a dump truck in Missouri, authorities said. Cpl. Justin Dunn, a spokesperson for Missouri State Highway Patrol Troop B, told reporters that two of the people who were killed were aboard the train while the third was in a dump truck that the train struck. Amtrak said the train collided with the dump truck at a public crossing near the city of Mendon. Authorities said the incident happened at an intersection that did not have warning lights or motion gates. A gravel road crosses the railroad tracks southwest of town at that intersection. Eight cars and two locomotives left the track, "after striking a truck that was obstructing a public crossing near Mendon, Missouri," company officials said in a statement. The train was en route to Chicago. "Saddened by the tragic loss of life and injuries in the Missouri train derailment today & Northern California collision over the weekend," Pete Buttigieg, U. S. secretary of transportation, tweeted. Federal Railroad Administration staff and the NTSB will be on site to investigate. It was the second train accident in two days in which an Amtrak train hit a passenger vehicle.

24 August
Dnipropetrovsk Oblast, Ukraine

Twenty-two people were killed on Wednesday 24 August in an attack on the Chaplyne train station in Dnipropetrovsk Oblast. "Chaplyne is our pain today," said President Volodymyr Zelensky. "As of this moment, there are 22 dead, five of them burned in the car, a teenager died, he was 11 years old, a Russian rocket destroyed his house. Search and rescue operations at the railway station continue. We will definitely make the occupiers answer for everything they have done. And we will certainly throw out the invaders from our land," he said.

24 August
The English Channel

A Le Shuttle incident began when the train's alarms went off. Passengers were left stranded for several hours inside the Channel Tunnel when the train from Calais to Folkestone broke down. In footage that emerged later, Eurotunnel Le Shuttle passengers were shown being evacuated through an emergency service tunnel after having to abandon their vehicles. Eventually, the passengers were transferred to a replacement train and taken to the Folkestone terminal in Kent. A Eurotunnel spokesman said services were now back to normal however the incident was being investigated. "The Shuttle was brought to a controlled stop and inspected. As a precautionary measure, for their safety and comfort, we transferred the passengers on-board to another shuttle, via the service tunnel [which is there for exactly that purpose]," a spokesman for the enterprise said.

Week of September 12
U. S. Nationwide

Railroads in the U. S. stopped accepting shipments of hazardous and other security-sensitive materials due to the looming threat of a strike Friday the 16th of September. A major national railroad, Union Pacific, whose operations would be stopped by a strike, said it was being done to "protect employees, customers, and the communities we serve." A statement from the railroad's trade group said they needed follow federal rules to "ensure that no such cargo is left on an unattended or unsecured train." The unions that represent the members of those threatening to go on strike say the railroad's new restrictions are designed to "put pressure on Congress to block the unions from walking out," adding the move was "completely unnecessary" and "no more than corporate extortion." As we went to press, Amtrak had begun cancelling all long-distance trains as the strike loomed.

ROAD

27 June
San Antonio, Texas

Inside a box truck 62 people being smuggled from Mexico, Guatemala and Honduras, something went wrong. When found, most of the group were already dead from the heat. The death toll was 53 dead, in what officials are calling one of the worst episodes of migrant death in the United States in recent years. The incident occurred near San Antonio, Texas. The driver of the truck was found and apprehended as he fled the scene. "We got him leaving the scene," Chief William McManus of the San Antonio Police Department said in an interview with The New York Times. "He was found in a field nearby." In the NYT article, Chief McManus said the truck had Texas license plates and fit a pattern noted by officers in the city: the use of tractor-trailers by human smugglers. "We've seen it a number of times," he said. "It is inherently dangerous because once you're locked in there, you're stuck," he said. "Once the refrigeration goes out, the air-conditioning goes out, it's nothing but a death trap." Authorities say human smuggling is on the increase and using tractor-trailers is also becoming more commonplace.

14 August
Washington D. C.

A man, Richard A. York III, 29 years old from Delaware, drove to the U. S. Capitol and crashed his car into the vehicle barricade at East Capitol Street and Second Street. While the man was getting out of the car, it became engulfed in flames. York then fired several shots into the air along East Capitol Street. When officers heard the sound of gunfire, they immediately responded and were approaching the man when he shot himself. Nobody else was hurt. While his motives were unclear, police said in a statement that he did not appear to be targeting any members of Congress. No one else was injured.

25 August
Dallas, Texas

Dallas, Texas, was hit with approximately 10 inches of rain in about six hours causing flash flooding that crippled transportation, highways and roads and trapped people in their cars.

24 July
Mevo Dotan, Palestine

A man who ran over and killed two IDF soldiers and seriously injured two other soldiers in Palestine in 2018 was convicted on charges of murder and two counts of attempted murder in July by the Samaria Military Court. The man claimed that the incident was a car accident and not an intentional attack. Hoewever, on March 16, 2018, IDF soldiers Capt. Ziv Daus, 21, and Sgt. Netanel Kahalani, 20, were killed when the man driving a car rammed into them near a pillbox post close to the entrance of the West Bank settlement of Mevo Dotan.

6 August
Dover, Delaware

Delaware Police arrested a 27-year-old Wilmington man on gun and drug charges after he allegedly rammed his vehicle into police vehicles as he tried to flee. Delaware State News reported that the arrest was made in the parking lot of Bally's Resort and Casino after a lengthy investigation by the Dover Police Department. Officers were tipped off that a wanted man would be at the casino and approached him while he was still in his vehicle. He then allegedly rammed the automobile into the responding police vehicles and attempted to flee. Police were able to stop the man and take him into custody, Mater Corporal Ryan Schmid said in a statement. Police discovered 1.312 grams of heroin/fentanyl, a 9 mm handgun and $2,233 of suspected drug proceeds in the vehicle, police said.

David Bruce
Intelligence Analyst, ELERTS

Crowdsourcing Transportation Security

Crowdsourced threat detection is revolutionizing incident reporting in the transportation and public safety space. By empowering travelers and employees to quickly and discreetly report issues, transportation officials move from reactive to proactive.

Across the United States a steady stream of reports of hostile passengers, insider threats, potential human trafficking, and equipment malfunctions funnel in to control centers from concerned travelers and employees.

Increasingly transportation venues are leveraging an often-overlooked layer of security and real-time information: the traveling public and employees. When travelers have the means to conveniently and discreetly report suspicious activity they become a force-multiplier for first responders in the transportation domain. Transportation officials move from reactive to proactive when travelers have a simple to use mobile-phone based reporting tool that delivers real time messaging, geolocation, photographs and video of suspicious behavior and other concerns.

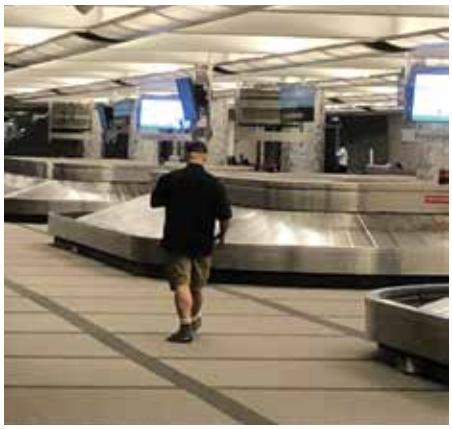
On Feb. 16, 1968, Senator Rankin Fite completed the first 9-1-1 call in the United States. Today the antiquated "make a phone call" experience remains largely unchanged. Meanwhile, technology in mobile phones enable people to instantly transmit messages and a variety of media, without speaking to anyone. Companies in the public safety sector should meet their customers where they already are and where they are comfortable communicating. Today, phone calls rank as the least preferred method of communication for most.

A recent poll conducted by leadferno.com, revealed that 69.8% of respondents preferred text, email or communicating by messaging app over phone calls. And an astounding 23 billion messages are sent daily. Right, wrong or indifferent, by allowing customers to communicate by their preferred method, companies can capture critical information and get out in front of issues.

We're in the business of incident prevention," said Ed English, CEO of ELERTS. "We capture suspicious activity before incidents unfold. 9-1-1 calls are typically used for obvious and actively unfolding incidents, but what about situations that fall beneath that threshold? Daily we deliver hundreds of reports of suspicious activity, and a multitude of other behaviors that exist outside the baseline normative behaviors. Many people are hesitant to dial 9-1-1 in the pre-incident phases; we capture this information and then deliver it into the hands of dispatch centers that need this reporting. When entrusted with the safety of the public, it's not an option to not know what's going on."

What you don't know can hurt you. 9-1-1 calls are the current preferred method of reporting emergencies, but does not typically capture observations that fall beneath a certain threshold. We are taught at an early age that 9-1-1 calls are only for true emergencies. This has formed a hesitancy for people to dial 9-1-1. Beyond a general reluctance for many people to call 9-1-1 there exists another issue that is problematic, the technical limitations. A recent FCC study revealed that 10,000 people a year die while calling 9-1-1 because their location cannot be determined.

Behavior detection teams have long used a simple formula to detect threats and suspicious activity: Baseline + Anomaly = Decision. The same formula is used for the traveling public, they observe what is taking place around them and find what doesn't fit. Baseline refers to the normal behaviors for a given venue. The key to situational awareness is to rapidly establish baselines.



An individual with no baggage, coming in from the exit and taking pictures of baggage or equipment raised concern among passengers.

Suspicious activity is anomalous to normal activity. In one report, a user observed something that alarmed them enough that they took the time to report on their suspicions. In airport baggage areas, passengers normally flow in from the secure side, carry-ons in hand, and make a beeline for the luggage carousel and collect their baggage. That is not what the user observed.

They saw an individual with no baggage, coming in from the exit, stopping at each carousel, and taking pictures of baggage or equipment. Passengers are concerned for their safety and the safety of their belongings. Call it a hunch, call it intuition — what gets reported, gets investigated.

Routinely using an app to report suspicious behavior can act as a reinforcement to strengthen reporting.

However, each venue varies. Large luggage is commonplace at an airport, yet, at a subway station, during the rush hour commute into the city, a person with a large backpack would stand out from the crowd. Regardless of the venue, the principle remains the same and alert travelers will rapidly get a feel for what is normal in their environment.

Employees working day-after-day in an environment are perhaps best situated and have the strongest understanding of the baseline and reporting suspicious activity. When employees routinely use the See Say app to report maintenance issues and unexpected situations at a location, they develop a sort of muscle memory with reporting that also increases the reporting of suspicious activity that otherwise may go unreported.

While employees are an added layer of security and reporting, they are also a resource that must be protected. A recent ATU survey revealed that 75% of transportation workers "feared for their safety on a daily basis." Workers are reporting being threatened, punched, kicked and spit on by irate passengers. Transportation workers and passengers deserve to work in an environment free of fear for their safety and passengers need a discreet method to report violent incidents before an attack takes place.

"Frontline transportation workers always need to watch for potential threats to their safety and others. Making drivers sit in plexiglass cages is not the answer and only a partial solution at best — determined attackers find ways around the plexiglass," said English. "And drivers aren't at a vantage point to see everything. Often threats come from behind them. They might not be in a position to see it, but passengers often do. Passengers use the See Say app on their phone to quickly report threatening behavior. This early warning of an imminent, potential attack on a driver enables the transit agency to send police to intervene. Drivers need protection and it's great to see everyday passengers have the driver's back."

While the need to protect workers is a growing concern, so is the need to protect travelers reporting incidents. One way that ELERTS protects its users is by disabling the flash on mobile-phone cameras when people take photos during incidents. Another way is by allowing users to send information anonymously, if they choose.

For technology to be useful during stressful events, it must be built with simplicity for the user. During high stress events, fine motor skills are diminished, making once simple tasks difficult or impossible. With this in mind, ELERTS built its See Say app with just two big buttons: "Call Police" or "Report a Problem." By limiting choices, users have less information to process. There is also an option to just send video or photos, without typing a word. Simplicity under stress is a key factor for performance under stress and increased reporting.

A brief description, a photograph and geolocation, gives investigators all the information necessary to intervene.

For one traveler with the See Say app, the simple-to-use system made the decision to instantly report a possible case of human trafficking an easy one.

"This woman looks scared to be with this man and their body language is awkward. They are outside security on the east side."

With two sentences, a photograph and geolocation, investigators had the information necessary to intervene in a situation in a timely, well-informed manner.

But not all incidents need a physical response. One common issue is passengers smoking in a marked no-smoking area. When these reports come in, dispatch centers can sometimes remedy the situation with zero contact by using the Attention Engine. This technology automatically identifies the camera closest to the report location allowing dispatchers to view and mitigate minor issues by using announcement speakers in the area. Reconciling issues remotely allows for critical resources to be used in the areas where they are truly needed. It also has the potential to cut down on negative interactions between transit employees and customers.

In risk management, there are black swans and gray rhinos. Black swan events are obvious — it's what everyone fears: terrorism, fire, mass casualties. People feel comfortable placing 911 calls for these events. But for every black swan, there are countless gray rhinos. Gray rhinos are in nature, highly probable, high impact — yet neglected threat. Gray rhinos can be just as catastrophic: malfunctioning escalators, emergency exits filled with cleaning gear that are impassable, and flooded bathrooms causing a slip and fall risk. Without a crowd-sourced reporting platform these hazards can go unreported.

When concerned passengers are empowered to report incidents by using the method of their choosing, there is a dramatic increase in reporting. When their information is delivered to a control center in a way that leverages technology already present in their existing infrastructure it creates an environment where overlapping systems provide proactive situational awareness to mitigate hazards. TSI

Gal Kuchuk
Head of Technology and Security Section/Chairman of the National Technical Security Forum Israel National Police

Security Technologies: Embracing Progress

The technology commonly used today for security is, in general, basic and exhaustive of what is already known and familiar to us and clear. There is no real desire to put into use new things that have not been tried to the end and found to be 100 percent suitable — really why take a risk?

The level of security cameras used in most facilities is basic — although there are now security cameras with amazing capabilities. This is where the components of the expensive price come in, as the camera becomes more sophisticated.

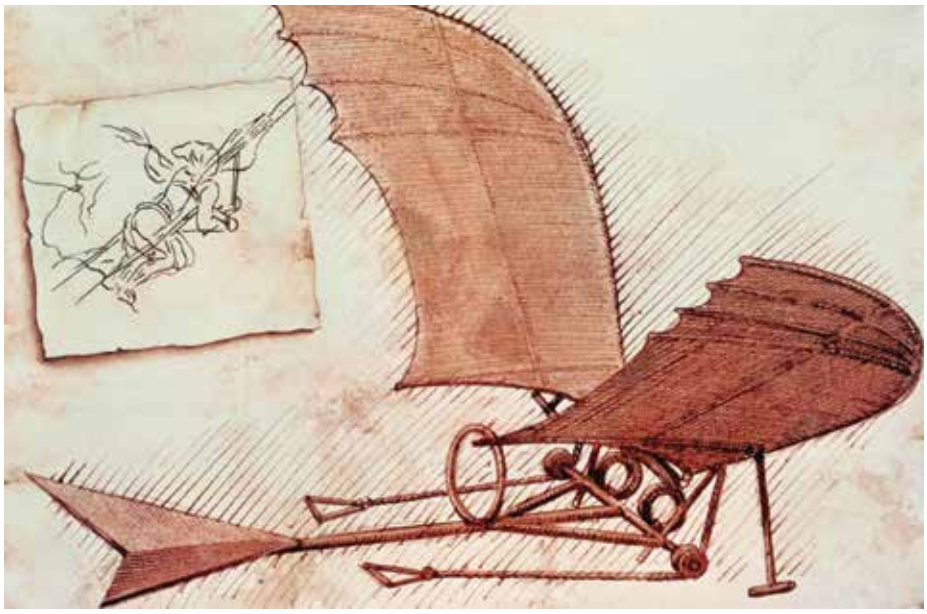
In the world of X-ray machines for passenger luggage — there is nothing new and they have reached the best possible extraction and configuration of the systems that know how to give the officer in charge a good enough picture to know if there is a dangerous threat in the bag.

In high-energy x-ray systems — the technology reaches the maximum capacity and ratio between the strength of the x-ray source and the penetration capacity (over 300mm steel), without over-bleaching some of the components in the image.

In the field of detection based on sniffing in air pumping — the dogs are still in control. There is currently no sniffing device that can mimic the abilities that a dog's nose exhibits, whether it's explosives, drugs, money or weapons.

What the World Has to Offer, Today

A number of companies have managed to break through and get out of the box in creative thinking and in search of new technologies. For example, before the spread of the COVID-19, the U.S company called PassPort Systems introduced an impressive capability with a high-energy X-ray system built in the Port of Boston. This system was able to perform an X-ray scan of a container or truck and automatically detect threatening materials embedded in the library within the software.



Things have changed greatly since humankind first dreamed of flying, as Leonardo Da Vinci did with this drawing. But one thing has not changed — the need to embrace technological change as it comes.

Another U.S company, Decision Science which has based its detection capability on muon detectors, which consist of photomultiplying tubes lined with a scintillator, a material that emits light when struck by a charged particle. When a particle such as a muon bounces through the detector, the photomultiplying tube multiplies the current produced by the emitted light. Here, like before, the capability was based on identifying hazardous materials in a container or truck automatically.

These companies have not yet broken into the world of goods inspection for a number of possible reasons.

In the field of artificial intelligence there has been significant progress in the last two years. The right combination of artificial intelligence software and existing systems in everyday use manage to run fast processes and calculations that could not be performed before.

For example, two Israeli companies: Neural Guard and See True, have developed software that knows how to automatically detect threats in X-ray images. Each one of the companies connected their software to a simple single-view X-ray machine testing it with a wide variety of threats such as knives, guns, grenades etc. The detection percentages demonstrated using these software have reached almost 100 percent, and the percentage of false alarms was extremely low.

Facial recognition and analytical video — here the issue is a bit complex. Because facial recognition is part of a biometric process, not all countries have the option to use the technology freely. The principle of protection of privacy prevails, in most cases, over the operational needs of the police or security forces. The capabilities available today are partly good but some still depend on the right balance between the quality of the camera and its location in space relative to existing lighting and background noise.

The use of analytical video is not fully implemented by potential stakeholders.

There does not appear to be a sufficient desire on the part of security officials to rely on these technological capabilities for fear of false alarms or dependence on a new and unfamiliar protection component.

Geofencing again calls into question the protection of privacy. It is possible today to produce fence alerts when a particular cell phone crosses a predetermined polygon. It is also possible to produce a law that warns of the approach of several cell phones together, and of course more similar options can be produced. The capabilities of cell phone monitoring, whether through networks or through the establishment of field monitoring portals, exists. But its use requires legal backing. It can be said that here technology is ahead of procedures and laws.

Regarding the replacement of sniffer dogs — there are still a number of experimental projects that are currently running. For example, an Israeli company called Tracesens - works on the principle of air suction and innovative electro-chemical sensing technology analysis. Another Israeli company called STI deals with air pumping and analysis based on Gas Chromatograph with Electron Capture Detector. A third Israeli company called MS-Tech uses high frequency quartz crystal microbalance sensors. The ability of these companies to detect explosives in different scenarios already exists today. But of course, the means need to be tailored to the right operational need.

Shown above top is an automatic ports in china and underneath it is the Istanbul Waste Power Plant.

Using Technology with a True Vision

Operation Trojan Shield - In this amazing and integrated operation, which crossed continents and with the participation of about 18 law enforcement agencies, they managed to capture a huge network of a

criminal organization that operated across the globe. In a clever and ingenious move, the law enforcement agencies decided that they would prepare encrypted cell phones in advance (and prepare them as new, in new covers), which they would pass on to the individuals in the same organization. The criminals' use of these cell phones allowed for close and thorough monitoring of everything that was happening in the organization.

Automatic Ports in China - A first-of-its-kind automated port was inaugurated in Shandong Province, China. The port, equipped with 22 cranes and a fleet of remotely operated and supervised trucks, can handle about six hundred containers each morning.

Istanbul Waste Power Plant - When it comes to turning straw into gold, it seems that the Istanbul municipality has found the right way. The plant, which was built together with Hitachi Zosen Inova, takes about 3,000 tons of garbage a day, burning it at a temperature of between 800-1,000 degrees Celsius. From the heat generated, it operates power turbines that provide electricity consumption to one and a half million people.

How Far Can We Go?

We know, for example, that the ability to analyze the electrical voltage calculations coming to the detectors of X-ray machines allows us a certain degree of data decoding. Imagine that the ability to calculate will increase, with the help of artificial intelligence, so that it is possible to translate some of the data into a match between pre-known results of certain threat materials entered inside the library on the computer. The ability to detect materials on an X-ray scan is one of the most important that is expected to develop. Consider that this capability can be used with any type of sensor.

Shared Vision

The world of technology today is like an open ocean with quite a few options, and yes, some of them can also be applied in the world of security. In order to accommodate the existing technology today one needs to adopt a shared vision in a holistic view of operational versus threats versus technology, or in other words, one needs the courage to embrace progress.

Frederick Reitz
Managing Director, SAFEsky Inc.

The Future of Airplane Boarding is Here

Biometric screening for airlines and airports has arrived, initially introduced in movies as a thing of the future; facial recognition cameras are in airports worldwide, improving security and efficiencies for the aviation industry.

The cameras can help find missing people, protect the airlines from fraud by ensuring that the individual boarding the airplane is the individual who purchased the ticket, strengthen security measures to ensure compliance with TSA and U.S. Customs regulations, and reduce touch points.

Facial recognition automates identification verification for airlines and government agencies. Delta Airlines installed biometric facial recognition in 2018 at the Atlanta International Airport, using facial recognition cameras to expedite boarding, reduce passenger stress and eliminate the need for customers to print a boarding pass. Gate agents do not have to handle the boarding passes or touch customer telephones, reducing concerns about spreading infectious diseases. American, JetBlue, and a few international airlines soon rolled out facial recognition cameras for international flights. Delta has since expanded biometric facial recognition cameras throughout its system, and customers are pleased.

Bogota's El Dorado International Airport has installed biometric cameras at their Customs checkpoints and select boarding gates. The airport has 30 cameras that allow Colombian nationals to enroll their iris data before leaving the country. Upon their return, they enter their national I.D. number on a touchscreen and then look at the iris reader, and the immigration entry process is complete. I have experienced the simplicity and speed while using the cameras at El Dorado Airport and found it efficient and the lines at the checkpoints reduced.

Catha Pacific Airways partnered with Vision-Box, a technology company in Lisbon, Portugal, to implement a Seamless Flow boarding platform for passengers at Amsterdam Airport Schiphol. The platform uses facial recognition technology to identify travelers while eliminating the need to hold your documentation in hand. The process has improved the flow of people through the airport. The cameras are at baggage drop-off, customs and boarding.

In October of 2021, Emirates integrated a "biometric path" into its facilities at Dubai International airport so that passengers would have a contactless experience when traveling through its terminals. The cameras have improved passenger flow through the airport by requiring fewer document checks and reduced lines, starting at specific check-in areas and boarding gates.

The biometric path uses facial and iris recognition technology to verify passengers' identity when they check in, enter immigration, enter an Emirates lounge and then board their flight. One of the benefits of biometric access is creating a more hygienic, contactless way to move through the airport.

The Tampa Florida International Airport recently began installing cameras in the United States to improve efficiency, safety, and convenience during boarding.

"By 2024, U.S. Customs and Border Protection (CBP) has mandated that all U.S. international flights use biometric scanners," Tampa Airport I.T. Analyst David Golden said in an airport press release in July. Golden said the systems Tampa Airport has been implementing will replace, in many cases, the traditional boarding pass scanners."

How does facial recognition work when traveling internationally to and from the United States? As the passenger arrives at the Customs and Border protection primary inspection area or departure gate, the camera compares the traveler's photo to images on file with CBP, such as passport photo, mobile passport control app and Global entry. Upon identity verification, the gate opens to allow the passenger to board. This process eliminates the physical verification process of their passport by airline personnel and is more accurate and secure. The scanner can prevent piggybacking and be modified for those in a wheelchair.

International travelers are fingerprinted when they enter the United States, slowing the immigration process. With the new facial recognition cameras, international travelers can smile and are cleared promptly. The camera will also prevent fraudulent use of other identities and alert CBP if a passenger has multiple names and passports registered under their photo.

Customs and Border Protection has already implemented facial biometric cameras at all 32 international airports in the U. S. and those pre-clearance locations outside the U.S. CBP reports the system has processed 211 million travelers and denied entry to 1600 individuals using false or assumed identities.

CBP is partnering with TSA, the airlines and airports to implement a secure, stand-alone system that can be integrated into the boarding process for domestic travel. The program will verify the I.D. of travelers through their air travel journey, from check-in, bag drop, security checkpoint and boarding. The curb-to-gate process is being tested at Atlanta Hartsfield and Detroit International Airport in partnership with Delta Airlines and CBP.

The program is voluntary and passengers can request to be manually screened if they do not want to participate in the facial recognition program.

Biometric technology speeds up the boarding process; a plane carrying approximately 130 passengers will be able to board in 11 minutes. An aircraft's current average boarding time is 30 to 35 minutes.

The FBI states that human trafficking is a $150 billion-a-year industry, alleging more than 24.9 million innocent victims each year, many of whom are women and children. Cases of trafficking spike in major cities around large-scale events. An increased risk of sex trafficking is seen around sporting events like the Superbowl.

Facial recognition cameras at the airport will help identify victims traveling under altered documents, common trick traffickers use.

Florida-based SAFEsky is working with a German technology company to develop a software program that will communicate with airline reservation systems that identify reservations of suspected trafficking victims. As the victim looks at the biometric system, an alert can be sent to the airline personnel to verify the passenger's identity or, if necessary, request law enforcement assistance.

Boarding an airline should be fun, not stressful. The biometric cameras will improve boarding efficiency by reducing the time in line and eliminating the fumbling of cell phones as you try to scan your boarding pass. TSI

Frederick Reitz is the Managing Director of SAFEsky Inc. Established in 2006, SAFEsky provides aviation security training and consulting around the globe.

Aerospace Tech Review is the leading publication, every quarter, for all companies involved in the high-tech sectors of the aerospace industry.

Featuring the core sectors that Aerospace Tech Week covers, including; aircraft connectivity, avionics, testing, fight operations IT, MRO IT, new product developments and an industry news round-up.

Aerospace Tech Review will have a global circulation of 15,000 printed copies and sent to airline senior and middle managers, and to the aerospace suppliers/OEMs. It will also have an online readership in excess of 50,000.

The official publication at our Aerospace Tech Week show – with an average of 1,500 copies being handed out at the show.

WWW.AEROSPACETECHREVIEW.COM

Simon Barker | Publisher & Sales Director | **T:** +44 (0) 203 892 3053 | **E:** sbarker@aerospace-media.com
Amanda Kevan | Sales Director | **T:** +44 (0) 203 892 3057 | **E:** akevan@aerospace-media.com
Joy Finnegan | Managing Editor | **E:** jfinnegan@avm-mag.com

Safeguarding Ports & Borders

Leidos safeguards the flow of regulated commerce by facilitating secure, efficient movement of cargo, vehicles, and people, through ports and borders worldwide. Powered by Mezzo™, our AI-based enterprise platform, we provide solutions to effectively detect and mitigate threats.

VACIS® PORTFOLIO:

› IP6500 – X-ray Integrated Portal
› M6500 – X-ray Mobile
› XPL – X-ray Passenger Vehicle
› IR6500 – X-ray Integrated Railcar
› *MLX – X-ray Mobile High Energy (early 2023)*

EXPLORANIUM® PORTFOLIO:

› SRPM-210 – Advanced Radiation Portal Monitor
› AT-980 – Fixed Radiation Portal Monitor
› GR-135 – Radiation Handheld Device

leidos.com/ports-borders

leidos

22-LEIDOS-0707-24588