

Smart Border Coalition



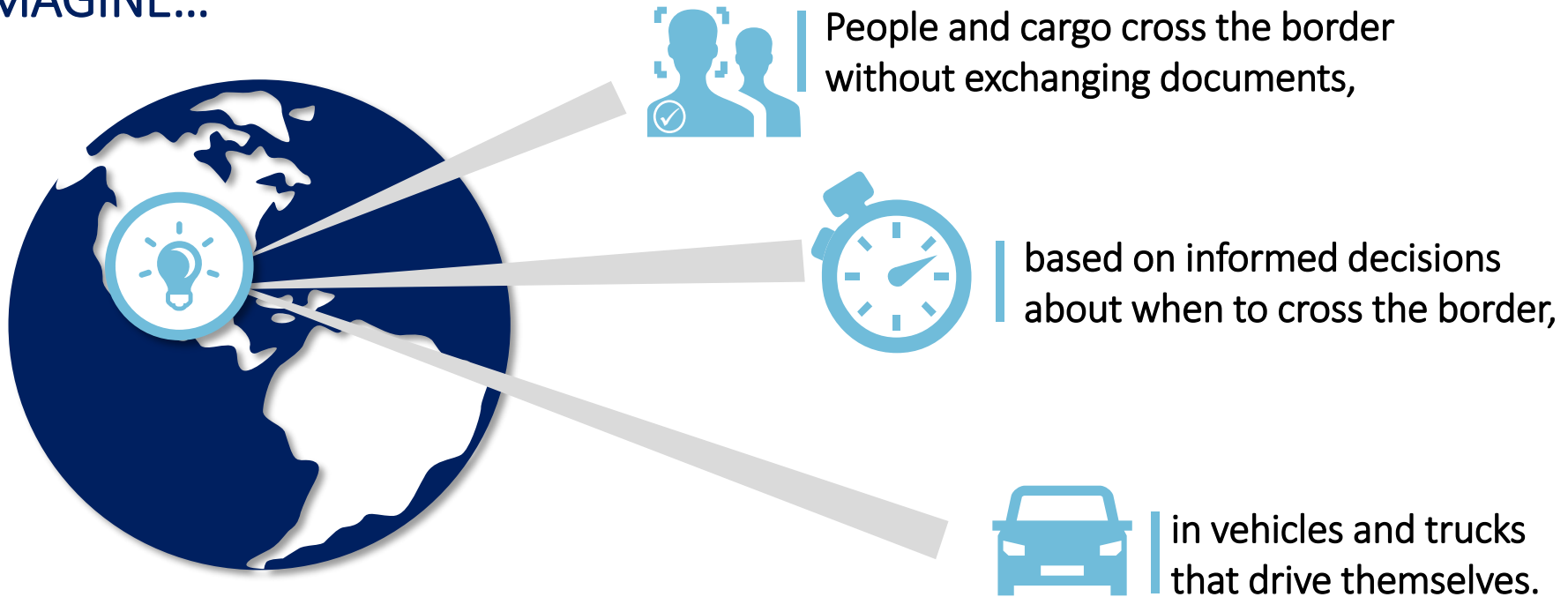
May 2018



THE FUTURE IS SEAMLESS

Advancements in intelligent technology will vastly change the manner in which travel and trade are processed as they enter the United States at border ports of entry (POEs).

IMAGINE...



CBP is innovating for a landscape in which the physical and digital worlds are integrated and data not only enhances security, but creates a seamless traveler experience.



INVESTING IN INNOVATION

CBP is working to ensure that a seamless future is also a secure one, by making strategic investments in technologies and partnerships to improve our mission.

WE ARE....



Leveraging advanced technologies to enhance security and improve the efficiency of our port operations



Investing in the power of partnerships to inform collaborative solutions for expedited and secure trade and travel

...TO ACHIEVE OUR VISION OF THE FUTURE:

- ✓ **Advanced technologies** leveraged to enhance the security of our people and mission.
- ✓ **Seamless processing** to facilitate and expedite the flow of legitimate trade and travel.
- ✓ **Securely exchanged information** to empower data-driven decisions.
- ✓ **Economic growth** fueled by increased security, efficiency, and traveler experience.



INVESTING IN A PORT OF THE FUTURE

CBP is partnering to develop innovative applications, technologies, and processes that ensure seamlessness and security for people and cargo crossing through ports of the future.



Wait Time Experiments

Wait time experiments are making **strides towards real time wayfinding** for travelers.



Signage and Wayfinding

New signage tactics, GPS and access control across southern land border ports of entry (POE) are improving **traveler wayfinding**.



Ready Lanes & I'm Ready App

Dedicated Ready Lane crossings and an app allowing travelers to pre-submit trip information for pre-vetting hold **significant potential for improved Ready Lane use and overall port processing**.



Biometric Processing

Biometric processing technologies made possible through bilateral partnerships are being piloted for **expedited processing and improved security** across travel and trade environments.



Connected Infrastructure

CBP is investing in **connected infrastructure** and **data-enabled operations** to prepare for the port of the future.



INNOVATIONS IN BORDER WAIT TIMES

A bi-lateral assessment of wait time experiments was conducted in collaboration with the Universidad Autonoma de Baja California in Tijuana approaching Otay Mesa.



PUPOSE:

CBP recognizes the need to enhance its capabilities through implementing and expanding pilots and seeking out transformational innovations to solve new and existing challenges (e.g., automated land border wait time measurements).

GOAL:

CBP's future is focused on continuing to develop responsive and timely innovative capabilities to solve the challenges of today with the tools of tomorrow.



INNOVATIONS IN BORDER WAIT TIMES (CONT.)

CBP continues to leverage public and private partnerships to identify innovative and reliable automated land border wait time technology measurement solutions.

CHALLENGE QUESTION:

Can wait times be accurately reported without the use of any infrastructural changes?

THE EXPERIMENT:

In partnership, students attempted to **ground truth wait times** utilizing mapping technology and mobile devices.

THE RESULTS:

Experiments revealed insights that will feed into future efforts for counting, measuring, and communicating wait time data at the border to **enable real-time wayfinding systems for travelers.**



Pictured above: Kent Lewis (CBP), Rocio Villalon (Universidad internship coordinator), students from Universidad Autonoma de Baja California





PARTNERING FOR IMPROVED WAYFINDING

At the U.S. San Ysidro Port of Entry, continual improvement of the SENTRI lane optimization comes in the form of local stakeholder collaboration to address ineligible drivers in SENTRI lanes thwarting the program's benefits and impacting process times and secure flows of vetted travelers.

CHALLENGE QUESTION:

Are infrastructural changes the best solution to address traveler compliance issues in SENTRI?

DATA-DRIVEN METHODOLOGY:

CBP conducted **surveys**, **measured cycle** and **process times** in an effort to **establish a baseline** and **identify the root cause** of SENTRI non-compliance.

BILATERAL APPROACH:

In partnership with Smart Border Coalition members, a collaborative approach revealed an improved plan of action for addressing SENTRI lane compliance and wayfinding, with action items already underway.



Pictured above: San Ysidro Port of Entry





READY LANE CROSSINGS

Dedicated Ready Lane (RL) pilots take a multifaceted approach to improve vehicle throughput and wait times by changing traveler behavior to capitalize on the intended benefits of Ready Lanes.

Case for Change:

Analysis of traffic data at a representative Port of Entry revealed key opportunities for improving Ready Lane processing

66% of travelers are Ready Lane eligible* (Currently 42% are eligible and use Ready Lanes)

36sec Ready Lane processing benefit over General Lanes with 100% lane compliance*

Projected Impact

19 Vehicles per hour, per booth

1690 Additional RL vehicles per day at a representative Ready Lane crossing

Ready Lane Pilot Components



-  Targeted Communications
-  Promoting Traveler Upgrades
-  Field Guidance
-  Enforcement Penalties
-  Encouraging Traveler Compliance

Progress and Next Steps

- ✓ Updated Ready Lane signage and marketing materials for travelers
- ✓ Developed communications plan, including videos, mobile application updates and a Ready Lane website
- ✓ Conducted analysis depicting key impacts of a dedicated Ready Lane crossing
- ❑ Pilot dedicated Ready Lane crossings across multiple Ports of Entry
- ❑ Assess impact and develop approach for scaling nationwide

Dedicated Ready Lane crossings depend on the support and championing of private and local stakeholders, who must help redirect traffic, encourage compliance, and communicate changes to travelers.

*Based on 20180206 Brownsville Transaction Report





I'M READY MOBILE APPLICATION

CBP will pilot the I'm Ready mobile app, allowing travelers with passport books to pre-submit trip and traveler information prior to arrival to allow pre-vetting and expedited processing through Ready Lanes.

✓ INCREASED READY LANE ELIGIBILITY

I'm Ready app seeks to increase the number of Ready Lane eligible travelers.



32% of travelers currently eligible to use Ready Lanes*¹ → 96% of travelers eligible to use Ready Lanes with *I'm Ready**¹

✓ IMPROVED PROCESSING TIME

Increased Ready Lane use will result in **expedited processing** and **reduce wait times** for travelers.



45%

Ready Lane processing time benefits over General Lanes*² that could be realized with increased usage.

✓ ENHANCED BORDER SECURITY

Provides CBP with **advanced notice of trip and travel information** to allow for:

- 1. Advanced screening of travelers**
Using *I'm Ready*, travelers notify CBP of their document, vehicle, and arrival information before approaching the port.
- 2. Increased inspection quality**
Officers focus more time and attention on inspection rather than administrative functions associated with querying travel documents.

Traveler adoption of the I'm Ready application and accurate usage of Ready Lanes is dependent on communication and joint outreach to build awareness among travelers on both sides of the border.

*For travelers crossing the Northern Border

¹per *POV Dash 201712*

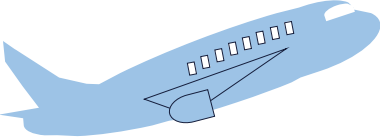
²per *ALM Report 201612*





BIOMETRICS FOR SIMPLIFIED TRAVEL


CBP is piloting biometric technology to simplify travel in the air environment, leveraging partnerships to expand new technologies and pilot programs to the land and sea environments as well.



AIR

Conducting demonstrations at 10 airports to test the use of biometrics in processing air travelers entering and exiting the U.S.



Conducting demonstrations with cruise lines to test the use of biometrics in processing cruise travelers entering the U.S.



SEA

LAND

PEDESTRIAN: facial recognition without a pre-determined traveler manifest

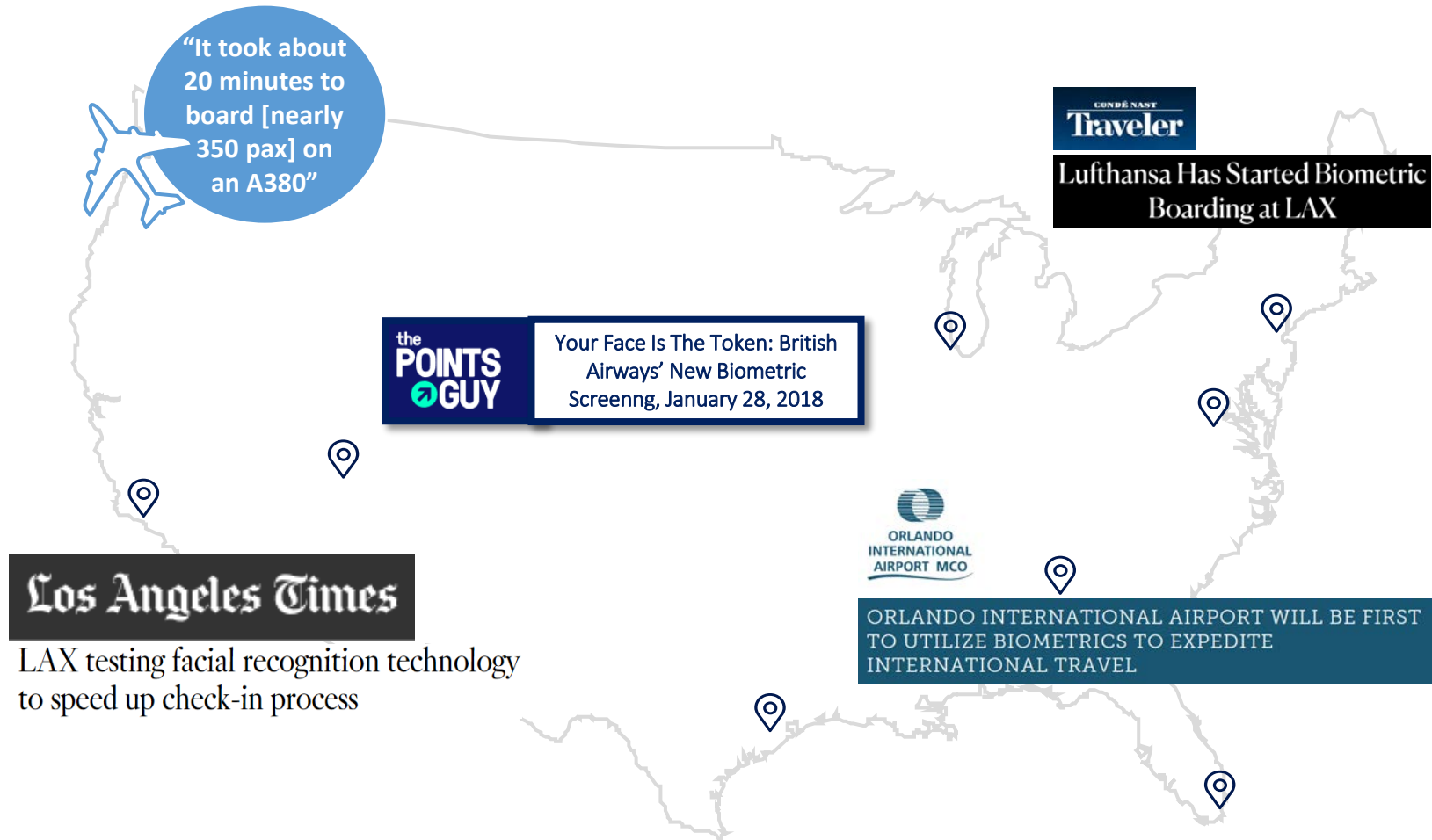


VEHICLE: at-speed biometric verification without forcing the vehicle to stop



BIOMETRIC AIR TRAVEL

CBP is leveraging partnerships to pilot biometric processing across the air environment, with 8 Sprint test sites using facial recognition to board passengers as they leave the US.





BIOMETRICS IN LOS ANGELES

Biometrics are being used to board passengers departing from Los Angeles International Airport (LAX).



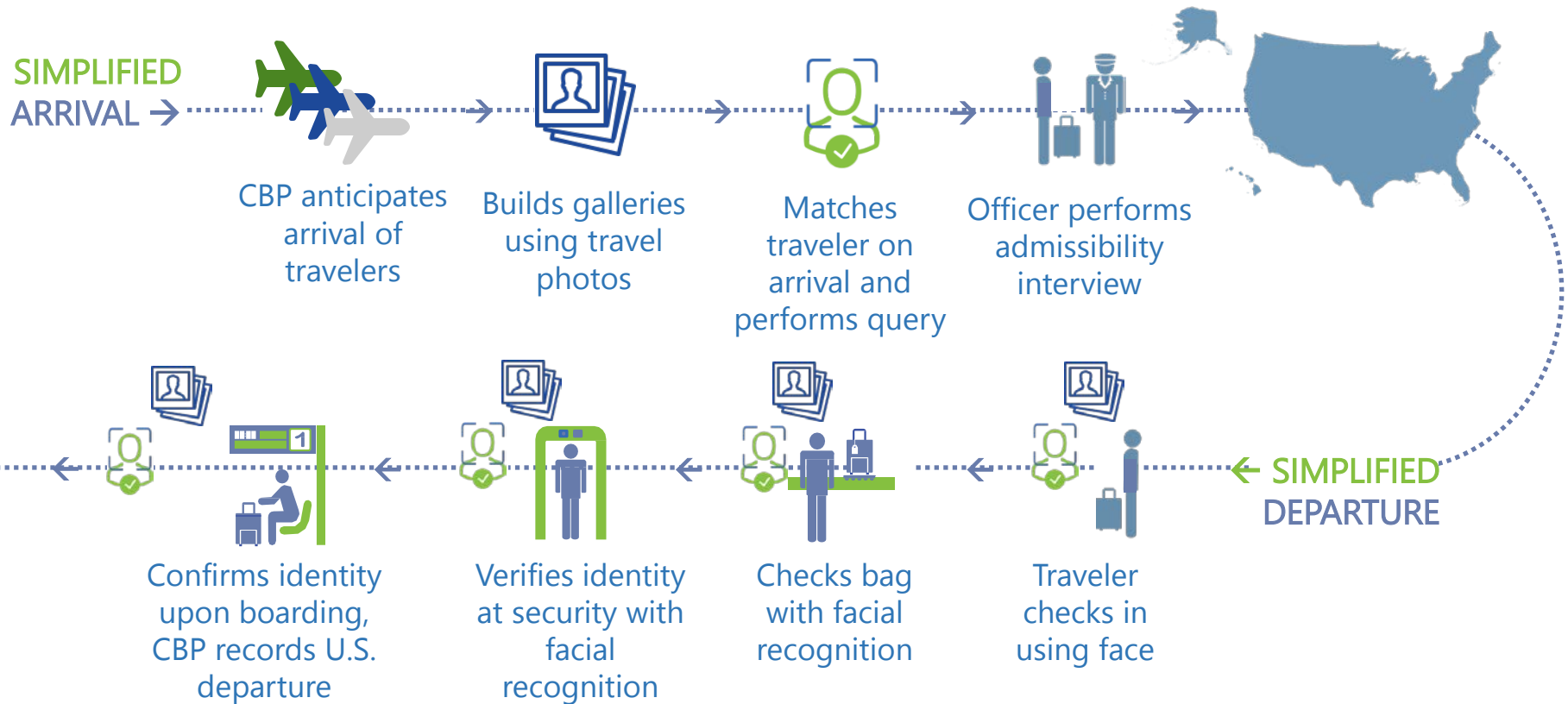
~417,000 participating passengers have been processed by facial recognition at biometric e-Gates across the U.S., with match rates in the high 90th percentile for passengers with photos.





A VISION FOR SIMPLIFIED TRAVEL

These pilots are building towards a vision that CBP has for the future of travel – a seamless traveler experience facilitated by biometric technology in the air environment.



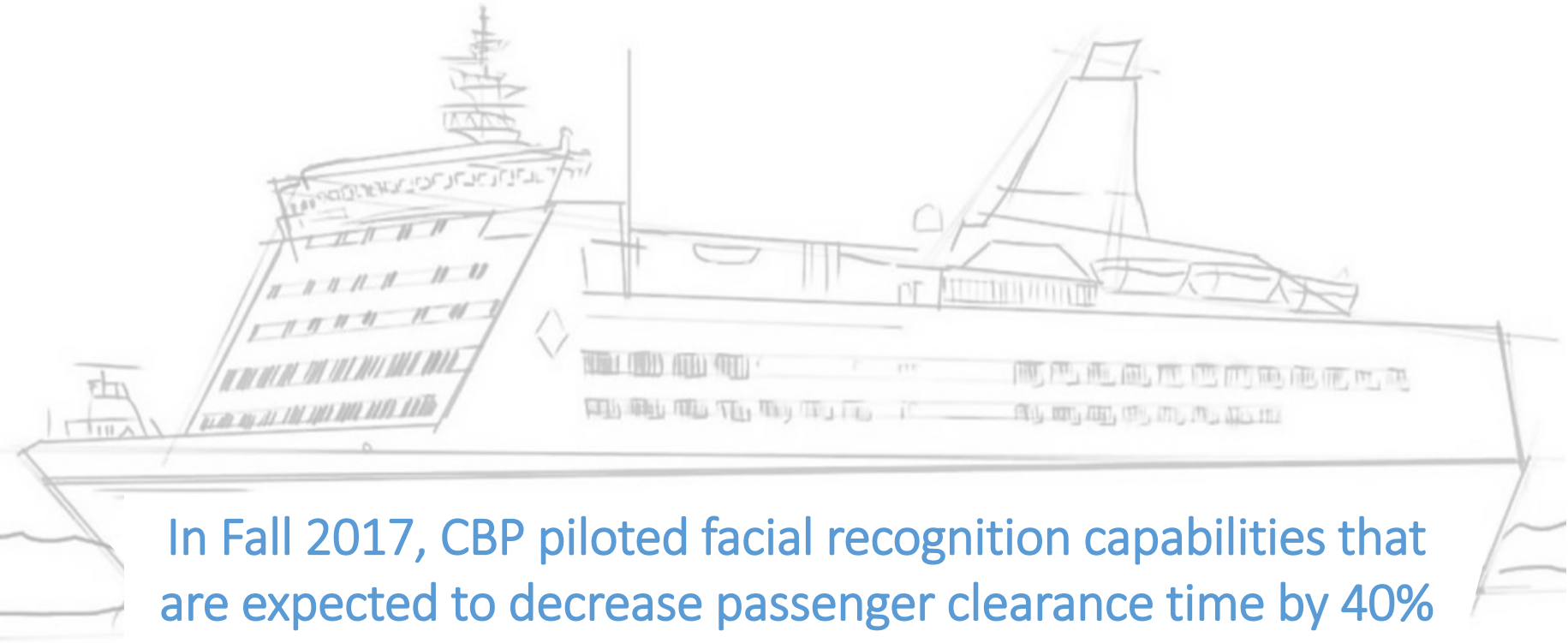
Biometrics pilots are also underway in the sea and land environments in an effort to simplify travel across all modes of travel.





BIOMETRIC SEA TRAVEL

Similar to the air environment, CBP is pursuing public-private partnerships with the cruise line industry to actively transform embark and debark processes.



In Fall 2017, CBP piloted facial recognition capabilities that are expected to decrease passenger clearance time by 40%



CBP piloted biometric solutions with Royal Caribbean Cruise Lines in 2017, and is continuing to pilot this facial matching services with additional cruise line partners in the Summer of 2018.





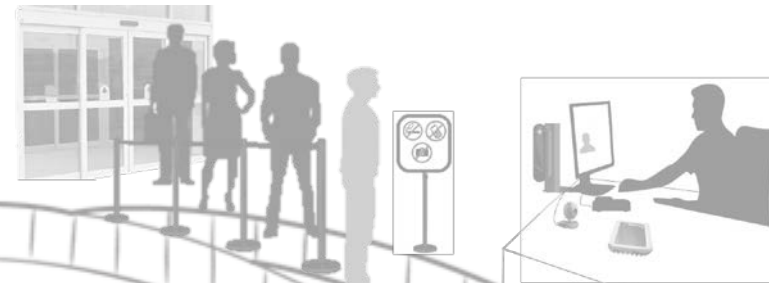
BIOMETRIC PEDESTRIAN TRAVEL

CBP has piloted biometric exit solutions in Otago Mesa in order to measure the effectiveness of biometric technology on traveler processing, with Nogales and San Luis to follow this summer.



San Luis, AZ:
2.7 M annual pedestrian crossings

Nogales, AZ:
3.5M annual pedestrian crossings



EXPECTED OUTCOMES

Demonstrated feasibility of capturing photos of all arriving and departing pedestrians

Improved identification of persons of interest and **reduced reporting gap** between arrival/departure

Streamlined travel process for biometric identification across environments

Continuing our foreign partnership for biographic and biometric data exchange will improve the quality of facial recognition galleries to better secure international borders.





BIOMETRIC VEHICLE AT SPEED

While still in early testing phases, CBP is piloting biometric facial recognition (FR) technology within the license plate reader (LPR) area to capture faces inside inbound and outbound vehicles traveling at speed.

CBPO in booth with tablet to perform pulse and surge document reads of vehicle occupants for ground truthing.



Possible camera placements to capture driver side and passenger side vehicle occupants



Vehicle enters LPR area, faces captured using “at speed” technology. Photos captured of vehicle occupants triggered by LPR reads. Faces captured, 1:1 match of document reads against vehicle frequent traveler gallery. Post analysis of 1:1 FR match from image captured against document read will be used to “ground truth” accuracy of gallery matching results.



Anzalduas OUTBOUND

The analysis of transaction speeds, capture rates, and match rates gleaned from this pilot will inform port design, especially as CBP considers other procedures to adapt to the future of mobility.





AUTONOMOUS IS OUR TOMORROW

Regulatory action, major industry investments, and rapid technological advancements suggest that a future with autonomous vehicles is inevitable.

27

U.S. states have passed legislation or issued executive orders related to AVs.

REGULATION

\$80 Billion

Dollars invested in the autonomous technology ecosystem over the past three years.

INVESTMENT

2021

The year by which 9 top automakers have pledged mass production of AVs ready for highway driving.

TECHNOLOGY

Governments who plan 10-15 years in advance need to anticipate the implications of Autonomous Vehicles on policy and infrastructure at the border.



SEMI-AUTONOMOUS IS HERE

Industry leaders are already transforming trade and travel with semi-autonomous technology, with fully-autonomous not far behind, and important implications for border infrastructure and operations.

POV



Cargo



Delivery



INDUSTRY LEADERS ARE ALREADY INNOVATING IN REAL WAYS ...

Ridesharing



POV



Delivery



CBP is exploring the implications that autonomous vehicles (AV) will have for port operations and infrastructure, with partnership playing a critical role in ensuring that security and technology advance together.



PARTNERING TO PREPARE FOR AV

Government and industry must explore what advancements in autonomous technology and connected infrastructure mean for tolls, booths, bridges, and ports, and work together to build a seamless future.



Use of Sensor Technology



AVs will use sensors and signals to connect to port infrastructure and navigate their surroundings

Increased Data-sharing Capabilities



AVs will share data across physical and technology systems, enabling seamless processing

Computer Visioning



AVs analyze their surroundings using cameras, radar, and LIDAR visioning, impacting port design

Higher Traveler Volume



AVs will allow faster travel, increasing traveler volume and port throughput

Safety and Security



Shared data and standards are key to ensuring international security in an autonomous future

Partnership is needed to ensure that ports, infrastructure, and AVs are prepared for autonomous border crossing and connected for seamless processing

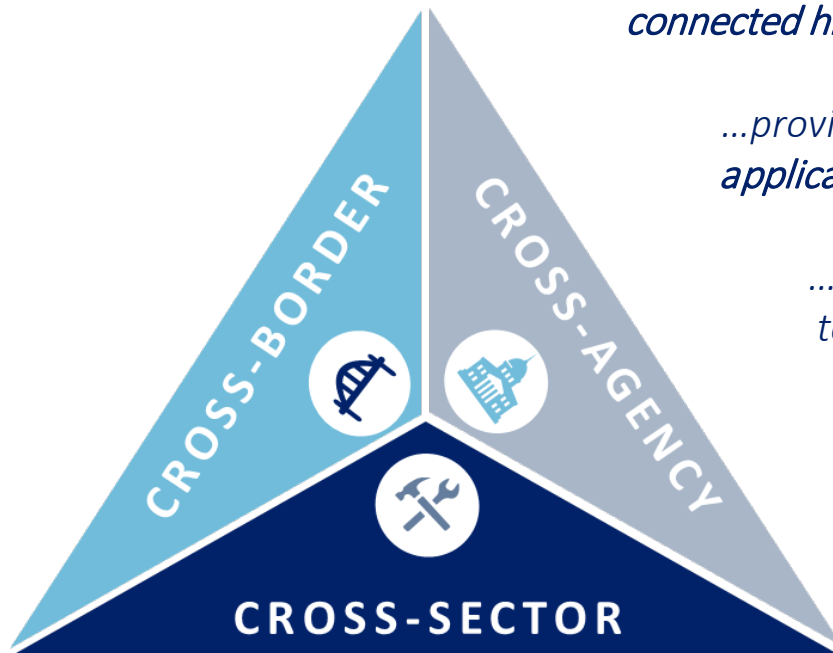




CROSS-BORDER COLLABORATION

Together we can advance the use of new technologies while enhancing the security of trade and travel, collaborating to address current and future challenges facing our ports and borders.

HOW CAN WE:



...develop communications to *enable real-time wayfinding* amidst *connected highways* and *regional traffic management*?

...provide dynamic options for *Trusted Travelers* using *mobile applications* to find their optimal lanes?

...partner to scale the use *of biometric facial recognition* technology in new travel and trading environments?

...encourage the proliferation of *public Wi-Fi* at ports and borders?

...*measure and automate* pedestrian traffic and *wait times*?

Together, we will create positive impacts for the traveler and create the seamless cross-border experience for tomorrow!



CBP INNOVATION CONTACTS

Sally Carrillo

Assistant Port Director, San Diego

Sally.r.carrillo@cbp.dhs.gov

Rose Marie Davis

*Portfolio Acquisition Executive Director,
IPA-Innovative Program Acquisitions
Planning, Program Analysis and Evaluation*

Rosemarie.davis@cbp.dhs.gov

Kent Lewis

*Deputy Director,
Innovative Program Acquisition
Entry/Exit Transformation*

Kent.lewis@cbp.dhs.gov