Case Study

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How the Arizona Department of Transportation Fights Fraud with Face Recognition

# Arizona Department of Transportation

ADOT Enforcement and Compliance

### Customer

- Arizona Department of Transportation (ADOT)

### Industry

- Government

### Challenges

- Relied on a manual process that was time consuming and inefficient
- Needed a technology to support the investigation process and help detect fraud at a faster rate
- Unfamiliar with the face recognition space when they first began looking for a vendor in 2013

### Solution

- NEC NeoFace® Reveal Workstation

### Results

- Scalable and extensible face recognition database that can easily accommodate the ever-expanding needs of this rapidly growing state
- Increased accuracy and efficiency help detect nearly 200 instances of potential fraud per day
- Ability to stop fraud before it happens and successfully move investigations forward
- Improved quality assurance for the 8,000 new records processed each day

The Arizona Department of Transportation (ADOT) is a government transportation agency serving one of the fastest-growing areas of the country. A major component of ADOT is the Motor Vehicle Division (MVD), which provides title, registration and driver-license services to the general public throughout the state of Arizona.

ADOT's Office of Inspector General (OIG) investigates fraud involving driver license and identification card applications, vehicle sales by licensed and unlicensed dealers, and vehicle titles and registration. It also assists state, local and federal law enforcement agencies with fraud investigations. "Any fraud that occurs in the MVD database – those cases come to our detectives to investigate, arrest and do whatever needs to be done," says Faith Contreras, Special Services Manager of ADOT for the Enforcement and Compliance Division.

Protecting citizens from theft and fraud is of top priority of ADOT, and for a good reason. Data from the FTC shows that US consumers reported losing more than $1.9 billion to fraud in 2019. Of the 1.7 million fraud cases reported to the FTC, identify theft topped the list.[1]

"We've had cases where subjects have re-mortgaged homes because they got a driver's license with somebody else's name and had all their personal information," explains Contreras. Other examples of crimes they have helped prevent include benefits fraud, Medicare or Medicaid fraud, emptied bank accounts and title loans. "It's a huge financial impact and something that occur very quickly," says Sergeant Nathan Lipinski, who leads ADOT's Facial Recognition Unit.

1 https://www.ftc.gov/system/files/documents/reports/consumer-sentinel-network-data-book-2019/consumer_sentinel_network_data_book_2019.pdf

## Challenges

Before working with NEC, ADOT relied on a manual process to detect identity theft and fraud, which was time-consuming and inefficient.

"When we didn't have face recognition, we relied solely on the MVD customer service (CS) representatives to detect fraud and submit a report," said Contreras. Individuals attended a three-day Document

"We catch a lot more errors that would commonly go unreported or unknown. Now those get addressed the same day."

Fraud Detection class to assist them in identifying fraud. "We needed a tool to help our CS representatives better detect fraud because humans are human, and they're going to miss things. No matter how much training we give them, you can still miss a really great fake document. Face recognition helps make our representatives more efficient and provides an added layer of quality assurance," Contreras added.

ADOT also needed a technology that could help them detect fraud at a faster rate. Sergeant Lipinski explained, "a lot of times when someone is a victim of identity theft, it could easily be months or even in some cases years" before the suspect is caught. "We decided to look into obtaining face recognition to help detect more fraud at a faster rate," added Contreras.

After acquiring a grant, ADOT began looking for a face recognition technology that could be used in conjunction with the credential issuance process to help eliminate fraudulent identity activity and provide the investigation tools needed to serve public safety and security needs.

However, Contreras explained that she and her team were unfamiliar with the face recognition space when they first began looking for a vendor in 2013. "No one on this team knew very much about face recognition," said Contreras. "We did a lot of research – from pulling up the National Institute of Standards and Technology (NIST) testing to looking at all the different solution providers and trying to get information."

Based on their research, Contreras found that NEC had been consistently ranked No. 1 by NIST for its face recognition algorithms, proving it was the fastest and most accurate solution available in the market. NEC remains the vendor with the algorithm that is most accurate overall and across demographic groups.[2]

2 https://www.necam.com/AdvancedRecognitionSystems/NISTValidation/FingerprintFacial/

## Solution

NEC partnered with ADOT to deliver an end-to-end face recognition solution that includes a front-end user interface, transaction manager, user management, system administration, workflow engine, and face matching subsystem.

Built on NEC's NeoFace® technology, the NEC NeoFace Reveal solution met all ADOT's credentialing process—from establishing identity and detecting and preventing fraud, to providing functionality for case management and investigation.

NEC's NeoFace Reveal is a powerful tool for performing identification and verification by comparing a probe image from a still photo or video clip to images in a customer database. It delivers a unified identity management and face recognition solution that uses the world's fastest, most accurate and robust face image matching algorithms, as concluded by NIST. An innovative, easy-to-use, and feature- and functionality-rich software solution, NeoFace Reveal provides the ability to search and review photo data to help reduce fraud.

NEC worked closely with ADOT to understand its challenges and customize solutions that could facilitate its technical requirements and business processes. "Being heard by our vendor made a huge difference," explained Contreras. "We had a lot of customization that we needed to meet our business needs."

For instance, NEC created a case management system that could allow ADOT to retain and audit search results and case notes in a searchable database. Sergeant Lipinski explained that this helps streamline the entire investigation process. "It saves a huge number of steps in the whole case creation process from what it was previously," he notes. The case management system also allows ADOT to review its face recognition search results to ensure that individuals using the technology are doing so appropriately and effectively.

NEC also provides effective customer support backed by the 24x7 Biometric Operations Support Service (BOSS). NEC's SOC II–certified BOSS enables detection and remedial maintenance, often before users know a problem has occurred. NEC's U.S.-based, CJIS-compliant BOSS call center is operated by a dedicated engineering team that performs remote monitoring services (RMS), including service request logging, response, tracking, escalation, resolution, and report management.

## How does it work?

The ADOT Enforcement and Compliance Division - Office of Inspector General uses face recognition on a daily basis to confront identity theft fraud as a result of individuals attempting to create multiple identities to purchase vehicles, open bank accounts, or launder money through different accounts under a victim's name.

Using NEC's NeoFace Reveal, ADOT can check against records in the Arizona driver license database when issuing a new or renewing a driver's license, which helps prevent fraudulent attempts to obtain driver licenses or ID cards. Contreras explained that anytime an individual goes into the MVD office to obtain a driver's license or an identification card and a new photo is taken, that photo then goes into the database where it is reviewed for potential fraud.

Both Contreras and Sergeant Lipinski stressed that while face recognition is an incredibly powerful investigative tool, human review is equally important. "We actually have three levels of human review," explains Sergeant Lipinski. "By no means does face recognition solely determine what type of enforcement action gets taken. It's all done through human review and human interaction."

At the recommendation of NEC, ADOT had employees undergo specialized training under the guidance of the FBI Face Comparison and Identification Training Unit. Through this in-depth training, ADOT detectives gained a deeper understanding of how to analyze face recognition technology for law enforcement purposes with human review and additional investigation. The use of face recognition produces a potential investigative lead and requires investigative follow-up to corroborate the lead before any action is taken. Every face query—including results received—is reviewed and evaluated by trained examiners.

## Benefits

NEC's NeoFace Reveal provides ADOT with a proven, reliable, offsite solution that is highly efficient and capable of matching the entire gallery within seconds while processing over 8,500 images in a day.

**Privacy and Security Protections**

NEC's NeoFace Reveal is developed with security-by-design and privacy-by-design approach that allowed it to easily integrate into ADOT's existing operational and security processes. ADOT's face recognition data is encrypted, aggregated and anonymized to ensure the highest level of security. Robust cybersecurity measures also help safeguard data storage, access and processing. Overall, NEC's implemented NeoFace Reveal system complies with the security guidelines and requirements defined in the FBI CJIS Security Policy V5.8 and NIST SP800-53 standards.

In addition, NEC helped ADOT learn to use NeoFace Reveal properly and continues to provide ADOT with ongoing support via a customer service helpline and direct program support as needed.

**Scalability**

With built-in scalability and extensibility, ADOT's gallery can accommodate a growing database of unique driver's licenses and identification records. The solution includes a web-based client application that supports up to 50 authorized concurrent users via an SSL web application that helps with processing new transactions and adjudicating fraudulent transactions.

Using face recognition, ADOT can view, verify and adjudicate the data integrity of daily driver license applications with the ability to review renewal miss-matches and potential duplicate matches to adjudicate potential fraud.

**Accuracy & Efficiency**

NEC's NeoFace Reveal provides ADOT the accuracy and efficiency to detect fraud that may have gone unnoticed and successfully move cases forward. Contreras explains that in one instance, there was a man with 87 different identities in the state of Arizona that went undetected for years. "That's why this technology is really important. Without this technology, he could have kept going," she notes.

Sergeant Lipinski shared another example of a subject who had assumed the identity of his dead brother. "By the time we caught up with him, he had an excess of over $300,000 of disability fraud."

**User Friendly**

Using the NeoFace Reveal Dashboard, detectives can easily check on the status of existing processes or navigate a particular application feature. The dashboard consists of individual tiles that provide important information, including recently opened cases, the status of pending cases and recent searches.

**Quality Assurance**

Beyond helping with adjudicating fraud, NEC's NeoFace Reveal also helps ADOT streamline new transactions and ensure quality assurance. For renewal applications, 1:1 and 1:Few face matching is utilized to establish identities. For new applications, face images are matched against the entire gallery.

For the 8,000 new records that ADOT processes each day, Sergeant Lipinski says NeoFace Reveal also provides better quality control. "We catch a lot more errors that would commonly go unreported or unknown. Now those get addressed the same day," explains Sergeant Lipinski.

**Stop Fraud Before It Happens**

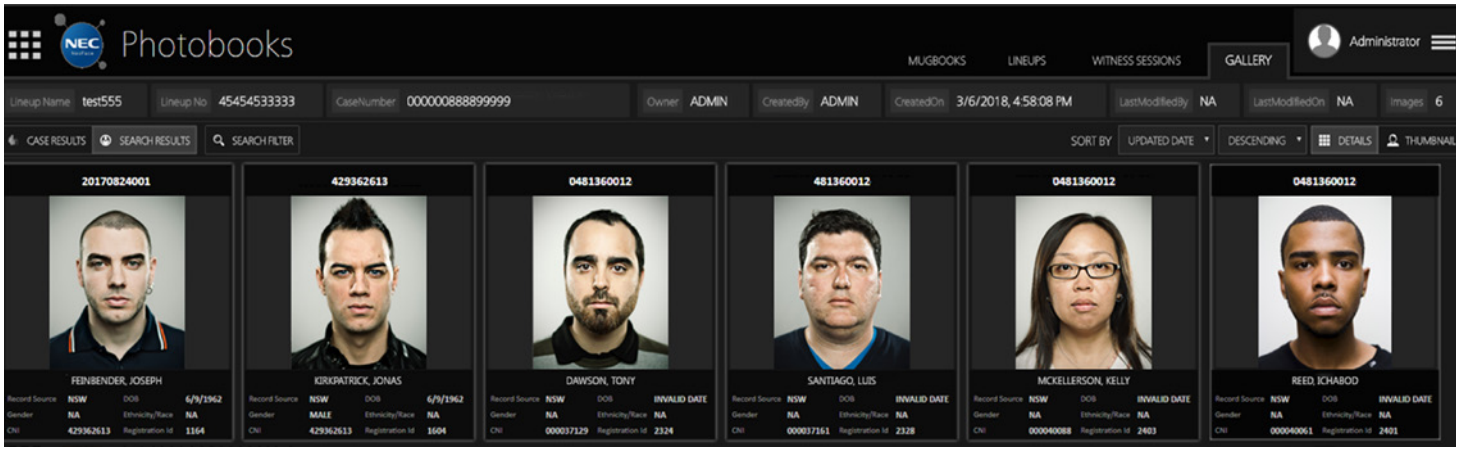
A key benefit of face recognition has been the ability to be proactive and stop fraud before it happens. On average, ADOT flags nearly 200 credentials per day for potential fraud or other discrepancies.

Sergeant Lipinski explains, "It really helps prevent the damage from being done to the victim. Often when someone is a victim of identity theft, it could easily be months or even in some cases years after the fact. With the face recognition process, the actual credential would never be issued, so it's that much harder for people to commit fraud and identity theft, and further victimize our constituents."

## Conclusion

When asked who benefits most from face recognition technology, Contreras says it is the citizens and the law enforcement officers who are protecting these citizens. "You often have no clue that someone stole your identity until it comes in front of you," says Contreras. "The benefit to the citizen is, we're finding if someone is fraudulently getting on their record in real-time and stopping the driver's license from getting into the wrong hands." Face recognition allows ADOT detectives to not only stop fraud before it happens, but also identify potential suspects quickly and reduce the overall monetary cost to both the victims and businesses.

NEC and ADOT have been partners for over seven years, and both Contreras and Sergeant Lipinski have become experts in the face recognition space. Contreras is a part of the International Biometrics Association (IBA) and participated in the American Association of Motor Vehicle Administrators (AAMVA) Facial Recognition Standards Committee. Both Contreras and Sergeant Lipinski frequently participate in industry events and play an important role in advocating for the many benefits of face recognition.

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