HEARING BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON OVERSIGHT AND ACCOUNTABILITY
SUBCOMMITTEE ON CYBERSECURITY, INFORMATION TECHNOLOGY,
GOVERNMENT INNOVATION

"Examine How Advances in Artificial Intelligence, Robotics and Other Technologies Are Enhancing the Federal Government's Military, Law enforcement, and Border Security Efforts, While Making Service Members and Civilian Employees Safer."

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Prepared Statement for Ryan M. Rawding

Chairwoman Mace, Ranking Member Connolly, and distinguished Members of the Subcommittee, thank you for the opportunity to appear today on behalf of Pangiam on how Artificial Intelligence (AI), Robotics, and other emerging technologies are enhancing our nation's federal law enforcement, military, and border security efforts, while making service members and civilian employees safer.

My name is Ryan Rawding, and I am the Vice President for Business Development at Pangiam, a trade and travel technology company based in McLean, Virginia. The Pangiam leadership team is comprised of former executives from DHS, U.S. Customs and Border Protection (CBP), Transportation Security Administration (TSA), U.S. airlines, and major international airports. Pangiam brings years of combined experience in aviation security, border security, biometrics, critical infrastructure, intelligence, cybersecurity, innovation, information technology, acquisition, and program management. Pangiam engineers have helped deliver some of CBP's most transformative programs, including CBP's Traveler Verification Service (TVS), the cloud-based facial recognition system that supports biometric entry and exit processes, and Border Patrol's Mobile Intake Application (Mobile Intake App) that dramatically reduced the time to process migrants at the border.

Prior to joining Pangiam, I served as a U.S. Customs and Border Protection (CBP) Officer in the Office of Field Operations (OFO) for 13 years, much of that time spent at CBP's National Targeting Center (NTC). During my tenure at the NTC, I worked closely with foreign counterparts, including within the Western Hemisphere, the Five Eye partners and Europe, to bolster their respective screening and vetting capabilities, and established the NTC's Foreign Encounter Team which currently reviews foreign collection data. Prior to departing the NTC as the (A) Assistant Director, I oversaw the Tactical Targeting and Technology Teams, developed business requirements for NTC's technology development for screening and vetting applications, case management systems, and implementation of systems using facial recognition. Additionally, I supported the development of robotic processing automation (RPA) in response during the COVID-19 pandemic to support precision screening of travelers to the United States. I continue to serve as a Reservist as a Maritime Enforcement Specialist with the United States Coast Guard.

Background

During the summer of 2021, the United States saw a dramatic increase in apprehensions on the southern border, ultimately exceeding 250,000 in the month of December 2022. This dramatic influx has limited U.S. Border Patrol's (USBP) ability to identify and process individuals encountered in between the ports of entry. Prior to deployment of the Mobile Intake App, USBP agents in the field had little or no information to identify potential threats, a capability to begin processing, or coordinate with other federal partners efficiently. USBP agents utilized a manual approach for field intake, documenting a migrant's biographic information by hand on paper and then reentering that information at the Border Patrol station in order to begin processing. This process created duplicative work for the agents, is time-consuming and may provide inconsistent data entry. As the demographics of the migrants encountered has included nationals from South America, Europe, Asia, and Africa, USBP agents are encountering more and more nationals from different countries that do not speak English or Spanish. The language barrier creates additional burdens on USBP agents who need to interview, identify, and process individuals encountered in the field. Additionally, over the past five years, USBP agents have encountered larger and larger groups of migrants. This trend has placed a greater burden on the agents and calls for driven solution that helps segregate potential threats expeditiously.

What is the Mobile Intake App

To address the challenges facing CBP, partnered with Pangiam to develop the Mobile Intake App, a facial recognition driven solution that allows USBP agents to biometrically enroll migrants using their government issued smartphone at the point of encounter.
The concept leveraged existing mobile applications (ATS-Mobile) which allow CBP Officers to access law-enforcement databases in the field, the CBP Officer's Case Management System (Unified Secondary – USEC), and the Traveler Verification Service (TVS), CBP's cloud-based facial recognition system.

Initial intake begins by utilizing the Mobile Intake App leveraging AI /computer vision technology to capture the subject's face, information from their document including biographical information, and property identification (via optical character recognition). The photo captured is verified against prior CBP encounters, allowing USBP agents to confirm that identity and ingest previous data from apprehensions. Since January of this year, USBP agents in the field are now alerted if the individual encountered and enrolled via the Mobile Intake App has a record on a government watch list. This data package is then transmitted as a package to CBP's e3 processing system for additional actions to be taken.

Once enrollment is completed in the field, the information is transmitted to the station ahead of transport arriving at the station. This process allows the Border Patrol Station staff to see who is coming in advance of arrival and resource appropriately to expedite processing and provide care for those in CBP custody

Highlighted features now include:

- **Immediate known threat identification**. The Mobile Intake App currently allows USBP agents to compare faces captured to a variety of derogatory CBP sources and recognize immediate threats, including the Terrorism Screening Dataset (TSDS) and Transnational Organized Crime (TOC) Watchlist, INTERPOL (expected to start July 2023), as well as other US federal law enforcement systems. This feature allows the Agents to recognize immediate threats when

appropriate connectivity is available. In FY23, USBP along the Southwest Border has encountered over 377 individuals on Transnational Organized Crime Watch List and 98. Current FY23 TSDS encounter are equal to and have exceeded the overall total of TSDS encounters in FY22.[1]

- **Peer to Peer (P2P)** - Considering the diverse operational environments, such as remote deserts, rugged mountains, and vast maritime areas devoid of cellular connectivity, P2P was developed to allow USBP agents to share data between fellow agents leveraging the device's secure Wi-Fi capability. When an agent successfully intercepts a group without any cellular connectivity, all pertinent data is captured and then the USBP agent may use the P2P feature to transfer the encounter data packages to a designated transport agent. This intermediary agent is responsible for transmitting the information to the receiving Station or Sector once cellular range is reached.

- **Maintaining Family Unification.** The Mobile Intake App allows USBP agents to group family units together within the larger apprehended group of migrants ensuring families are processed together. This capability immediately secures data integrity of those encounters, including recognizing total numbers of Unaccompanied Minors (UACs), Single Adults, and Family Units. This logistically assists the receiving Border Patrol stations well in advance with the arrival of potentially several large groups of individuals at a time.

- **Geo-Location Data** – Currently, the Mobile Intake App leverages the geo-location of the device to annotate the apprehension or encounter coordinates. In July, USBP will have access to a mapping feature that displays both the field agent's current coordinates and the existing arrest coordinates recorded by an agent at the station. This feature allows for the adjustment of arrest coordinates to enhance accuracy based on the actual apprehension location. USBP may soon be able to significantly enhance data integrity through high-accuracy location and date/time information. The availability of such precise geo-location data may allow for enhanced predictive modeling techniques to improve operational efficiency and decision-making processes.

The implementation of the Mobile Intake App has yielded significant benefits for USBP. It has not only enhanced the safety of USBP agents by enabling identity resolution at the edge. The App provides additional protection for migrants by ensuring families remain together and identifying individuals who may pose a threat to their safety. Moreover, this capability has substantially improved data integrity by seamlessly integrating with the legacy case management system, eliminating manual data entry errors. Most importantly, it has resulted in substantial man hour savings for USBP, redirecting valuable resources from administrative tasks to operational and enforcement duties. This comprehensive solution contributes to a safer and more efficient border enforcement process.

Working in Partnership with CBP to Develop New Technology Driven Capabilities

The success of the Mobile Intake Application for USBP can be attributed to USBP and the Office of Information Technology's (OIT) strategic approach that started with active engagement of both field operators and subject matter experts from headquarters to accurately define comprehensive requirements. By adopting agile methodologies, Pangiam, OIT and USBP were able to collaborate closely

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[1] https://www.cbp.gov/newsroom/stats/cbp-enforcement-statistics

with the operators, visiting operational environments to gain valuable insights and design requirements. This iterative process allowed for a phased approach, ensuring rigorous testing and refinement before transitioning to full-scale production. Emphasizing quarterly releases, OIT has maintained a responsive development cycle that has enabled continuous improvements and the ability to adapt to evolving needs, such as the discontinuation of Title 42. This comprehensive and iterative approach played a pivotal role in the Mobile Intake App's resounding success within the USBP, aligning technology with operational requirements and maximizing its impact.

Leveraging commercial best practices, OIT commissioned the design, development, and delivery of a Minimal Viable Product (MVP) of CBP's Mobile Intake App that facilitates the creation of a "manifest" for subjects encountered in the field / operational environment in need of additional processing.

The Mobile Intake App pilot was deployed in March of 2022 after 120 days of development. Since its initial deployment, use of the Mobile Intake App has been expanded to all Border Patrol Sectors along the US southern border. The Mobile Intake App has over 13,500 users (USBP agents) and has been used to enroll over 750,000 migrants. Since the original MVP deployment, CBP and OIT have continuously deployed creative technological features in sprint releases to meet USBP operational needs.

Future opportunities to enhance the Mobile Intake App's connectivity at the edge by leveraging mobile mesh networks or providing capabilities when completely disconnected offer tremendous promise for improving USBP agents' safety.

- **Supporting Greater Connectivity at the Edge.** Recognizing that USBP agents work in remote areas and require rapid identification of individuals, integrating the Mobile Intake App's functionality with off-grid operators using a mobile mesh network will allow USBP agents to verify biometric IDs without access to the CBP enterprise network via cellular. In these instances, information would be passed over the mesh network and backhauled to CBP enterprise servers, verified using central databases, and then passed back to off-grid USBP agents.

- **Increase Agent Safety.** Templatizing photos from select derogatory galleries to deliver a capability for agents to match a subset of data completely disconnected from the network would drastically increase agent safety in remote areas of their jurisdiction by providing awareness of potential threats encountered in the field. Lastly, CBP continues to explore advanced algorithms for fingerprint matching to include the use of mobile and touchless devices for fingerprint collection.

CBP's implementation of the Mobile Intake App is a model that effectively demonstrates how CBP can leverage biometrics to deliver efficiency and security. Considering the rapid success achieved with the Mobile Intake app, it is evident that similar solutions could be applied to other pressing operational requirements, such as a mobile-based processing application. Several aspects of USBP's overall procedures could significantly benefit from the ability of agents to accurately capture, record, or create records directly from their mobile devices. Currently amenities are recorded from a central workstation rather than at the precise time and location where the amenity is provided. By equipping agents with mobile devices amenity and welfare checks, and cell relocation can be promptly and accurately recorded, eliminating the need for manual data entry at a later time. Additionally, the creation and acceptance of manifests used to track the arrival and departure of subjects at a station could be

streamlined and improved through the utilization of facial recognition technology on agents' mobile devices. This would result in significant time savings, reduced confusion, and enhanced accuracy in tracking subjects. Therefore, it is evident that the implementation of a mobile processing application holds immense potential for increasing operational efficiency and data accuracy within USBP.

Enabling Partner Nations and OGAs

As countries in Central and South America secure their borders to potential threats and establish a process to verify people's identification, border agencies and military have encountered several issues with manual identification and verification including but not limited to accuracy and data integrity, rapid identification, and identifying potential threats to officer safety. Security, immigration, and customs agencies currently conduct a manual capture of individual's identification documents and associated information with no automated way to vet that individual in real-time against derogatory sources.

One opportunity would be to empower foreign governments with a biometric enrollment capability, like the Mobile Intake App, that allows for the real time capture, enrollment, and verification of individuals transiting through their country and share that information with CBP. Providing this capability to partner nations will provide those governments with new tools for identity resolution and managing border flows.

Leveraging facial recognition on a mobile application for remote location identification in Central America can significantly improve border security in the United States. It can help detect potential threats, reduce the number of undocumented immigrants entering the United States, improve identity resolution, preserve data integrity, and be a more cost-effective solution compared to traditional border security measures.

Mobile Intake: A Model for Government Contracting

Delivery and deployment of the Mobile Intake App may serve as a model for future development where government agencies are seeking to leverage commercially off the shelf technology for the frontline operator. To respond to current operational needs in a timely fashion, CBP OIT has adopted an agile development approach. Adopting an agile methodology enables the OIT staff to break down complex projects into smaller, manageable tasks, allowing for iterative development and quick delivery of functional solutions. This approach fosters collaboration and flexibility with the frontline operator, ensuring that technological solutions are aligned with the specific requirements and operational realities of the users.

By actively involving the frontline operators who will utilize the technology in the development process, OIT has been able to incorporate valuable insights regarding operational workflows, pain points, capability gaps and incorporate that feedback into future updates. This collaborative approach enhances user experience, as the technology is tailored to their unique requirements, resulting in increased efficiency and effectiveness. OIT leverage direct user feedback to iteratively improve and refine the technology, addressing any usability or functionality concerns in a timely manner.

Moreover, the ability of OIT to rapidly address emerging needs is crucial in today's fast-paced technological landscape. By closely monitoring advancements and staying attuned to evolving requirements, the staff can proactively identify emerging needs and rapidly respond with appropriate

technological solutions. This agility enables the government to stay ahead of the curve, adapt to changing circumstances, and capitalize on new opportunities. Timely implementation of emerging technologies allows for improved service delivery, increased productivity, and better decision-making capabilities.

In summary, federal agencies that promotes agile methodology, collaborates with end-users, and has the capacity to swiftly address emerging needs brings numerous advantages. Through iterative development, user-centric design, and proactive response to emerging requirements, agencies can deliver technology solutions that align with user needs, enhance operational efficiency, and ensure the government remains at the forefront of technological innovation.

Overall, the government must navigate through the intricacies of procurement to effectively harness the benefits of emerging technologies while addressing the associated challenges. Flexibility, adaptability, and a proactive approach to procurement processes are crucial for successful implementation in the ever-evolving landscape of emerging technologies.

Conclusion

In closing, I want to extend my heartfelt appreciation to Chairwoman Mace, Ranking Member, and esteemed Subcommittee Members, for granting me the invaluable opportunity to provide testimony on the successful utilization of cutting-edge technological advancements in bolstering border security. I thank the subcommittee for shining a light on the immense potential these technologies possess in enhancing our border security while also fostering legitimate, streamlined, international trade and travel. In addition, by focusing not just on what the government buys, but how they buy it, the subcommittee and full committee are providing a critical oversight function, and we welcome the chance to provide our perspectives. I am deeply grateful for the chance to contribute to this pivotal dialogue and eagerly anticipate continued collaboration and exploration of technology-driven approaches in addressing the challenges posed by border security.