



## CASE STUDY

### Modernizing a Legacy Biometric Capturing System in the Cloud

**BUSINESS NEED** - Our client governs the nation's lawful immigration system and annually processes 3,000,000 requests for immigration benefits. Part of the application process includes collecting biometrics data, which is then shared with other internal departments and external organizations. Our client initially used a proprietary commercial off-the-shelf (COTS) biometrics product to process immigrant benefit applications that required significant and costly upgrades, customizations, and licensing fees. The more than 4,000 users of the biometrics systems were demanding an improved user experience and greater functionality more quickly. Partner organizations were requiring better data-sharing capabilities with legacy systems. However, the COTS customization requests were lengthy and expensive to complete, and the backlog kept growing. Our client needed a custom biometrics system with frequent feature upgrades to speed delivery of new capabilities to field agents, integrate better with other legacy systems, scale to meet the capacity of biometrics storage, reduce costs, and more effectively process applicant requests to meet mission goals.

**OUR SOLUTION** - Pyramid Systems worked directly with end users, providing rapid prototypes, analyzing user feedback, and making changes to the design before development began. End users were a top priority and were included in the design and development process from beginning to end. As a result, the system received positive user feedback, especially in the area of processing applicants quickly and accurately.

Our seasoned experience with Scrum (agile) method was leveraged to quickly produce a high-quality, minimum viable product that exceeded our business client's expectations called the Summary Management System (SMS) Biometrics Registration Tool (BRT). The team also implemented a Jenkins-managed continuous integration, continuous development (CI/CD) pipeline that managed the process of building, testing, inspecting, and delivering the application for deployment and additional future features. When a user identified an issue during the pilot phase, the CI/CD pipeline enabled a rapid new build to fix the problem in less than 24 hours. The pilot phase allowed Pyramid to quickly optimize the SMS-BRT solution, while Pyramid's DevSecOps process identified and remedied security vulnerabilities from the very beginning of the project.

Pyramid was required to deliver a modernized SMS-BRT application that also integrated with many other existing internal and external legacy systems for processing, validating, and checking immigrant information for fraud and criminal activity. To solve the problem, back-end services were stood up in the AWS cloud, leveraging cutting-edge services (e.g., AWS S3, AWS Network Load Balancer). Pyramid then developed an integration solution to enable fast processing and communication between the modern SMS-BRT and other legacy systems. This creative and collaborative approach was implemented and included other client project teams.

**RESULTS** - Pyramid's award-winning technology solutions replaced a set of manual processes and batch legacy applications with a single transformative web service that automated facial and iris recognition, decreased biometric capture error by 50%, and decreased the time it took to collect biometrics data from 10 minutes to 5 minutes; therefore, saving the agency significant money. The secure solution encrypted data both at rest and in transit, and the mature CI/CD pipeline ensured 95% code coverage. Our solution was deployed to 138 application support centers around the country that process more than 15,000 applicants each day.

Our client received an internal agency award for developing and deploying a strategic, enterprise-wide biometric capability to improve operations, enhance the integrity of our immigration system, and eliminate the possibility of impostors acquiring immigration benefits.



**We have successfully helped multiple agencies modernize their applications to improve mission performance—let us help yours! Contact us at [info@PyramidSystems.com](mailto:info@PyramidSystems.com).**