## eDHS Immigration and Customs Enforcement (ICE) Enforcement Systems Operations and Maintenance Support Services

| Corporate Experience Questionnaire Response #2 – Harmonia (CTA Member) | |
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| **a. Reference Name.** DHS U.S. ICE Enforcement and Removal Operations (ERO) | **b. Program Title.** Enforcement Systems Operations and Maintenance (O&M) Support Services |
| **c. Contracting Agency.** DHS, Security, ICE, Office of the Chief Information Officer (OCIO) | **d. Contract/Task Order Number(s).** W52P1J18DA062/ 70CTD021FR0000226 |
| **e. Description of the Technical** Components **of the Work and Rationale Supporting the Assertion of Relevance.** We provide **Agile** Software Development support for O&M and modernization of 6 user-centric, mission-critical enterprise ICE Enforcement Systems operated within **Amazon Web Services (AWS) GovCloud East and West** (most applications are FISMA High). We support **7.9k** Law Enforcement Officers and ERO employee users in **200 domestic and 25 overseas locations.** The applications we support use **Biometrics** as the primary identification means during the booking process, for reduced errors with person and encounter linking. To receive consistent **reporting** information, we are redesigning an event-centric processing model that uses events from the initial subject encounter and significant manipulation of database outputs. We are modernizing the EAGLE and NTA systems that use biometric data - including the ICE's most crucial database, the EID, which is also a DHS-shared repository. This tool provides a **person-centric** data view in Alien Files and uses FIN to accurately link records to people. We integrate with multiple biometric exchanges: Integrated Automated Fingerprint Identification System, Automated Biometric Identification System, National Crime Information Center, and National Law Enforcement Telecommunications System. We execute **Agile** and **DevSecOps**-based application development, modernization, and O&M of each business segment of Enforcement Systems.  This work is similar to the USCIS BIMS size (**$71M**) and scope. We use most technologies listed in USCIS BIMS PWS Table 1. The complexity is similar because we modernized and currently maintain the ICE ERO enterprise AWS-based applications portfolio that covers all aspects in the ICE ERO branch of handling aliens and their custody and communication at the Southwest Border. We handled ~**9.4k Jira tickets and 13.4k story points and completed 130 releases** (May to December 2022). The system is architectedusing open-source technologies and cloud-native services such as **Kafka** (event streaming), **ApacheMQ, AWS Lambda** (serverless event-driven computing), **Kinesis, Event Bridge, S3 Event Lake, DynamoDB, PostgreSQL, and API Gateways (**on-demand scalability with highly secure PII data capture, storage, reconciliation, and reporting). In development, we use **AngularJS, Java, and Spring Framework** (in legacy code we are modernizing). We use **Ansible, Chef, Docker, Jenkins, OpenShift, SonarCube, Terraform, and Vault** to build, run, and scale applications using **Continuous Integration and Continuous Delivery**. We implement microservices to enable more modular updates, simplified maintenance of the code base, better scalability and faster integrations. We use **DevSecOps** for faster deployments without taking the system down for many production updates. We perform integration with other DHS systems by consuming events and using their APIs, and by generating events for other systems to use along with developing APIs for external users. In the event processing architecture, we store data in DynamoDB, then transform it to feed into the main **Oracle DB** (for other systems’ use). Our modernization enhances the benefits of Event-First Architecture by rapidly adapting ERO applications to changing Southwest Border requirements and regulations. This **Cloud-native** approach improves **UX** **consistency** and uses multi-regional deployments to support readability, thereby achieving cost and time savings and quality improvement. This includes testing, assessing the DHS 4300A policies and requirements, and NIST 800-53 controls (e.g., vulnerability scans).  **Focus Area I – Transformation Strategy/Solutions Architecture.** Question I: **Yes**  We are replacing a paper-based system within the NTA MicroApp, which will transformative services for ICE agents who must currently print, sign, and fax (for wet signatures) or mail paper forms. Our web-based application, scheduled to go live January 2023, applies biometric information including fingerprinting and photographic identification via facial recognition drawn from interfaced systems (e.g., EAGLE) to replace a paper-based process with a fully digital workflow. We account for transitional techniques (e.g., legacy records consolidation) as we update the central database and repository – where many forms processed previously were never digitized. We are digitizing and transitioning hundreds of paper forms to a storage repository. This includes transitioning the workflow of how to pull and save database data, with a printing option for forms. We implement stories, automating key steps in the credible fear and asylum referral lifecycle that save officers time by reducing case handling durations and improving data quality and subject outcomes. This reduces rejection rates and automates and simplifies rejecting Bond cancellations. This process occurs frequently and requires offline email communication/coordination. We are transforming reporting/collection processes for program operation metrics. We consolidated sources across the program to design live, near-real-time presentations for ICE leadership to display all program metrics, time-based trends in a web-based dashboard for a single view of program health.  **Focus Area II – Data Reporting.** Question II: **Yes**  The ICE ERO system collects information continuously, starting with biometrics from the alien booking process via the EagleBRS, and correlates information in the application portfolio we support. This includes assignments to detention centers, court events and hearings, logistics and transportation events, health records, food and meals served, and communications. The continuous data ingestion on aliens who violate laws leads to information that must be reconciled and visualized, according to an information architecture via various reporting methods. Data includes case management, booking, notices (e.g., NTA), bond management, logistics, and detention information.  **Focus Area III – Platform and Applications Development/Operations.** Question III: **Yes**  We manage fast-paced, data-driven projects for O&M and the modernization of the Southwest Border application portfolio. Our work responds to the dynamic nature and growth in border crossing activities and follows strict timelines to release updates to production. We share 3 scrum masters across our 8 teams to manage unplannable corrective (e.g., break-fix) and preventive (e.g., zero-day patching) maintenance, and planned (timeboxed) enhancements. This allows a high degree of flexibility and responsiveness to changing priorities. We complete all on-demand work before completing the sprint. We pull from the next highest priority item in the single integrated backlog that we created for all O&M work, according to the defined work-in-progress (WIP) limits. We groom stories for a second integrated backlog for the modernization project. Our team successfully implemented automated testing for multiple applications as part of continuous integration cycles. The output included metric reports from multiple ICE-approved testing and reporting tools. Part of the definition of done for every Agile story, we only close a story after all functionality is met (per the acceptance criteria), all unit tests are written as passed, the code has been peer-reviewed, and an automated functional test has been written for every acceptance criterion. This mandatory step empowers the government and the development team to run automated regression testing at any point. This ensures that newly added functionality doesn’t break existing functionality. Therefore, regression testing rarely finds defects and can be completed quickly and efficiently to ensure quality and on-time releases.  **Focus Area IV – Discovery & UX/UI Design Support.** Question IV: **Yes**  We design user-friendly, intuitive, customer-centric web applications for the Border applications. We apply DHS and ICE standards and guidance for the UI design to be 508 compliant. Prior to production updates to any UI, the applications go through review with the ICE DHS Quality Assurance (QA) group as a final confirmation of compliance, including Section 508 compliance. The UI is customer-centric, enabling Agents and others to input, review and, as authorized, modify the information at different points in time. UI can then consistently maintain the information in the database. These UIs are user-friendly, intuitive to support Agent use in the Field.  **#1:** Our Business Systems Analysts and Developers create and maintain all artifacts associated with the graphical user interface (GUI) and UX. The primary tools and artifacts we use include:  • Style Guide: Ensures consistency and provides guidance to develop visual components in the system, including navigational elements, color schemes, and layout  • Wireframes: Visual depiction (or Hypertext Markup Language (HTML) mockup) of UI within the system tied to JIRA stories with corresponding business rules, range of user actions, and the responsive scenarios  • Usability Assessment: Assessment of system usability from a User Testing, analysis of performance monitoring logs, review of previous assessments, comparison of best design practices (including comparison with the U.S. Digital Services Playbook7F8), with an overall set of recommendations to improve UI/UX  **#2:** Our work produces innovative optimized electronic content UX interactions, which properly balance creativity with considerations for records policy and implementation suitability parameters. We provide dashboard reporting within UIs that show information such as pending work in ICE concerning alien cases. This feature enables an understanding of where cases hit bottlenecks and delays. Agents and ICE Executive Management use these features to decisively improve ICE’s processing and view progress through presented statistics and data. This reduces processing from months to days - even hours - as part of the CAS component. | |
| **f. Description of the Portions of Work Performed by Quoting Contractor and Portions Subcontracted.**  Harmonia performed 60% of the work; 40% of the total work is subcontracted. | |
| **g. Description of Problems Encountered, Quoting Contractor’s Corrective Actions and Impacts.** None. | |
| **h. Type of Contract.** FFP and T&M | **i. Period of Performance.** 02/01/2022 - 01/31/2027 |
| **j. Original Value and Current/Actual Value.** $72,161,358/ $72,161,358 | **k. Actual Completion Date.** In Progress |
| **l.** **Program Director/Manager and/or Contract Manager Contact Information.** **Name and Title**: Jonica Woody, Contracting Officer’s Representative (COR), **Address:** 500 12th St SW, Washington, DC, 20536, **Agency**: DHS/ICE, **Phone**: 202 579-1979, **Email**: Jonica.L.Woody@@ice.dhs.gov; **Name** **and Title**: Michelle Brooks, CO, **Address**: 500 12th St SW, Washington, DC, 20536, **Agency**: DHS/ICE, **Phone**: 202-731-6925, **Email**: Michelle.Brooks@ice.dhs.gov | |
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