



# Leveraging Agile for FBI's Next Generation Identification System

Single Sprint Team Minimizes Time Between Development and Deployment

## PROGRAM BACKGROUND

After operating and maintaining the Integrated Automated Fingerprint Identification System (IAFIS) for more than a decade, the Federal Bureau of Investigation (FBI) needed new identification capabilities that matched the latest biometrics technology and could protect against growing threats. The FBI's Criminal Justice Information Services (CJIS) Division worked with Leidos to develop and incrementally integrate a new system – the Next Generation Identification (NGI).

NGI is a state-of-the-art biometric identification system that the FBI uses in concert with state, local, federal, and tribal authorities to keep Americans and their families safe. It provides the criminal justice community with the world's largest and most efficient electronic repository of biometric and criminal history information.

Over time, NGI usage has grown and with that comes the need to identify system issues, roll out enhancements, and introduce updated technologies and processes where appropriate.

## **THE CHALLENGE:**

### **Lag Time Between Development and Deployment**

At the outset of NGI, Leidos and CJIS began working on several development cycles to identify and fix issues, address new user requests, and maintain the system. The teams initially took a traditional approach of separating development, testing, and deployment as distinct steps, which siloed teams and extended time between identifying an issue, developing a solution, and testing, validating, and deploying the solution.

On similar enterprise system programs with various civilian and defense customers, Leidos had seen the benefits of leveraging one of its technical core competencies of agile software development. By increasing collaboration between the development and test, verification, and validation (TVV) teams, the cycles could be streamlined to minimize time between development and deployment.

## **THE SOLUTION:**

### **A Collaborative, Single Sprint Team**

In early 2016, Leidos presented CJIS with a solution to build more collaboration between the Leidos development team and the CJIS TVV team by incorporating agile methodology and development operations concepts into the software build rhythm. This would allow one month for development and one month for testing, with two weeks overlapping between. In total, it would be a six-week sprint with a collaborative, single sprint team, which would greatly decrease the time between development and deployment and provide benefits to the development team, TVV team, and end users.

The teams agreed to an agile software build rhythm that incorporated fixed-length software build cycles, overlapping CJIS' test cycle and automated testing

tools to enable backlog planning and management; collaboration among end users, developers, and testers; and rapid responses to testing issues.

At the beginning of each sprint cycle, the combined team started to hold a backlog refinement meeting to identify and prioritize the Product Backlog, which is a prioritized list of everything that might be needed in the system and is the single source of requirements for any changes to be made. The Product Backlog is constantly changing as issues are fixed and new problems are identified, so the refinement meetings have been critical to maintain communications between development, maintenance, and TVV teams.

## **THE RESULTS:**

### **More Builds, Less Issues**

After operating as a single sprint team for nearly two years, the Leidos development and maintenance team and CJIS TVV team have built a strong working relationship. They have produced a steady stream of more than 20 high-quality, monthly builds that have been deployed into operations – delivering value each month – and that number continues to grow. The teams have also seen a significant decrease – estimated at up to 25 percent – in the number of problems identified in the operational environments.

Biometrics has been and continues to be incredibly useful to the FBI, and as technologies evolve, CJIS continues to look to for new ways to improve NGI in order to increase the range and quality of its identification and investigative capabilities, identify bad actors, and ultimately keep citizens safe. With the rapid software build rhythm the Leidos and CJIS teams have in place, they can more efficiently keep pace with the changing technologies and maintain NGI as a platform for multimodal functionality that will continue to evolve with new technologies and user requirements.

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