

# Guiding Principles When Modernizing Legacy Systems



## INTRODUCTION

The Federal Bureau of Prisons (BOP) SENTRY inmate management system has been the central nervous system of the agency over the last 39 years. Over that time, it has enabled the BOP to care for and facilitate the reentry of millions of inmates. Its remarkable longevity speaks to its ability to reliably manage the core critical information needed by the BOP to maintain the security and safety of inmates. While the system has proved reliable, its segmentation and piecemeal updates have created constraints as the mission of the BOP expands.

The BOP faces the daunting task of modernizing SENTRY, which is used across 122 institutions and communicates with many partner agencies across the country. Two important partners to the BOP—the US Marshals and the US Courts—are undergoing case management modernization and face similar challenges in creating reliable, highly secure systems that are flexible enough to meet expanding mission requirements. These agencies have chosen systems that can manage information, provide robust analytics, and securely share critical information with other law enforcement agencies as an individual moves through the criminal justice system from arrest and prosecution, incarceration, and supervision to a successful reentry.

Each agency has taken a different approach and partnered with Accenture to rethink processes, redesign functionality, and use new tools that accelerate the modernization with security at the forefront. We would like to share what we learned and how these insights might inform the BOP as it faces similar challenges and opportunities. Accenture has extensive experience guiding modernization efforts for integral government systems and has key recommendations to improve success as you move forward with SENTRY.

In the following pages, we share how agencies plan and develop similarly complex, critical, and secure systems with a positive mission impact. Some key lessons learned are:



### Build with Focus

Set priorities and partner with experience to get it done.



### Deploy Incrementally

Leverage a deployment technique can be designed to fit the needs of the BOP. We have ushered many 24/7 law enforcement agencies through successful modernization using an incremental approach.



### Add Flexibility to Future Proof

Build your case management system to easily adapt to constantly changing requirements of the future.



### Maintain a Security-First Mindset

Reliably modernize SENTRY at pace and maintain secure operations of your 122 prisons with rollout methods used across Federal clients.



## BUILD WITH FOCUS

Set priorities and partner with a team that is experienced in modernization design, development, and deployment.

Our team will ask the right questions, maintain a systems' view of the architecture, and design reliable tools to manage critical information. This begins by planning with expertise to capture the viewpoint and requirements of SENTRY users at various levels within the organization. Our experts will then plan integrations for smooth and secure information exchange with partnering law enforcement agencies. Our experience modernizing mainframe systems, such as FBI NNICS and USMS Case Management, has given us an understanding of the specific needs and benefits of pivoting away from an aging legacy system in the Federal law enforcement space.

## CASE STUDY

### Prisoner Management System Innovation and Cloud at US Marshals Service (USMS) aids decision making with COVID-19

Accenture is partnered with USMS to develop an enterprise case management system to aid prisoner, investigation, and security processes using agile methodologies in the cloud.

The team is deploying and continually improving the solution to track and manage deputy workflows by replacing the legacy Microsoft Access database with a PEGA/Tableau solution. The solution uses interactive dashboards and reports embedded within Pega to report enhanced metrics, track workflows, and visualize situational awareness through geospatial analysis.

Beyond e-Designate, we would like to support the BOP as you plan for the future of Sentry. The case management system modernizations across US Marshals and US Courts will impact the BOP and provide opportunities to improve efficiency, reduce redundancy, and securely improve the flow of relevant information regarding your shared client population. We believe there would be value for the BOP to learn more about these upcoming changes and consider the possibilities they provide.



Most recently, the US Marshals team built new functionality in the Prisoner Management application that allows Marshals to choose where they can perform video court hearings instead of in-person, which is especially relevant in this era of COVID-19.



## ADD FLEXIBILITY TO FUTURE PROOF

Take advantage of technology. The demands on BOP are fast-moving, shifting, and evolving—without a corresponding increase in resources.

- BOP programs for inmates have expanded
- Interventions are more tailored to match inmates needs and risks
- BOP staff have been trained to provide corrective interactions throughout shifts
- There is greater movement of educators, treatment providers, and volunteers throughout institutions
- Capturing this information, easily, and as it occurs, is essential for continuity, and security

Modernization is mission-critical to manage this varied information. Robust analytics are needed to gain insight into the effectiveness of interventions. Documenting all interventions by staff in a manner that does not overburden them is necessary to support workload, and outcome measurement reports. The COVID-19 crisis, and accelerated release of inmates to meet changing legislation, have increased this sense of urgency.

The BOP is not alone in its need to cut through information noise. When executive leadership teams assess their current people, processes, and technology, they often report feeling paradoxically overwhelmed as they find themselves with too much invaluable information that makes finding relevant data difficult. It takes too long to get the information needed for urgent decision making and timely responsive reporting to legislative requests.

A modern flexible low code platform can provide the flexibility needed for responsive decision making. Pega is one of the systems that offer a modern architecture to meet the BOP needs.

**By utilizing modern techniques and a unified, low-code platform, we can automate work and reduce the amount of time correctional staff must spend combing through data for information.**

**New technologies can help the BOP align to three essential elements of business today:**

**Predict.** Decisions in law enforcement case management systems are often based on laws that impact cases. These laws can be converted into system rules and incorporated into predictive models to evaluate which laws impact the case management lifecycle the most. This will become increasingly valuable to the BOP as the First Step Act is implemented.



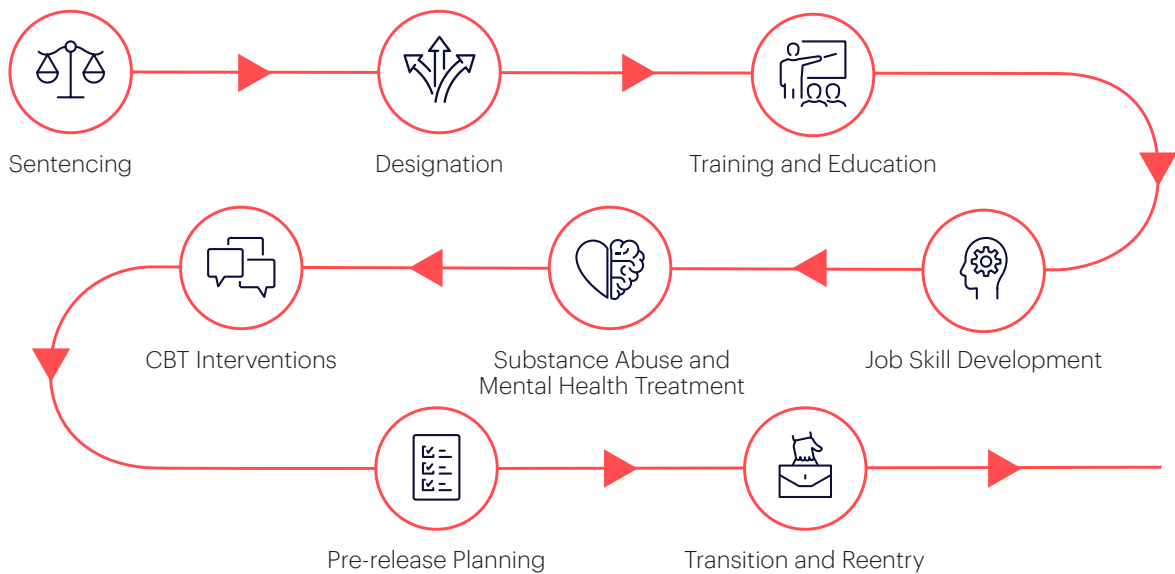
**Adapt.** As new data is created by the case management system, more insights can be used to automatically adjust the predictive models and processes, known as adaptive modeling. As the number of actions grow, the model will confidently and automatically apply relevant updates to the business process. Faster adaption will empower more efficient uptake of criminal justice reform measures by easily adjusting new sentencing policies and procedures across the inmate population.

**Analyze.** Using natural language processing (NLP), we can yield results from text that allows us to gain context on topics, sentiment, and intent. We can then use this information to refine business processes and improve the end-user experience. This approach can be combined with Optical Character Recognition (OCR) capabilities to read text within documents such as a PDF or Word document, giving structure to previously unstructured data to pinpoint the key data and associate it as part of a case. New platforms, like Pega, natively offer NLP and other machine learning capabilities to support case management modernization efforts like SENTRY. **More actionable and accurate reporting on inmate populations could be leveraged to improve monitoring on trends in inmate behavior and highlight risks to support decision making.**



Reorienting SENTRY to the way government business is done today will put technology to work for you. That is the benefit of a platform like Pega where the architecture promotes reuse of enterprise requirements across multiple mission areas, resulting in notable cost savings. If global changes are needed overnight, the modification can be made in one place and then inherited by all the application layers. **This is technology that is fit for tomorrow.**

*Easily capture all interventions and improve outcomes and reporting with robust analytics.*



## DEPLOY INCREMENTALLY

The deployment technique can be designed to fit the needs of BOP. Many law enforcement agencies have successfully done modernizations using an incremental approach.

Based on the components of SENTRY, we would collaboratively determine the best modernization approach or approaches—depending on what may be optimal for different SENTRY components.

Accenture has used different deployment strategies to meet the needs of our Department of Justice clients. We have successfully performed both “Big Bang” nationwide rollouts, and numerous agile deployments, rolling out functionality region by region. While the circumstances and program preference certainly play a role, Accenture has found incremental releases to be more effective and less disruptive for our DOJ clients. Pega’s agile-based delivery options support a tailored deployment to deliver minimum lovable product (MLP) functionality in 90 days or less. There is no one size fits all for mainframe modernization to a secure government cloud like Amazon Web Services (AWS) Cloud. Accenture’s systems engineers work with clients to formulate the best plan for their operation.

**BOP should consider an incremental release to reduce risk.**

- It builds confidence in the product and the delivery approach
- The team can monitor performance considerations as the application expands
- Breaking it down into smaller, more manageable components simplifies the project
- The gradual nature of the release promotes a ‘test and learn’ approach



## SECURITY FIRST

It is fully possible to modernize SENTRY at pace and maintain secure operations your 122 prisons with rollout methods successfully implemented across similar Federal agencies.

**Security is paramount to the BOP. Experience has shown us that a “Blue/Green” rollout strategy is effective to maintain continuity of operations during a rollout.** This strategy calls for standing up the new application’s environment separate from the legacy application, configuring the core functionality in increments, and then (either gradually or all at once) switching user traffic from the legacy application to your new application. This allows for little to no system downtime with seamless rollback capabilities if needed. This method ensures that operations can proceed without interruption should any unexpected problems arise.

### CASE STUDY

#### Internet Crimes Against Children (ICAC) Data System (IDS)

AWS has helped law enforcement entities overcome data sharing and administrative challenges. Through a grant sponsored by the DOJ, West Virginia state police working with AWS moved the IDS web-based application to AWS GovCloud. Moving to AWS allowed the department to scale to accommodate 11,000 application users, protect privacy, reduce processing time from a week to seconds, and advance their department’s capacity.



**The West Virginia state police leveraged multiple AWS services (RDS, EC2 and S3) to help consolidate data like CyberTips in a single place, empowering the department to act on critical data more quickly with fewer police resources in order to protect more children.**

Solutions built on the Pega Platform fully support the Blue/Green rollout model. These platforms can store BOP data as the system of record in the database when necessary, while also offering a robust set of integration options based on industry-standard protocols to support real-time, on-demand data retrieval from BOP’s legacy systems and data sources. This eliminates the need to engage in time-consuming and expensive data migration projects during deployment. With Pega, key functionality for the modernized inmate management system can be configured and deployed in increments, with integrations to legacy systems where necessary, to provide a seamless end-user experience and minimize downtime during the rollout.

## OPERATIONS NEVER STOP IN LAW ENFORCEMENT

We know that work never stops for the BOP. It does not for the FBI, US Marshals or ATF either. Accenture has worked with both ATF and the US Marshals to deploy a regional deployment strategy and supported the FBI to successfully manage big bang nationwide rollouts. With the FBI NNICS team, we organized a large-scale data migration moving 3-4 terabytes of legacy data into their Pega database in one night. The ATF had different needs—while not requiring a full-scale migration, the Accenture team created read-only lookback screens so that users could view legacy data in their new application without requiring a formal data migration effort.

**We understand correctional officers will need access to SENTRY data 24/7. These approaches make it possible, so there is never an outage when you need information on your inmate population.**

### SUMMARY

We are excited to discuss the experiences and ideas we have shared in this paper and to support the BOP in modernizing SENTRY.

**We would like to invite you to discuss these concepts with modernization experts and the teams working with the US Marshals and US Courts who understand your needs for a 24/7 solution during a collaborative and strategic session at the Accenture Digital Studio in Washington, DC. This can be held virtually or in-person while socially distanced.**



## About Accenture Federal Services

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