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Beyond Bars: Best Practices in Prison Security Technology Amid Staffing Shortages and Overcrowding

Executive Summary

The U.S. correctional system is facing a compound crisis driven by rising inmate populations, chronic understaffing and aging infrastructure. Correctional facilities must address escalating violence, contraband smuggling and operational inefficiencies—all while constrained by limited budgets and personnel.

Technology has emerged as a critical force multiplier in these environments. However, administrators often face uncertainty regarding which solutions to adopt and how to implement them effectively.

This white paper provides best practices for modernizing jails and prisons through integrated surveillance, control and monitoring systems. Drawing on more than 40 years of experience and deployments across more than 40 correctional institutions, including both county jails and state prisons, Alscan delivers insight into leveraging technology to improve safety, enhance oversight and maximize operational efficiency.



Challenges Facing U.S. Corrections Staff and Facilities

With nearly 2 million individuals incarcerated, the United States maintains the highest incarceration rate globally. County jails and state prisons alike are struggling with overcrowding and funding limitations.



Historically, corrections careers offered competitive pay and robust benefits. Today, rising operational costs, budget constraints and high-risk work conditions have reduced these incentives. Low wages, remote locations and the inherent dangers of the work make recruitment and retention increasingly difficult.

Infrastructure is another significant obstacle. Many facilities built in the 1970s and 1980s were not designed to support modern surveillance or electronic control systems. Retrofitting older structures often involves costly modifications and operational disruptions.

The Growing Threat of Contraband and Violence

Contraband remains a pervasive threat in correctional institutions. In addition to weapons and drugs, illicit cell phones allow inmates to coordinate criminal activity, intimidate other prisoners and maintain contact with external networks.

Smuggling methods have evolved. Drones, “throw-overs” and in some cases, coercion of staff members are now common tactics. Combined with overcrowding, these challenges create a volatile environment that strains correctional staff and increases risk.

Violence within facilities is rising. Dormitories originally built for 30–50 inmates often house 100 or more, heightening tensions and escalating conflicts. Limited staffing and inadequate surveillance exacerbate the risk of incidents going undetected.

Leveraging Surveillance as a Force Multiplier

High-definition surveillance has become essential in facilities with limited staffing. Cameras extend the reach of corrections staff, filling gaps where physical presence is impossible.

Alscan has deployed systems in facilities utilizing hundreds or even thousands of cameras. Modern video systems include:

- 4K resolution cameras for crystal-clear imagery
- Anti-ligature cameras for high-risk confined spaces
- 360° fisheye and corner-mounted cameras for comprehensive coverage
- Thermal and infrared cameras for night-time perimeter monitoring
- PTZ (pan-tilt-zoom) cameras with analytics for real-timetracking
- Multisensor lens cameras for flexible monitoring solutions

Integrated AI analytics can detect behavioral anomalies, such as prolonged group gatherings, unauthorized movement across virtual tripwires or the sudden appearance of objects in restricted areas. These systems eliminate blind spots, enabling staff to respond quickly and efficiently to incidents.

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Addressing Drone Threats Within Legal Constraints

Drones are increasingly used to deliver contraband. However, correctional staff cannot physically intercept or destroy drones in most cases due to FAA regulations classifying them as aircraft.

Facilities must rely on:

- Drone-detection systems
- RF triangulation to identify launch points
- Targeted staff deployment to intercept operators or contraband

While signal-jamming technologies exist, FCC regulations complicate their use. Until new legislation is enacted, detection and deterrence remain the primary means of drone defense.

Centralized Monitoring for Comprehensive Coverage

Modern correctional facilities benefit from centralized control rooms, consolidating surveillance feeds for real-time monitoring. Systems may be deployed on-site or off-site depending on facility requirements.

Video retention standards are tailored to each facility, with options for on-premise storage in larger state institutions or cloud-based solutions in smaller facilities. Centralized monitoring allows limited personnel to operate efficiently, ensuring faster response times and improved decision-making during incidents.

Biometrics, Visitor Control, and Special Management

High-security areas with close watch requirements increasingly leverage biometric technology, including:

- Iris scanners
- Fingerprint readers
- Facial recognition for visitor verification

While facial recognition is not widely applied to inmates, it is highly effective for screening visitors and reducing contraband introduction. Biometric solutions complement, rather than replace, core surveillance measures.

Modernizing Programmable Logic Controller (PLC) Systems

Programmable logic controller (PLC) systems now enable electronic management of:

- Door operations and lock monitoring
- Control of toilets, lighting, and electronics during searches
- Sally Port gate operations with integrated video and intercoms
- Camera feeds associated with unlock sequences

PLC systems in corrections lack standardization, often locking facilities into proprietary solutions. Alscan recommends phased upgrades, prioritizing camera coverage in older facilities and PLC modernization in newer installations to maximize operational effectiveness.



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Overcoming Legacy Infrastructure Challenges

Many older facilities were constructed with perimeter fencing as the primary security measure. Retrofitting electronic locks, surveillance and monitoring systems often requires installation of new conduit through concrete walls and hardened components to prevent tampering. Alscan emphasizes standardization of conduit and mounting to facilitate future upgrades without structural overhauls. This approach reduces long-term costs and ensures facilities remain adaptable as technology evolves.

Planning for Technological Obsolescence

Rapid technological advancement means today's cutting-edge devices become outdated within five years. Alscan supports facilities by:

- Standardizing cabling and conduit
- Selecting scalable platforms
- Mapping long-term hardware compatibility
- Ensuring plug-and-play readiness for new devices

This forward-thinking approach allows facilities to modernize incrementally without operational disruption.

Recommendations and Roadmap to Modernization

Effective correctional security extends beyond locking doors—it is about protecting life and maintaining order. Facilities should consider the following best practices:

- Deploy comprehensive surveillance in high-risk areas first
- Prioritize phased PLC upgrades after establishing camera coverage
- Utilize AI analytics to detect behavioral anomalies and prevent escalation
- Standardize hardware and software to enable scalability and adaptability
- Partner with experienced integrators familiar with correctional environments

Integrated technology empowers staff to detect, respond and prevent incidents more effectively, mitigating the challenges posed by understaffing and overcrowding.

Conclusion

While no single solution can eliminate violence or contraband entirely, modern surveillance, PLC systems and monitoring technologies provide essential tools to enhance safety, operational efficiency and compliance. Facilities that implement integrated, forward-looking solutions are better equipped to manage risk, protect personnel and improve outcomes for all stakeholders.

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