The Volan Way eBook: From Dangerous Blind Spots to Real-Time Location Visibility

The Volan Guide to Smarter Airport Operations

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While many airports have upgraded their terminals and runways, their behind-the-scenes operations are still outdated. Manual asset tracking, human security escorting, and reactive safety protocols leave too much room for error. Volan flips the script, bringing automation, accuracy, and real-time visibility to every corner of the airport. Forward-thinking airports are collaborating with Volan to enhance safety, increase compliance, improve visibility and lower operating costs. Here is a comparison of how the Volan way compares to the old way of doing things:

OLD WAY		VOLAN WAY
Location of key personnel is unknown causing safety, security and operational problems.	**Personnel Positioning**	Dashboards show real-time locations
Escorts manually monitor unbadged workers like delivery crews and contractors.	**Worker Access Control**	Real-time geofencing alerts when someone nears a restricted area.
Investigations rely on interviews, limited footage, sparse data	**Incident Management**	Real-time alerts and location analytics help prevent and resolve incidents fast.
GPS fails indoors; RFID is expensive, complex.	**Indoor Positioning**	Micro-location works indoors and out with high accuracy.
Upgrades require costly, multi-year projects.	**Technology Deployment**	Wireless mesh networks deploy quickly, easily with no IT impact.
Equipment usage is manually tracked/estimated.	**Asset Tracking & Utilization**	Real-time and historical data shows actual usage for better allocation and forecasting.
Generic protocols ignore real-time conditions.	**Emergency Response**	Location positioning and SOS alerts enable faster smarter responses.
Manual logs used for safety reporting.	**FAA Safety Compliance**	Automated logs simplify FAA compliance.
Blind spots remain in complex, crowded areas.	**Ramp & Terminal Visibility**	Micro-location provides full visibility and action.
Cleaning follows fixed schedules, not actual traffic.	**Maintenance & Janitorial Dispatch**	Tasks adjust dynamically with real-time usage.

01: Personnel Positioning

The Old Way

Airports have limited visibility over key personnel, which can cause safety, security, and operational issues.

- **Lack of real-time data hinders coordination:** Without live location positioning, teams waste time confirming who's where—slowing response times and causing operational bottlenecks.
- **Manual check-ins drain productivity:** Paper logs and verbal updates require constant oversight, pulling supervisors away from higher-priority tasks.
- **Inefficient communication slows decision-making:** Relying on radio calls to locate personnel leads to delays, miscommunication.
- **Limited safety oversight increases risk:** Keeping staff in safe areas and able to locate staff immediately in emergencies is critical.

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The Volan Way

Volan provides comprehensive, real-time positioning capabilities everywhere on site:

- **Real-time location visibility:** Know exactly where every team member is—indoors or out—reducing delays, boosting coordination, and eliminating guesswork.
- **Automated check-ins and attendance:** Staff are automatically logged in and out of zones, freeing supervisors from manual tracking and improving accuracy.
- **Centralized digital communication:** Replace scattered radio calls with a unified dashboard that shows movements, alerts, and workforce distribution in real time.
- **Enhanced safety monitoring:** Get instant alerts when staff enter restricted zones, remain inactive too long, or are unaccounted for during drills or emergencies.

SUCCESS STORY

Airports can launch a Volan pilot study to measure the impact of real-time personnel positioning. By replacing manual check-ins and radio calls with automated location visibility, airports can save hundreds of staff-hours monthly—streamlining operations, improving response times, and enhancing safety oversight.

85-95%

reduction in time spent locating key personnel

02: Worker Access Control

The Old Way

Airports have traditionally used manual escorts to monitor unauthorized workers, such as delivery crews and contractors. But this approach has several shortcomings:

- **Human error:** Manual oversight often leads to attention lapses.
- **Poor documentation:** Paper logs and check-ins leave gaps in records.
- **Limited scalability:** Escort demand can exceed availability during busy periods.
- **High cost:** Dedicated escorts add significant labor expenses.
- **Inefficient use of staff:** Security personnel are pulled away from other duties.

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The Volan Way

Volan's real-time micro-location system and geofencing capabilities revolutionize worker access control:

- **Automated monitoring**: Workers wear small, unobtrusive badge-size devices that continuously report their location throughout the entire site.
- **Instant alerts**: If a badged worker approaches a restricted area, the system automatically alerts security personnel in real-time.
- **Digital boundaries**: Virtual geofences define permitted work areas, with customizable permission levels for different worker types.
- **Complete audit trails**: The system maintains digital records of all worker locations for accountability, compliance and operational improvement purposes.
- **Resource optimization**: Security staff can see 100s of worker locations simultaneously from a central dashboard, to improve safety and efficiency.

SUCCESS STORY

At Cincinnati/Northern Kentucky (CVG) Airport, Volan's access control solution is expected to reduce manual escort costs by 80%, while increasing span of control and accountability.

80%

reduction in escort costs

03: Incident Management

The Old Way

Traditional incident response at airports typically involves:

- **Post-incident investigations:** Events are analyzed after they occur, relying on interviews and limited camera footage.
- **Incomplete information:** Reconstructions of incidents often contain gaps due to limited observational data.
- **Delayed response:** Security personnel must physically travel to incident locations after being notified.
- **Communication challenges:** Precise location information is difficult to communicate in large, complex facilities.
- **Resource constraints:** Limited security staff must prioritize which incidents receive immediate attention.

The Volan Way

Volan transforms incident management into a proactive, data-rich process:

- **Real-time alerts:** Security staff receive immediate notifications when unusual patterns or potential incidents are detected.
- **Complete location logs: Comprehensive digital records provide an exact record of** who was where and when during any incident.
- **Faster resolution:** Security personnel can immediately locate all relevant parties involved in an incident.
- **Preventive intervention:** Early detection of unauthorized access or unusual behavior patterns enables intervention before incidents escalate.
- **Resource optimization:** Security teams can prioritize responses based on real-time risk assessments.

POTENTIAL IMPROVEMENT

After implementing Volan's system, airports will have the ability to reduce incident response time by 80%, by identifying unauthorized access attempts before they progress.

80%

Decrease in time to compile incident report compilation

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04: Indoor Positioning

The Old Way

Airports have struggled with location positioning using technologies ill-suited to their complex environments:

- **GPS limitations:** GPS signals fail indoors and provide insufficient accuracy for precise positioning.
- **RFID complexity:** RFID systems require extensive infrastructure installation and maintenance.
- **Wi-Fi tracking inaccuracy:** Wi-Fi-based location systems are not accurate enough for most airport use cases.
- **High implementation costs:** Many location technologies require expensive infrastructure investments.
- **Integration challenges:** Legacy systems often operate in silos, unable to share location data across applications.

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The Volan Way

Volan's advanced micro-location technology overcomes traditional limitations:

- **Indoor and outdoor functionality:** Seamless live positioning across all airport environments, from the airfield to terminal interiors, even underground.
- **Sub-second accuracy:** Precise location data with updates multiple times per second for true real-time awareness.
- **Minimal infrastructure:** Wireless mesh networks requires significantly less install than traditional systems.
- **3D positioning:** unique system allows location positioning across multiple levels within terminals.
- **Interoperability:** Open architecture easily integrates with existing airport management systems.

SUCCESS STORY

A coastal international airport had previously attempted three different tracking technologies, all of which failed to provide reliable service in their complex terminal environment. Volan's micro-location system achieved 98.7% location accuracy with average precision of 1.2 meters throughout the facility, including previously "dark" areas like baggage handling tunnels and mechanical spaces.

98.7%

location accuracy within 1.2 meters

05: Tech Deployment

The Old Way

Traditional airport technology upgrades typically involve:

- **Extensive infrastructure projects:** Multi-year implementations requiring significant construction.
- **Operational disruptions:** Installation work that interferes with normal airport operations.
- **Rigid architectures:** Systems designed for current needs with limited flexibility for future expansion.
- **Significant capital investment:** Large upfront costs that strain airport budgets.
- **Vendor lock-in:** Proprietary systems that limit future technology choices.

The Volan Way

Volan offers a fundamentally different approach to technology deployment:

- **Rapid implementation:** Wireless mesh networks can be deployed in hours or days, not months or years.
- **Minimal disruption:** Non-invasive installation process preserves normal operations and has zero impact on IT.
- **Scalable design:** Easy expansion to accommodate growth or new use cases.
- **Reduced capital requirements:** Low initial investment with scalable and affordable SaaS-based pricing models.
- **Open architecture:** Standards-based design enables integration with current and future systems.

SUCCESS STORY

While a major airport spent 9 months and $2.5 million installing a traditional location tracking system, a Volan customer completed their installation in just 3 days at one-tenth of the cost. The Volan system was subsequently expanded to three additional terminals in phases, with each expansion completed in under one week without any operational disruptions.

1/10th

deployment cost compared to alternatives

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06: Asset Tracking & Utilization

The Old Way

Traditional approaches to asset tracking and utilization management in airports often rely on:

- **Manual tracking:** Paper logs, clipboards, and sign-out sheets create inefficiencies and administrative overhead.
- **Time-consuming searches:** Finding assets often requires driving across large areas, radio calls, and wasting valuable time.
- **Guesswork-based decisions:** Without accurate data, assets are under- or overused, and maintenance happens on fixed schedules or after failures.
- **Oversupply:** Excess equipment is purchased to offset poor visibility and tracking.
- **Knowledge gaps:** Location info depends on memory, not documentation, leading to lost time and confusion.
- **Inventory errors:** Lack of real-time tracking results in inaccurate equipment counts.

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The Volan Way

Volan provides data-driven asset management capabilities:

- **Real-time visibility:** Digital dashboards and search tools provide instant access to asset locations, movement history, and usage patterns.
- **Operational efficiency:** Optimization algorithms and shared resource tracking improve equipment allocation and streamline workflows.
- **Inventory accuracy:** Automatic inventory updates reduce manual errors and support right-sizing of fleets based on actual utilization.
- **Predictive maintenance:** Analytics identify wear patterns and schedule maintenance before breakdowns occur.
- **Security & control:** Theft prevention features trigger alerts for unauthorized movement, enhancing asset protection.

SUCCESS STORY

A major hub airport using Volan's asset tracking system discovered that 23% of their motorized ground support equipment was significantly underutilized. After implementing data-driven reallocation, they reduced their fleet by 17 vehicles while improving availability at peak times. Maintenance costs decreased by 22% through better distribution of usage hours across the fleet, extending the average equipment lifespan by 1.7 years.

22%

decrease in maintenance costs

07: Emergency Response

The Old Way

Traditional emergency response protocols at airports typically involve:

- **Generic procedures:** Standardized protocols that don't account for specific circumstances.
- **Limited situational awareness:** Incomplete information about affected areas and personnel locations.
- **Communication delays:** Precious minutes lost relaying location information during emergencies.
- **Resource misallocation:** Without precise location data, emergency resources may be sent to the wrong areas.
- **Evacuation inefficiencies:** Standard evacuation routes may actually direct people toward hazards in some scenarios.

The Volan Way

Volan transforms emergency response with precise, real-time location intelligence:

- **Dynamic response plans:** Emergency procedures tailored to the specific location and nature of each incident.
- **Complete personnel visibility:** Instant identification of all individuals in affected areas.
- **Automated notifications:** Targeted alerts sent to precisely the right people based on their location.
- **Resource optimization:** Emergency personnel directed to exact locations where they're most needed.
- **Adaptive evacuation:** Dynamic routing of evacuees based on real-time conditions and hazard locations.

SUCCESS STORY

During an emergency drill, an airport using Volan's system reduced average evacuation time by 4.7 minutes compared to previous exercises. The system identified 12 employees who would have been missed by traditional search procedures..

4.7

minute faster evacuation time

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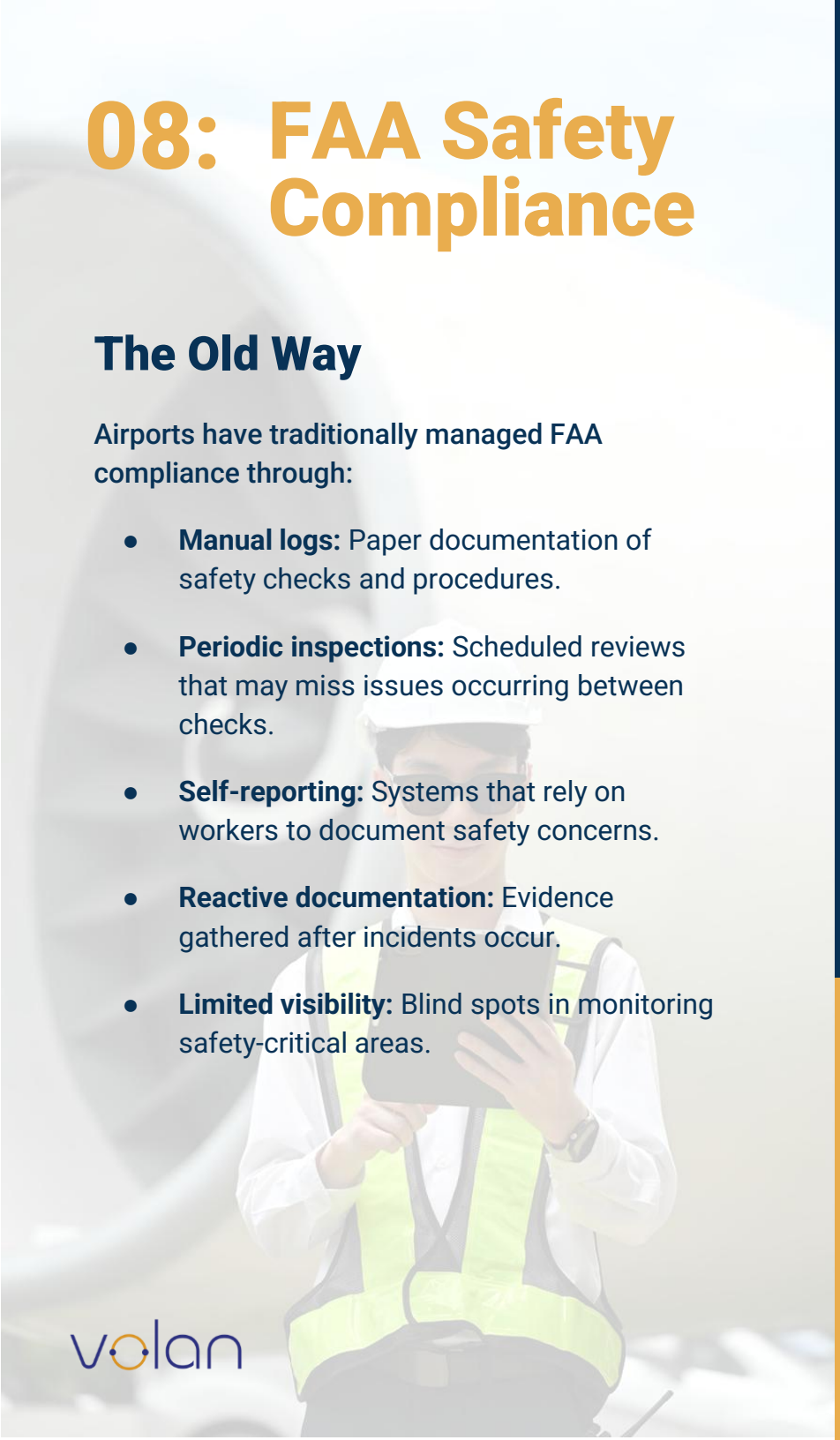
08: FAA Safety Compliance

The Old Way

Airports have traditionally managed FAA compliance through:

- **Manual logs:** Paper documentation of safety checks and procedures.
- **Periodic inspections:** Scheduled reviews that may miss issues occurring between checks.
- **Self-reporting:** Systems that rely on workers to document safety concerns.
- **Reactive documentation:** Evidence gathered after incidents occur.
- **Limited visibility:** Blind spots in monitoring safety-critical areas.



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The Volan Way

Volan provides comprehensive, data-driven compliance capabilities:

- **Continuous monitoring:** Real-time tracking of safety-related activities and access to restricted areas.
- **Automatic documentation:** Digital records of all movement and activities for compliance verification.
- **Proactive alerts:** Immediate notification when procedures deviate from safety requirements.
- **Complete visibility:** Tracking capability extends to previously unmonitored areas.
- **Simplified audits:** Comprehensive digital records streamline regulatory reviews and accountability.

POTENTIAL IMPROVEMENT

Volan's real-time location system (RTLS) brings automation, precision, and full visibility to airport safety compliance by replacing outdated manual systems with digital tracking. The platform delivers time-stamped data across all operational zones, enabling airports to prevent incidents, streamline emergency responses, and meet FAA standards with ease. With rapid installation, no infrastructure disruption, and fast ROI, Volan empowers airports to modernize safety operations efficiently.

Go

from hours to a few clicks to submit FAA reports

9: Ramp & Terminal Visibility

The Old Way

Traditional airport operations have significant visibility gaps:

- **Blind spots:** Areas where traditional location systems can't reach.
- **Fragmented systems:** Different technologies used in different areas create information silos.
- **Obstructed zones:** Physical structures block line-of-sight for cameras and observers.
- **Weather limitations:** Fog, rain, and snow further reduce visibility in outdoor areas.
- **Night operations challenges:** Darkness creates additional visibility issues.

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The Volan Way

Volan provides comprehensive visibility and situational awareness across all airport environments:

- **Complete coverage:** Micro-location technology works in all areas, including previously 'dark' zones.
- **Unified platform:** One system provides visibility across indoor and outdoor spaces.
- **Obstruction-proof:** Location data works around and through physical barriers.
- **Weather-resistant:** System performance unaffected by environmental conditions.
- **24/7 capability:** Consistent performance regardless of lighting conditions.

POTENTIAL IMPROVEMENT

In 2023, snowstorms in the US caused over 60,000 flight delays and 3,000 cancellations, leading to an estimated $1.5 billion in lost revenue and operational costs for airlines. Northern airports could leverage Volan to improve snowplow visibility. This would reduce snow plowing time, thereby opening the runways faster, leading to lower costs due to closure and increased revenue by getting planes out more quickly.

60,000

flight delays annually due to snow in the U.S.

10: Maintenance & Janitorial Dispatch

The Old Way

Traditional airport maintenance and cleaning follow fixed schedules, ignoring real-time usage. This leads to challenges such as:

- **Wasted resources:** Crews clean on schedule, even when not needed.
- **Delayed fixes:** Issues are found only after causing disruptions.
- **Inconsistent experience:** High-traffic times strain preset routines.
- **Staff shortage:** Rigid plans don't match actual workload.
- **Supply waste:** Stock levels don't reflect real usage.

The Volan Way

Volan transforms maintenance and janitorial services into dynamic, data-driven operations:

- **Real-time monitoring:** Geofenced zones trigger alerts when the area is not cleaned for a set amount of time.
- **Dynamic task assignment:** Cleaning and maintenance tasks are assigned based on location proximity of each custodian, saving time to respond and worker fatigue
- **Predictive maintenance:** Live patterns and AI analytics help predict maintenance needs before failures occur.
- **Optimized staffing:** Labor is allocated where and when it's most needed, improving efficiency and employee satisfaction.
- **Supply optimization:** Usage data helps optimize supply ordering and distribution, reducing waste and ensuring availability.

POTENTIAL IMPROVEMENT

We project that airports could reduce janitorial overtime by up to 32% and improve cleanliness satisfaction by up to 24%, thanks to data-driven schedule changes based on real-time passenger flow.

32%

reduction in janitorial overtime

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Conclusion: The Future of Airport Operations with Volan Technology

Forward-thinking airports are already improving safety, compliance, and visibility with Volan Technology.

As the aviation industry continues to grow and modernize, the pressures on airport operations will only increase, making intelligent, data-driven location systems mission-critical.

The airports that thrive in this environment will be those that embrace technological innovation to:

- ✓ Enhance safety while reducing costs
- ✓ Improve compliance while decreasing administrative burden
- ✓ Increase operational efficiency while enhancing passenger experience
- ✓ Optimize resource allocation while preparing for future growth

Get Started with Volan Technology

Schedule a demonstration to see how your airport can work smarter and safer with Volan Technology. Our team will conduct a needs assessment to identify your specific operational challenges and develop a customized implementation plan.

Click Here To Get Started

Volan Technology offers airports a practical path to operational excellence, without the massive infrastructure investments or disruptions typically associated with major technology upgrades.

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