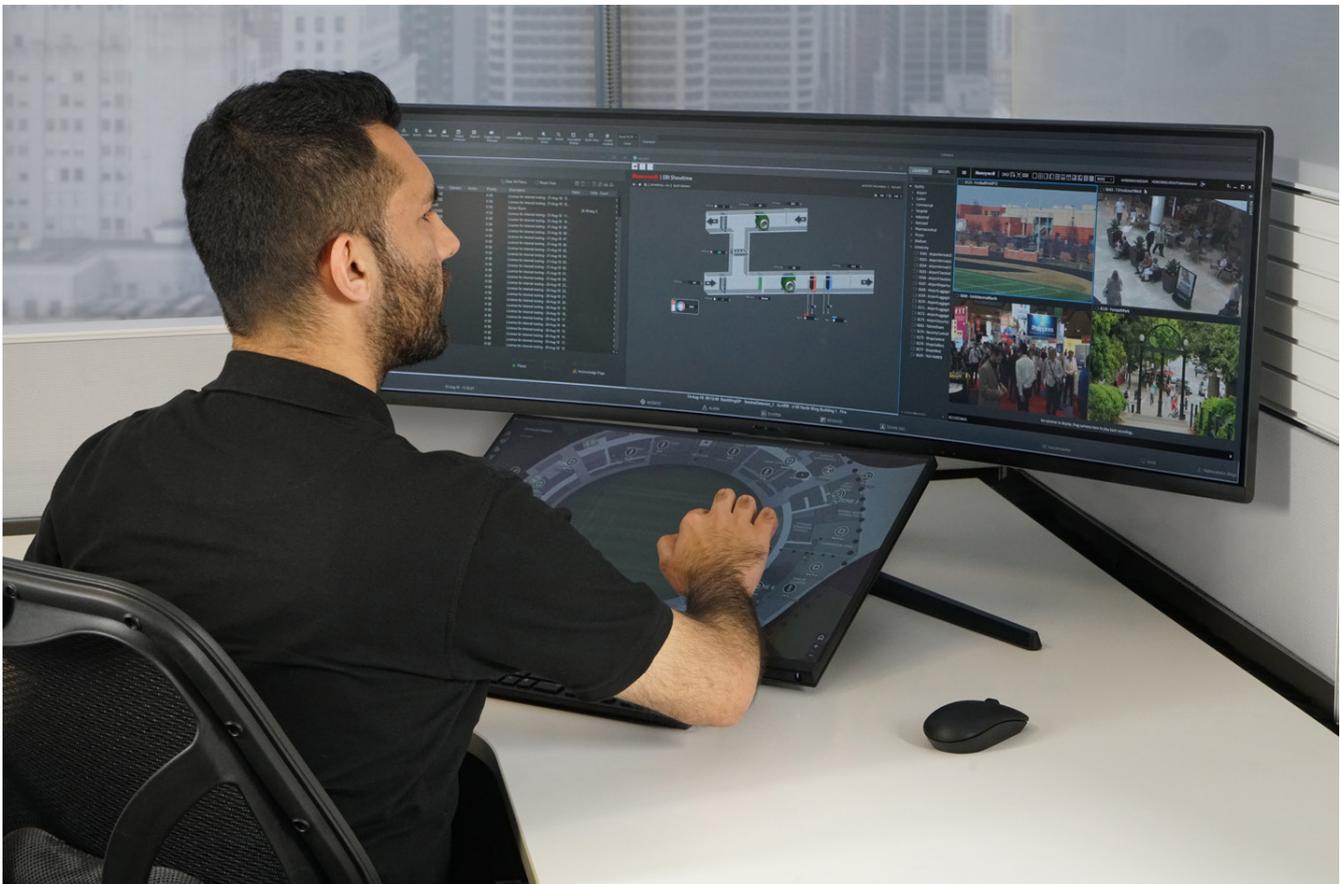


**MAKING  
AIRPORTS  
SAFER  
AND  
SECURE**

Technology is available to enhance airport security from curb to boarding gate with real-time monitoring, analytics and incidence response. Despite the availability of advanced technologies and the need to harden airports from security threats, airports do not always have the funds needed to make the necessary technology investments. Resource constraints will be greater, at least in the short term, as airports are losing revenue as a result of the significant reduction in passenger air travel from COVID-19. Governments, therefore, should make funding available for airports to undertake safety and security projects focused on security solutions, cybersecurity, and fire and safety solutions.



# ISSUE

The focus of airport security has traditionally been at security checkpoints managed for instance by the Transportation Security Administration (TSA). This creates a gap and potential risk in areas of the airport between the curb and the checkpoint and the checkpoint and the gate. These concerns are further exacerbated by the COVID-19 outbreak that introduces both the need to provide a higher-level of assurance to passengers and quick identification and reduction of risks.

In addition, security threats continue to evolve, not only through possible attacks and infection risk inside the terminal, but also through possible cyber attacks on increasingly integrated networked systems. However, there is often an opportunity to realize improved safety and security across the airport without creating additional congestion as airline travel resumes. Technology advances in the last few years can help address these problems, although the reduced funds and ability to prioritize deployments across airports to achieve scale and effectiveness has many times prevented implementation.



# BACKGROUND

As noted by the TSA, airports must expand their security focus from checkpoint screening to the less secured areas of the terminal in order to adapt to changing threats, including physical security and cyber risks. Airport security and operations teams often need to be better equipped to respond quickly and consistently to safety and security threats, as well as potential congestion by:

## **1. Ensuring situational awareness in all spaces of the airport from curb to gate**

Airport security and operations teams need a bird's eye view of the safety, security and passenger throughput levels across the airport, even in traditionally less covered areas (e.g. parking, terminal entrance) where they can monitor safety and security risks as well as congestion and choke points. With improved situation awareness, augmented by strong video analytics that can help to flag issues to control room operators, airport staff can better respond to threats. In 2016, terrorists detonated bombs in the Brussels Airport check-in area, well before the control area and in a location where such activities were fully visible via the CCTV cameras in place. This is just one example of many in which improved integrated systems providing situational awareness, combined with video analytics, may have helped to flag a developing problem early and prevent an undesirable outcome.

## **2. Providing early detection of potential risks associated with people and property**

Timely detection of incidents and where they originate in physical or data realms, is key to an effective and timely response and resolution. In the realm of physical systems this can require broad and effective sensing (e.g., smoke, gas, video) as well as analytics to validate the observed threat and weed out false alarms. For example, a camera can detect unattended baggage, but analytics can help determine how long the baggage has been unattended and whether it poses a potential risk that requires immediate attention. In the data realm early detection can require monitoring of information system usage and identification of cyber-attacks, as well as unusual activity that can be an indication of a cyber-attack. Delays in detection can lead to system down time. For example, Atlanta Airport had to shut down its Wi-Fi network as part of a city-wide ransomware attack in 2018.

## **3. Reducing Risk of Infection**

Most airports do not provide any checks before the entrance to Departures. However, with the current high risk of viral infection, this can be too late and a sick passenger may have already infected people in the check-in area. Thermal screening cameras placed at all entrances into the terminal building can help to spot people with elevated temperatures and direct them to a secondary screening process after which they may be prevented from entering the building. In addition, in cases where face masks need to be worn in buildings, analytics can be used to check that everyone entering is wearing a mask and also to supervise passengers maintaining social distancing to contribute to the reduction of risk of infection.

#### **4. Providing Full Security, 24/7**

Airports need to be fully secure, across all areas, 24/7. However, airports are very large areas to cover and include highly sensitive areas. Integrated security systems, incorporating the latest in analytics, help central control monitor all areas at all times, with analytics helping to identify anything unusual. In addition, should an incident occur, additional control rooms can be added into the system to either provide additional support or take over in the event of a catastrophic failure.

#### **5. Protecting High Security Areas**

Airports include high security areas where only personnel with the right authorization or certification are permitted. A well-designed integrated security system is able to manage authorizations effectively, helping ensure that high security areas are fully protected with little manual intervention.

#### **6. Providing incident response to resolve issues in a timely and effective manner**

Once a potential safety, security or congestion risk is detected, airport operators must be able to locate and determine the root cause and act fast to address it by following well-defined standard operating procedures adapted to the airport, as well as national safety and security requirements. A timely response and resolution can lead and has led to the saving of life and property. In June 2019, a fire broke out at one of the San Francisco Airport's Maintenance buildings. The ability of airport staff to evacuate the building in approximately an hour led to issue resolution with no injury to persons; a similar situation in a main terminal space, however, would likely require a more accelerated response to promote safety and business continuity.

#### **7. Driving continuous improvement in overall passenger flow**

Safety and security posture based on an evolving landscape is important and can be achieved by ensuring all steps used to resolve issues are thoroughly documented for further learnings and improved analytics.



# RISKS AND POTENTIAL SOLUTIONS

SECURITY RISKS	POTENTIAL SOLUTIONS
Unauthorized access to secure / restricted areas	Access Control and Alarm Monitoring Systems (ACAMS) coupled with intrusion monitoring and video surveillance enabling airports to better protect their premises, while increasing their overall understanding of risk exposure.
Suspicious behavior	Advanced Video Surveillance comprising Integrated Video and Security Management System Analytics helps airport security teams to be informed earlier about potential security threats in the airport facilities
Ineffective or slow response to identified incidents	Incident Management Response capturing data from video management systems, using a map based alert system available on multiple devices (control room, mobile, wearables) and following Standard Operating Procedures that are better able to document facts for audit and process improvement
Cyber threats into airport OT systems	Cyber Security suite of solutions covering assessment, design, software, monitoring and remediation. In addition, ensuring that all hardware is cyber hardened
Long queues and bottlenecks Information gaps across airport systems	Improved situational awareness through integration of core building, security and airport systems enabling the earlier visualization of queues in formation and dispatch of standard operating procedures (i.e. open a new lane) to avoid crowding in specific airport zones (i.e. checkpoints for instance)
Track and Trace – objects and people	Real-time Location Tracking (RTLS) System combined with Video Analytics to better track and trace persons of interest and/or airport compromised assets (i.e. an infected wheelchair)
Delays in fire detection	Integrated Fire Alarm System, including very early smoke detectors, to help identify a fire before it spreads and avoid mass evacuation
Lack of information access (right place, right time)	Public Address PA/VA system integrated with Airport Operations Data Base and Building Management Systems to inform passengers of a gate change and aircraft departure time

## CHOOSE THE RIGHT PARTNER TO REVIEW YOUR AIRPORT ENERGY STRATEGY IN A STEP BY STEP APPROACH.

### STEP 1

#### Walkthrough to Analyze Current Situation

Expert walkthrough and interviews with terminal facility management, finance, terminal operations, and more.

### STEP 2

#### Evaluation of Policies and Standards

Review, analyze, and validate current policies and security procedures in place.

### STEP 3

#### Deliver Analysis Report and Recommendations

Issue a recommendations report, complete with challenges, opportunities, dependencies, and an action plan.

### STEP 4

#### Pain Point Prioritization

Rank the full or partial solutions during a co-ideation session, prioritized by criticality, speed, quality, and impact of implementation.

### STEP 5

#### The Proposal

Detailed proposal outlining discrete point solutions, timelines, costs and a proposal to digitize and optimize key energy performance indicators.

# SOLUTIONS

Install modern safety and security technologies for improved situational awareness, cybersecurity protection, access management and incident response. Airports will better solve these key challenges with a dedicated focus on physical security, cybersecurity and safety improvements:

## **1. Physical Security Solutions**

Efficient and effective technology solutions often include enhancement of protection, detection and response measures. Video surveillance and perimeter detection across the airport with monitoring can provide coverage against multiple sources of threats. Machine learning based analytics can assist in early detection of those threats – for example, unattended baggage, presence of suspicious individuals, people with a fever and crowding. A technology enabled response team can often provide effective and timely resolution of those threats - for example, location intelligence, map-based visualization, mobile situational awareness and orchestrated standard operating procedures. Lastly, the ability to automatically create audit trails provides compliance and forensics, as well as the ability to deploy continuous improvement from lessons learned.

## **2. Cybersecurity solutions**

Data and information have become the backbone of almost all systems and threats such as data breaches, denial of service, or system compromise, which can affect operation significantly. A comprehensive audit and assessment can provide a view of the current security stance along with recommendations for improvement. An enhanced system design can provide improved protection against threat vectors, for example, by improving account management, network defenses in depth, role-based privilege management, and identification of malicious code and signature. This system design can also effectively help to bridge the management of operational technology and information technology systems across the airport. Further, a real-time monitoring system can help to more continuously identify threats and attacks to detect and isolate them, while a response capability helps provide the ability to quickly restore systems to normal operations.

## **3. Safety solutions**

Airports are critical infrastructure with generally high utilization and safety-related events (e.g., fire, gas) can have a significant impact on life as well as uptime of key operations. Recent advances in technology in hardware sensing and software analytics can help provide earlier detection and can increase critical time for first responders, limiting potential damage to life and property. Connected life safety systems can provide improved visibility of alarms and events to a broader set of stakeholders for a better coordinated response. Intelligent and connected devices can simplify operations and maintenance to promote the performance of correct safety measures. Integrated monitoring and response system with analytics help reduce false alarms and provide greater visibility for a more timely and effective response. Integrated public announcement and notification systems can help keep key stakeholders better informed.

## SOURCES

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