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SIX QUESTIONS THAT WILL SHAPE THE FUTURE OF ALGORITHM-LED AIRPORT SCREENING



The Analogic ConneCT is an EDSCB-C3 certified Computed Tomography (CT) scanner designed for airport security checkpoints. It generates rotating 3D volumetric images of carry-on bags, enabling automated explosive detection while allowing passengers to leave laptops and liquids inside their luggage. Analogic image.

Airport security is entering a new phase. CT has transformed cabin-baggage screening; algorithm-led screening can now transform how checkpoints operate. By combining automated detection, targeted human review and smarter workflows, airports have an opportunity to strengthen security performance, use resources more effectively and improve the passenger experience. Six questions frame the opportunity.

1. What does image-on-alarm-only screening actually mean?

Image-on-alarm-only (IOAO) uses approved detection algorithms to identify cabin-baggage images requiring operator attention. Explosives detection and automated prohibited item detection systems (APIDS) cover distinct requirements and must operate within applicable approvals. Human judgment remains essential but becomes focused on alarms and exceptions.

EDSCB-C3 CT already reduces the need for passengers to remove certain items. Moving beyond routine review of every image offers the next step: unlocking more of the operational value of algorithm-led screening.

2. Can reviewing fewer images improve both security and throughput?

Yes, when implemented as part of a well-designed checkpoint. With fewer routine images to assess, operators can concentrate on higher-value decisions, including alarms and ambiguous cases. Regulations will still require sampling or review of certain percentage of non-alarmed images which may vary over time when algorithm-led screening evolves.

Faster image processing can ease a key constraint on throughput and support more consistent attention to exceptions. Airports should measure the full process, including alarm rates, resolution times, secondary searches, lane throughput and passenger experience, to realize those gains.

3. Why does central image processing matter?

Image-review demand varies from lane to lane. Central image processing (CIP) pools images across lanes or checkpoints and routes them to available, authorized operators, reducing the need to staff each lane for peak demand.

Together, IOAO and CIP offer a compelling combination: algorithms reduce the review workload, while central routing balances what remains. The result can be greater workforce flexibility, resilience and operational consistency, provided networks, interfaces, cybersecurity and fallback procedures are robust.

4. What should airports decide before changing the operating model?

The concept of operations (CONOPS) should lead the technology decision. Airports need clarity on certified detection scope, national permissions for automatic clearance, sampling requirements and alarm-resolution procedures. They must also consider passenger flow, people screening, CIP infrastructure and contingency arrangements.

Equally important are workforce planning, training and competency assessment. Trials, modeling and ongoing performance monitoring can turn algorithm-led screening from a technical capability into a dependable operating model.

5. What should the industry be careful not to overpromise?

Three distinctions matter. Automation changes security roles; it does not eliminate trained personnel. Approval in one jurisdiction does not automatically extend to another, particularly where national measures or system configurations differ. And a development milestone is not the same as authorization for operational use.

These are manageable realities, not reasons to delay innovation. Transparent performance evidence, realistic deployment plans and clear communication of approved versus emerging capabilities will build confidence and accelerate responsible adoption.

6. What should regulators and suppliers do next?

Predictable, proportionate approval pathways for algorithm updates and system changes would help airports plan investments with greater confidence. Suppliers should respond with evidence of detection performance, sound configuration management, human-factors design and interoperable interfaces.

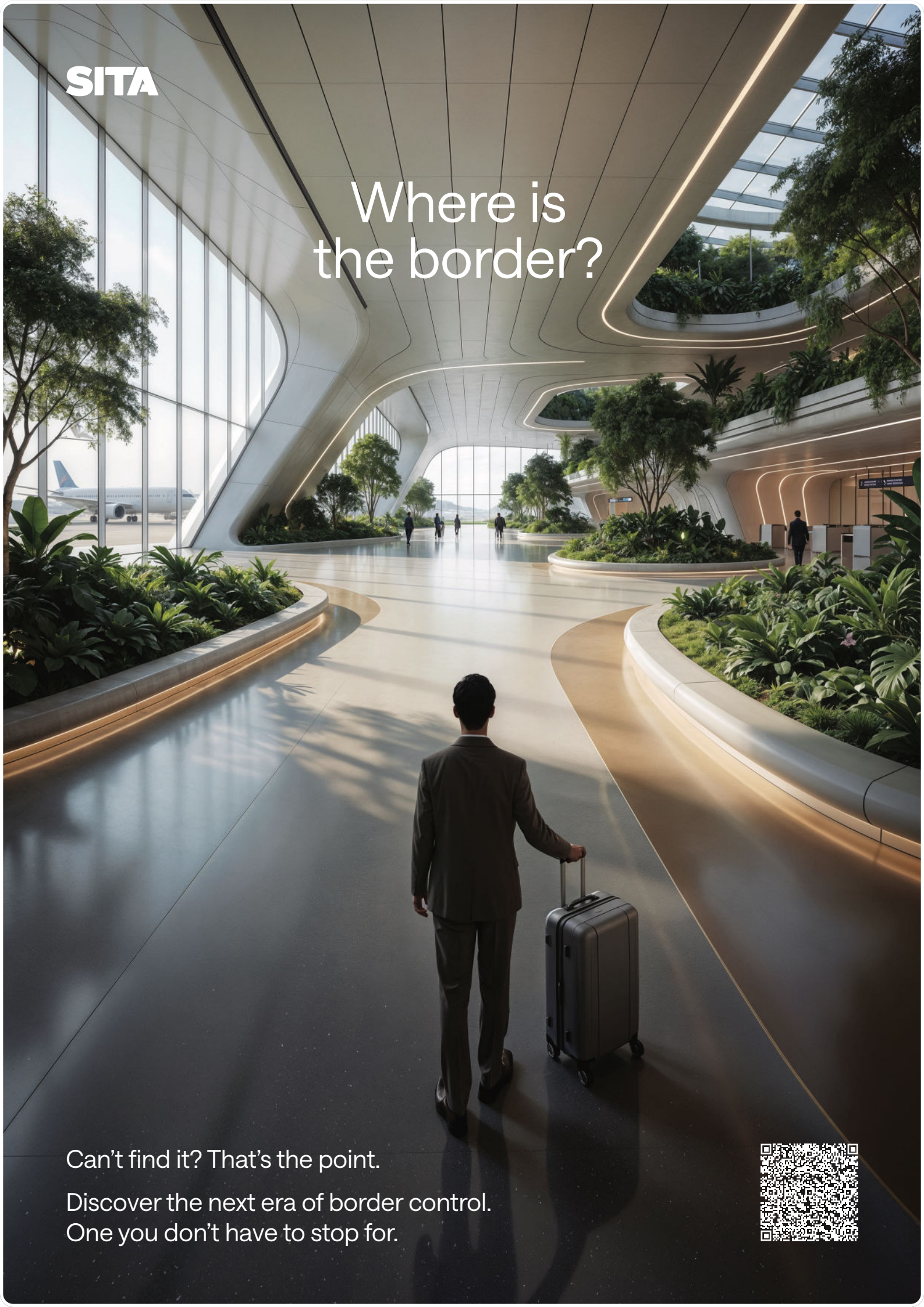
As liquids detection, APIDS and future standards evolve, a software update, tray configuration or image-review interface may require additional validation. Close collaboration can make that evolution more manageable and help airports sustain the benefits throughout the system lifecycle.

The Conversation Continues

Algorithm-led screening offers a practical route to more focused security decisions, efficient operations and a smoother passenger journey. Its full value will emerge when airports, regulators and suppliers align technology, approvals and operational design. We look forward to continuing the conversation at Passenger Terminal Expo in April. TSI

About the Author

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