

How to Reach Operational Excellence in X-Ray Image Analysis

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How to Reach Operational Excellence

What Are the Challenges of In-House NII Image Analysis Training ?

- › Millions of US\$ are invested in NII systems in support of Customs screening for sea, land and air
- › The analysis and interpretation of the X-ray images generated is a demanding and complex task
- › To maximize ROI, the screening officer's competence needs to be maximized through training...
- › ...or better, **suitable** training



How to Reach Operational Excellence

What Are the Challenges of In-House NII Image Analysis Training?



Operational
Experience

Suitable
Training



- › Enhanced performance:
 - Increase in detection rate
 - Decrease in false alarm rate
 - Reduction in image analysis time



Scientific
Approach

How to Reach Operational Excellence

What Are the Challenges of In-House NII Image Analysis Training?

Human factors in security screening

- Not everyone has the potential to become a good screener
- Knowledge-based
- Image-based factors

Systems to support the decision-making of the human operator

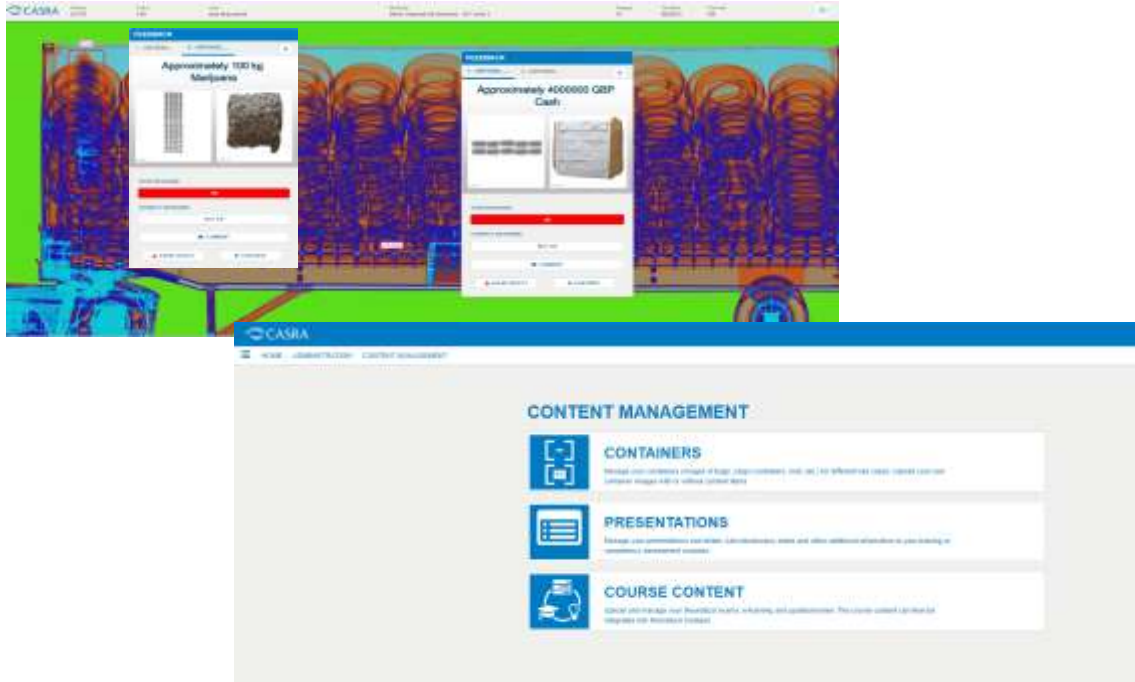
- Computer-based training (CBT)
- Scalability
- Individually adaptive algorithm

Data / X-Ray images

- Updated image library of prohibited items
- Real data vs synthetic data
- Intelligence-based X-ray library generation

How to Reach Operational Excellence

Off-the-shelf Solutions + Customization



› Customization

- Access to platform by end-user
- Content management (upload of own images)
- Customization of settings (simulators; pass marks, etc.)

› Introduction of new categories of prohibited items

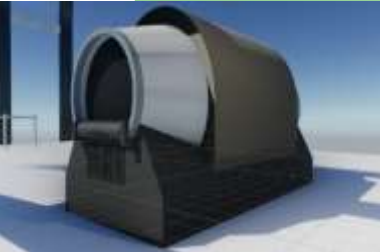
- Bio-security threats for agriculture specialists
- Regional libraries for international programs

How to Reach Operational Excellence

Advanced Technologies, Virtual Reality or Advanced Reality?



VR learning modules for introduction of 3D CT technology



Simulated VR environment for checkpoint and remote screening



VR object learning environment for 3D CT screener training



Thank You!