

iCmore™

5th WCO Technology & Innovation Forum
Rotterdam, October 2015

Jean-Olivier Fer

smiths detection
bringing technology to life



Taking detection technologies into key end-use markets

Transportation



Critical Infrastructure



Emergency Responders



Ports & Borders



Military



More technologies
in more sectors in
more countries
than any other
detection company

Core technology streams



Chemical & Biological Sensors



Conventional X-ray Systems



Explosives Detection Systems



Millimetre-Wave Systems



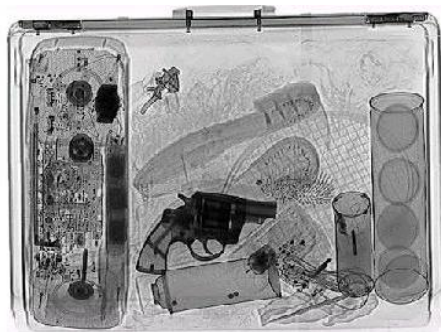
Trace, Radiation & Nuclear products



Cargo Inspection Systems

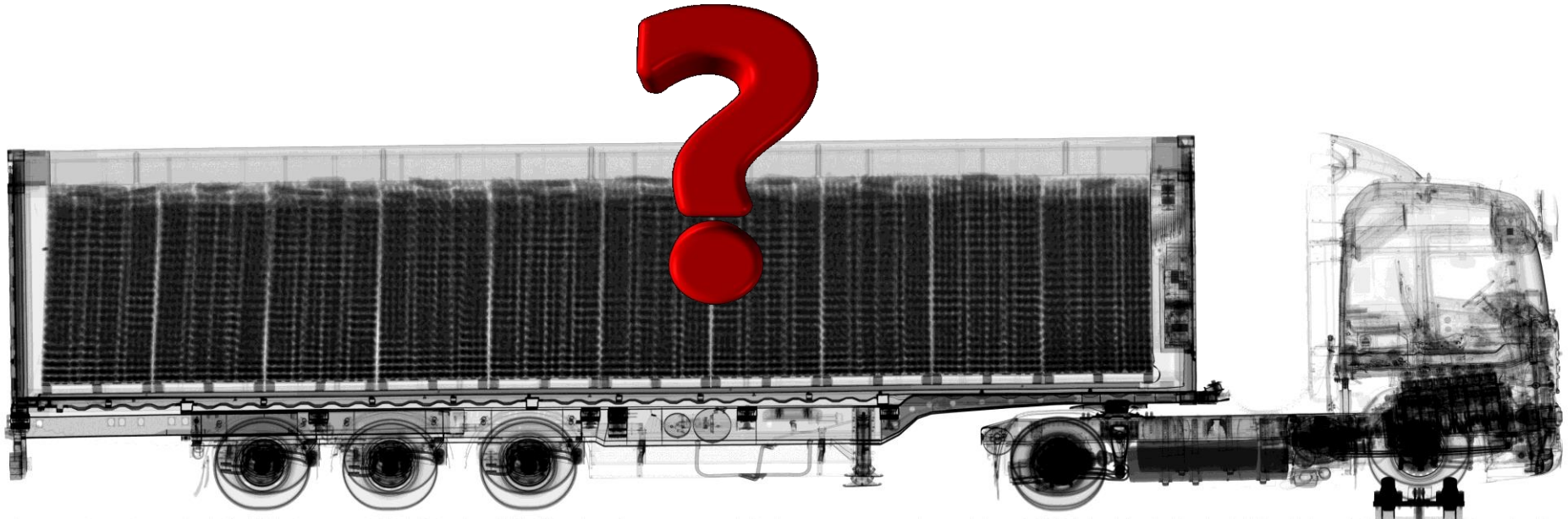


What is inside?

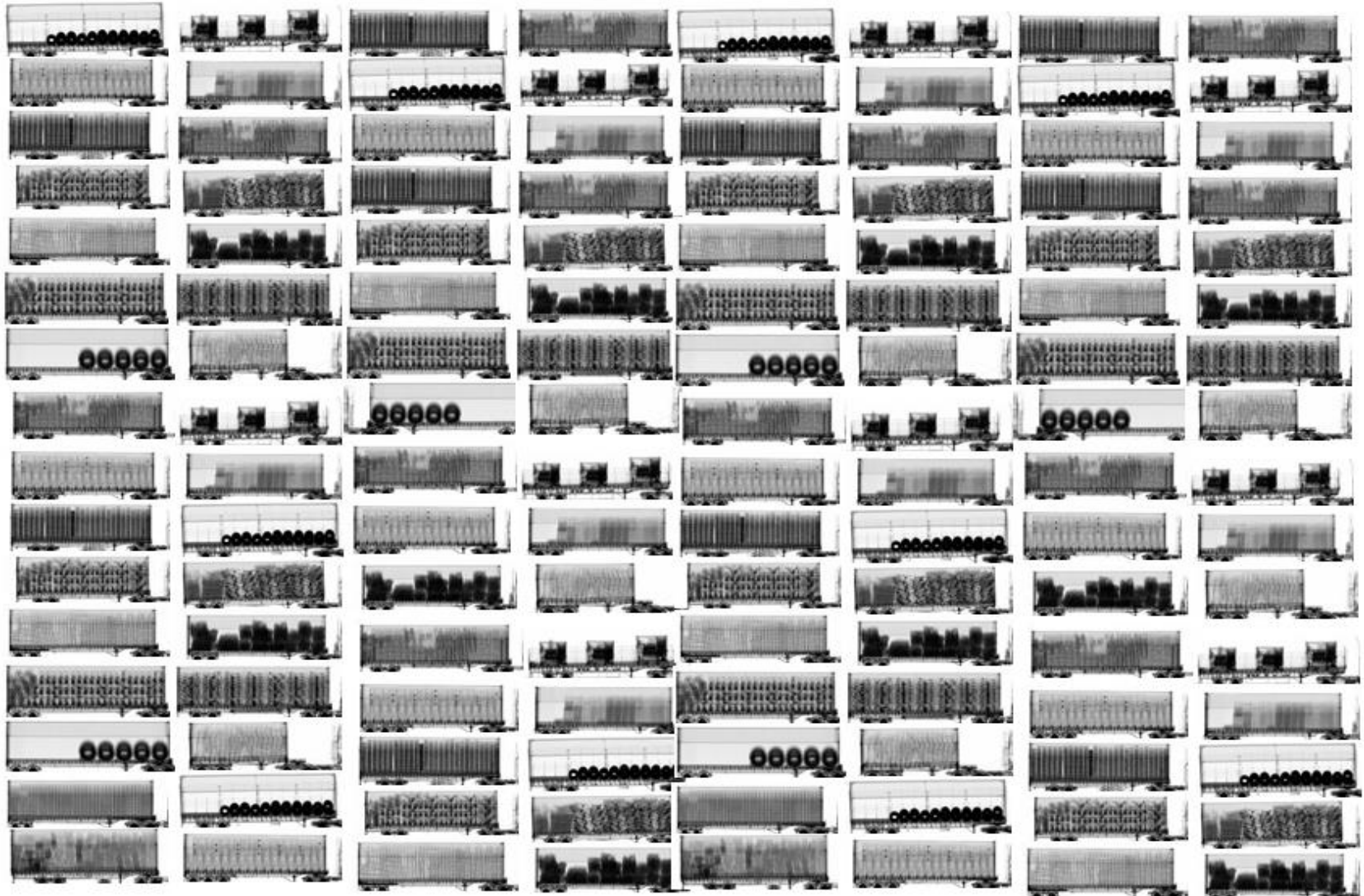


Zoom x 3

What is this?



1 hour of operation

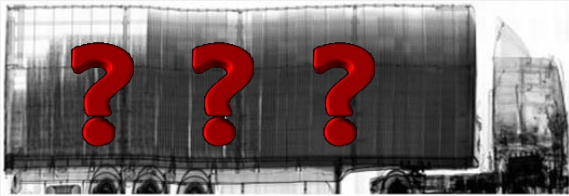




iCMORE

Automatic detection tools are commonly named **ATR** :

Automatic Threat Recognition
or
Assisted Target Recognition



“I see more”



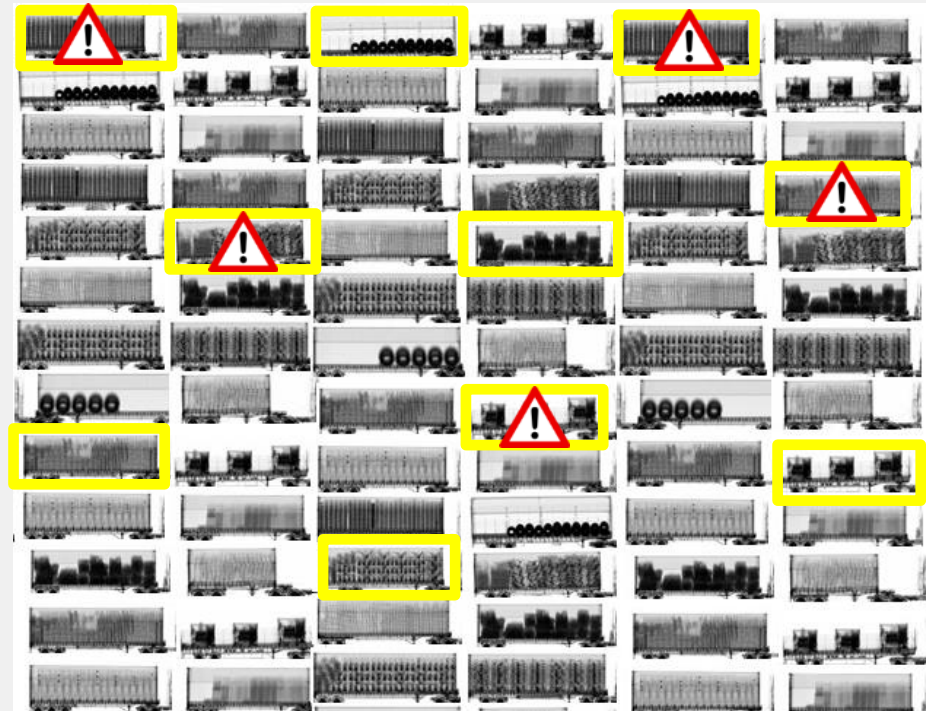
The **iCmore suite** currently consists four automatic detection groups:

- **iCmore Radioactivity** for the detection of radioactive material (Gamma & Neutron)
- **iCmore Targets** for the detection of specific objects (gun, cigarettes, pills ...)
- **iCmore Anomalies** for the detection of abnormalities in the load
- **iCmore Changes** for the detection of differences (Image comparison)

Configuration 1 / 2 : High throughput , limited resources



Configuration 2 / 2 : Security, miss nothing

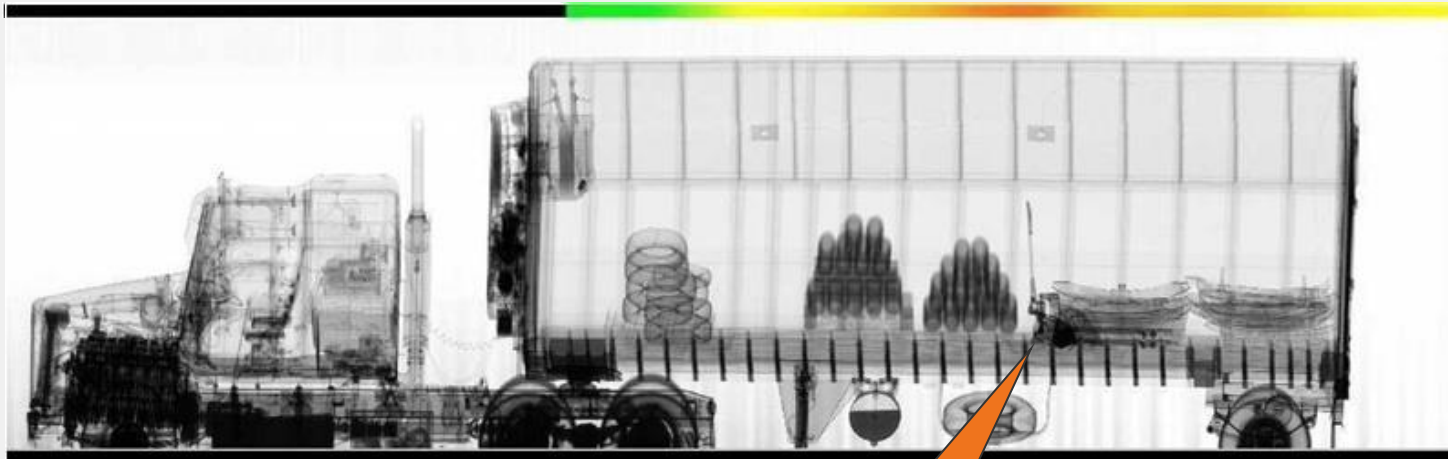


iCmore® assists operators by focussing and highlighting potential threats or abnormalities within a load, reducing the guess work.

What are the benefits:

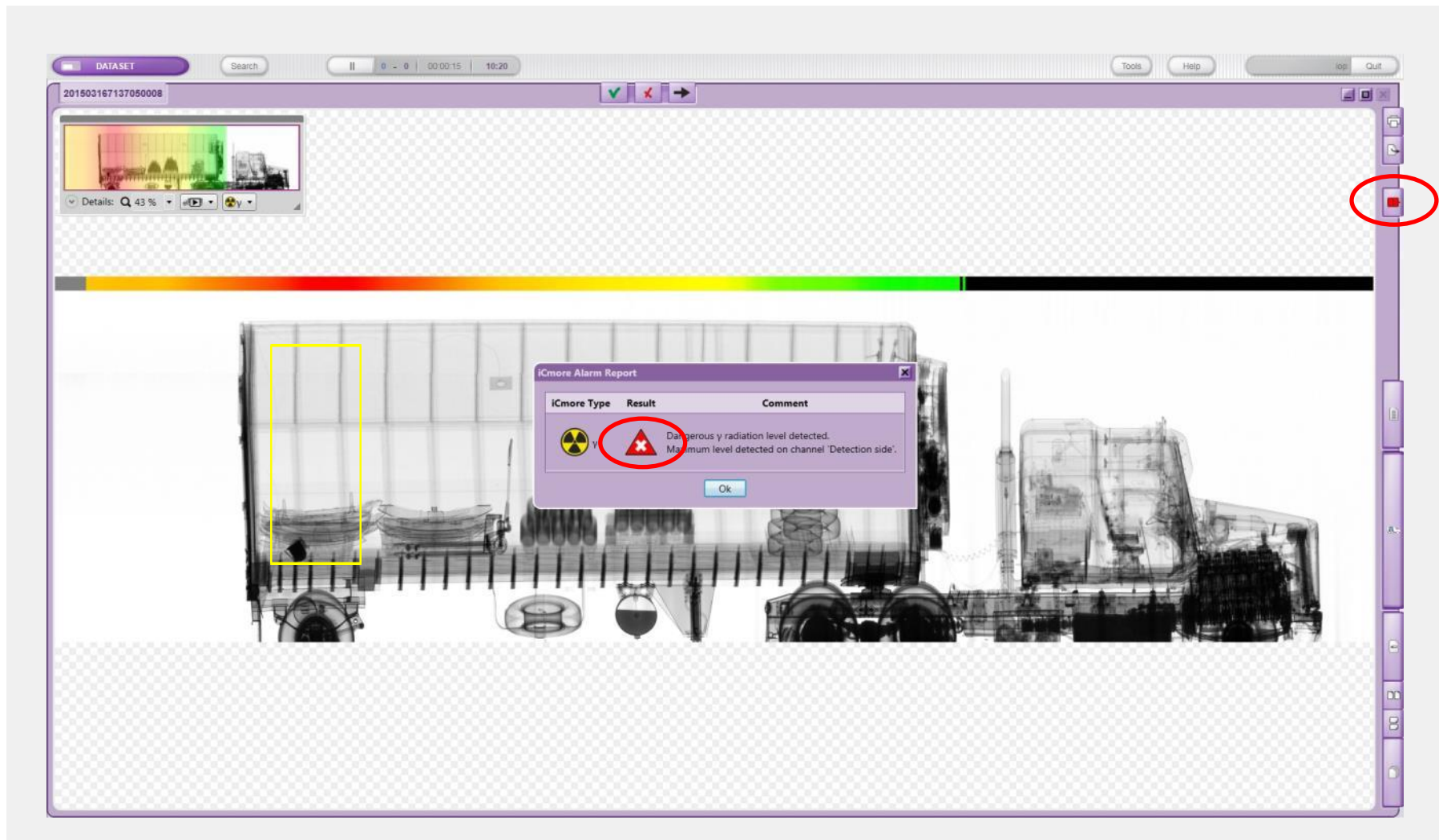
- ✓ Increases operator accuracy
- ✓ Reduces image operator burden
- ✓ Removes the guesswork
- ✓ Increases throughput & inspection rates
- ✓ Improves valuable analysis time
- ✓ Intercepts illegal trade
- ✓ Focuses resources and streamlines operations
- ✓ Increases tax collection

iCMORE
RADIOACTIVITY



- **Automatic detection of Gamma, Neutron and Gamma & Neutron**
- Automatic process in one pass
- Combination of technologies
- Fully integrated system
- False alarms minimized
- ANSI 42.35-2004 compliant

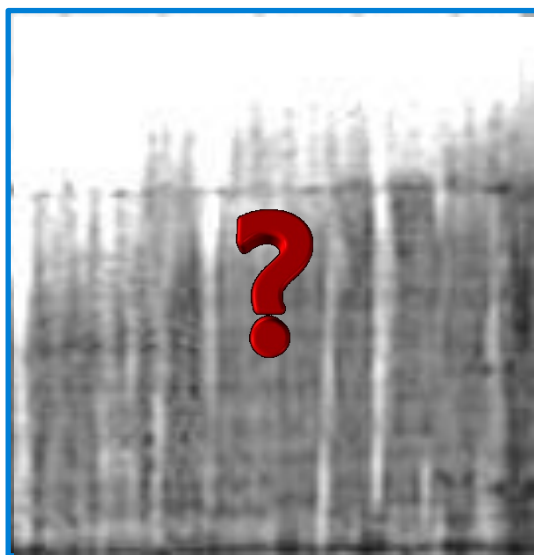
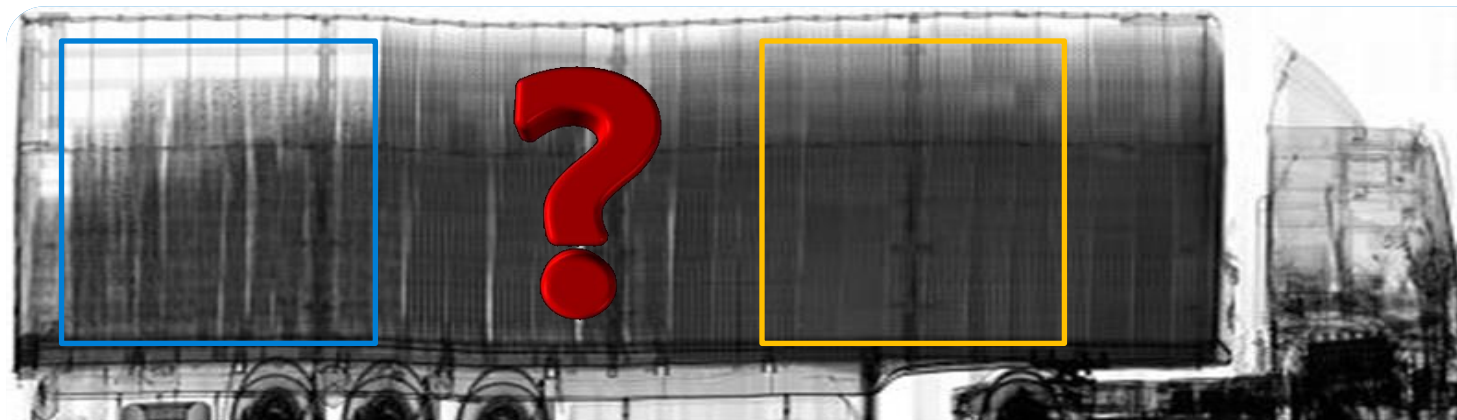




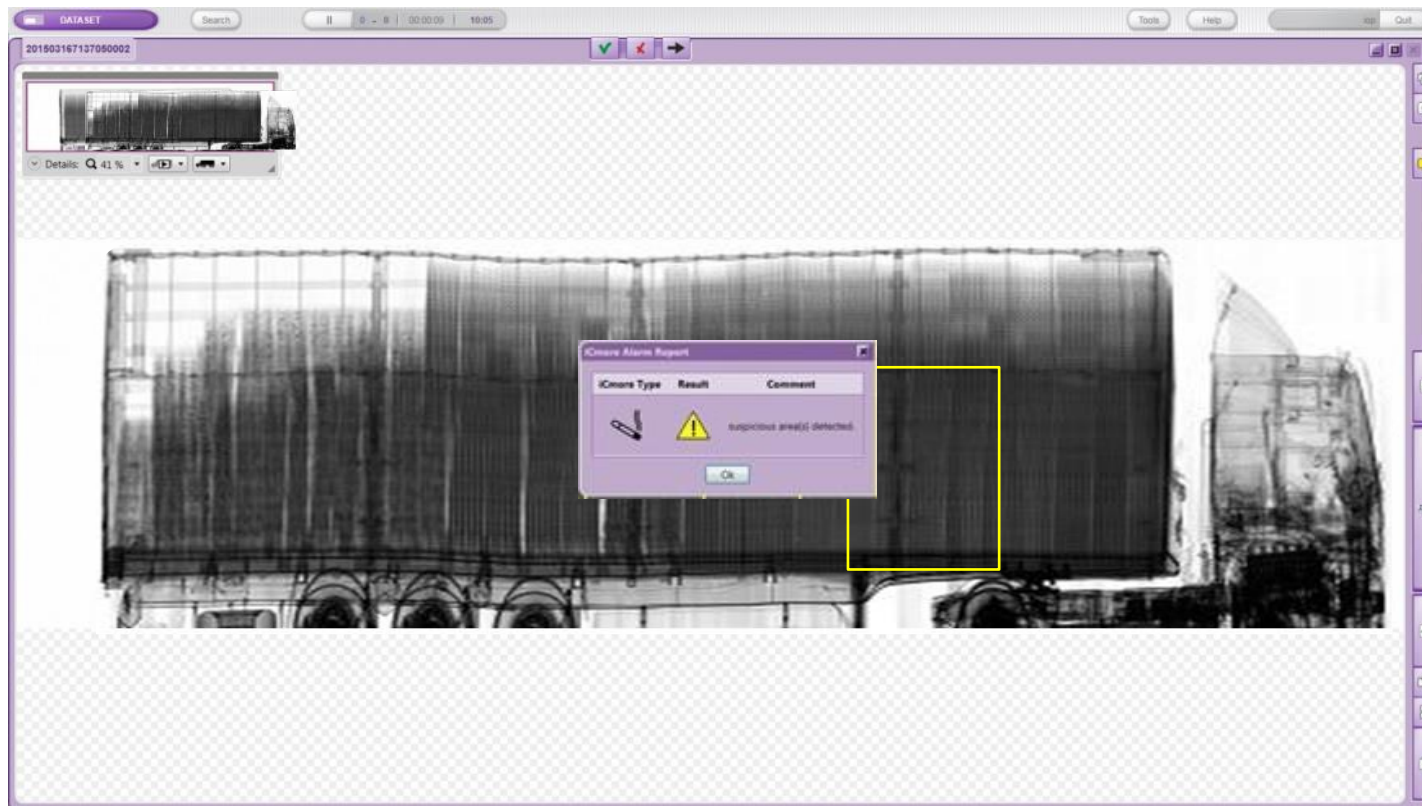
iCMORE

CIGARETTES





Provides the automatic detection of master cases of cigarettes hidden in a vehicle



Customer case studies



His Royal Highness Grand Duke Henri, head of Luxembourg state visiting the Smiths scanner

Großherzog begutachtet LKW-Scanner
LUXEMBURG - Hightech für die Jagd auf Rauschgiftsmuggler: Die neueste Anschaffung des luxemburgischen Zolls wollte sich Großherzog Henri genauer anschauen.

DOSSIER
Flugzeugabsturz in der Ukraine
 Eine Passagiermaschine mit 98 Menschen an Bord ist am 17. Juli im Osten der Ukraine abgestürzt. Rettungsarbeiten sind. Separaten beschuldigen sich gegenseitig, die Boeing abgeschossen zu haben.

SERVICE VON «L'ESSENTIEL»
Ein Push aufs Handy und Sie sind informiert
 Die Redaktion von «L'Essentiel Online» informiert Sie via Push über die neuesten Events in Luxemburg, die weltbewegende Ereignisse oder ein wichtiges Sportereignis. So geht's.

Michael Schumacher kämpft um sein Leben
 Nach seinem schweren Sturzfall liegt der siebenfache Formel-1-Champion Michael...

Luxemburger Wort

Deutsche Ausgabe | Edition Francophone | Contacto

LUXEMBOURG POLITICS INTERNATIONAL BUSINESS CULTURE SPORT LIFESTYLE
 Weather 27° Traffic Weddings Births Obituaries Services Competitions

Aire de Berchem 14 tonnes of cigarettes seized

Petrols-Preisser | Applikationen | Kliniken | Dageshoroskop

RTL 5 minutes | RTL.lu | Radio | Télé | 5minutes | Editus

Actualité | Météo | Sport | Auto / Traffic | Service | Photos

5minutes.lu | Actualité | Luxembourg

Coup de filet contre la contrebande de tabac: La douane saisit 12 millions de cigarettes

RTL - 06.06.2014, 13:56 | Dernière mise à jour: 06.06.2014, 14:02

gouvernement.lu

Le portail de l'actualité gouvernementale

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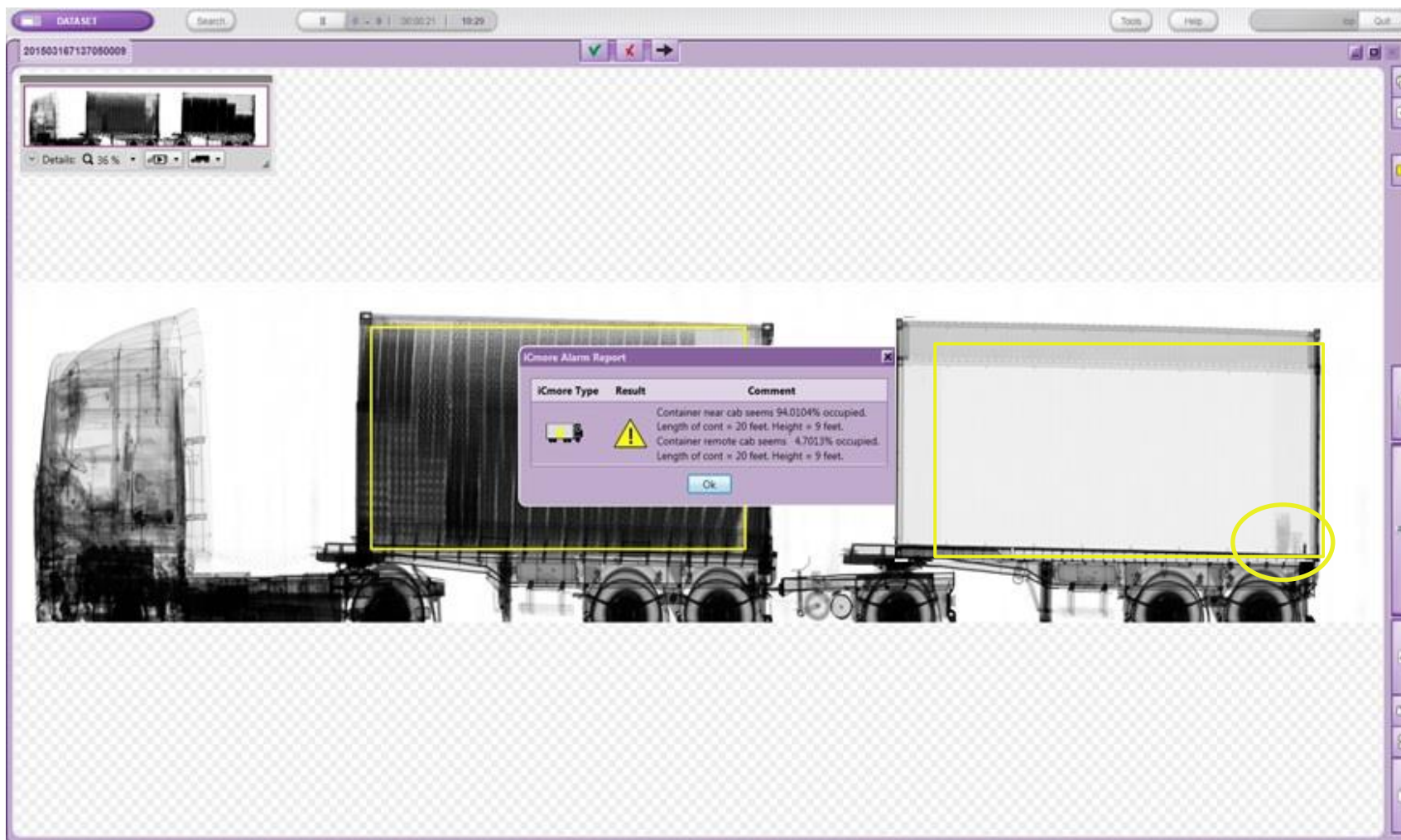
ACTUALITÉS | SON & IMAGES | DOSSIERS | AGENDA | PUBLICATIONS | GOUVERNEMENT | MINISTÈRES

Zoll vereitelt großen Zigarettenschmuggel - 12 Millionen Zigaretten beschlagnahmt

Communiqué – Publié le 06.06.2014 (14:14)

iCMORE
NON-EMPTY CONTAINER

Non Empty Container Detection

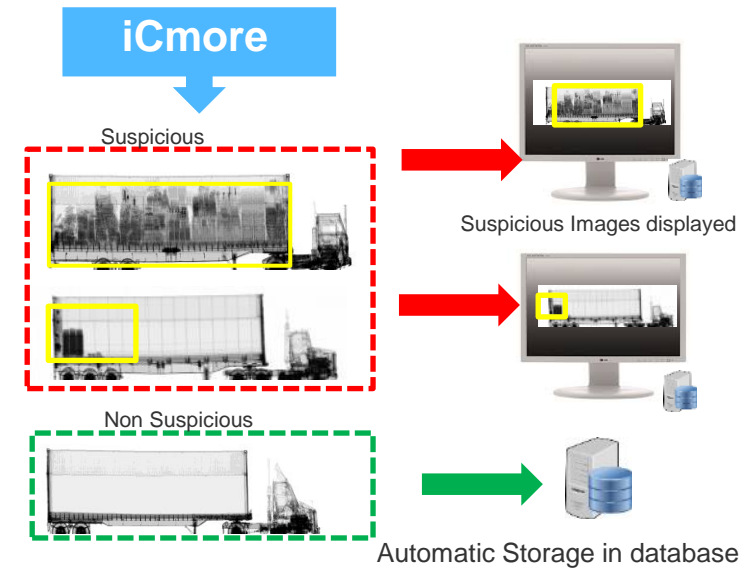


Use icase of iCmore non empty container?

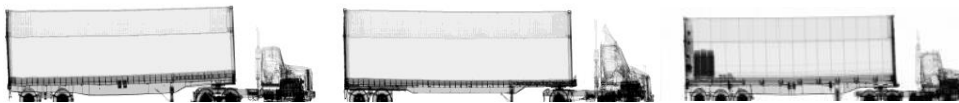
Case 1: Speed up the scanning process in case of high throughput



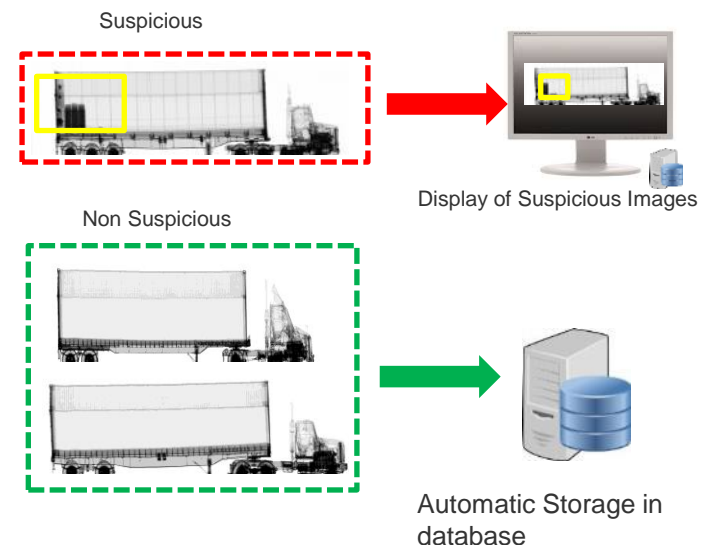
Situation: the operator doesn't want to see the empty containers because he has to scan a lot of containers and doesn't want to lose time in order to not interrupt the fret flow.



Case 2: special line of detection for empty containers on ports

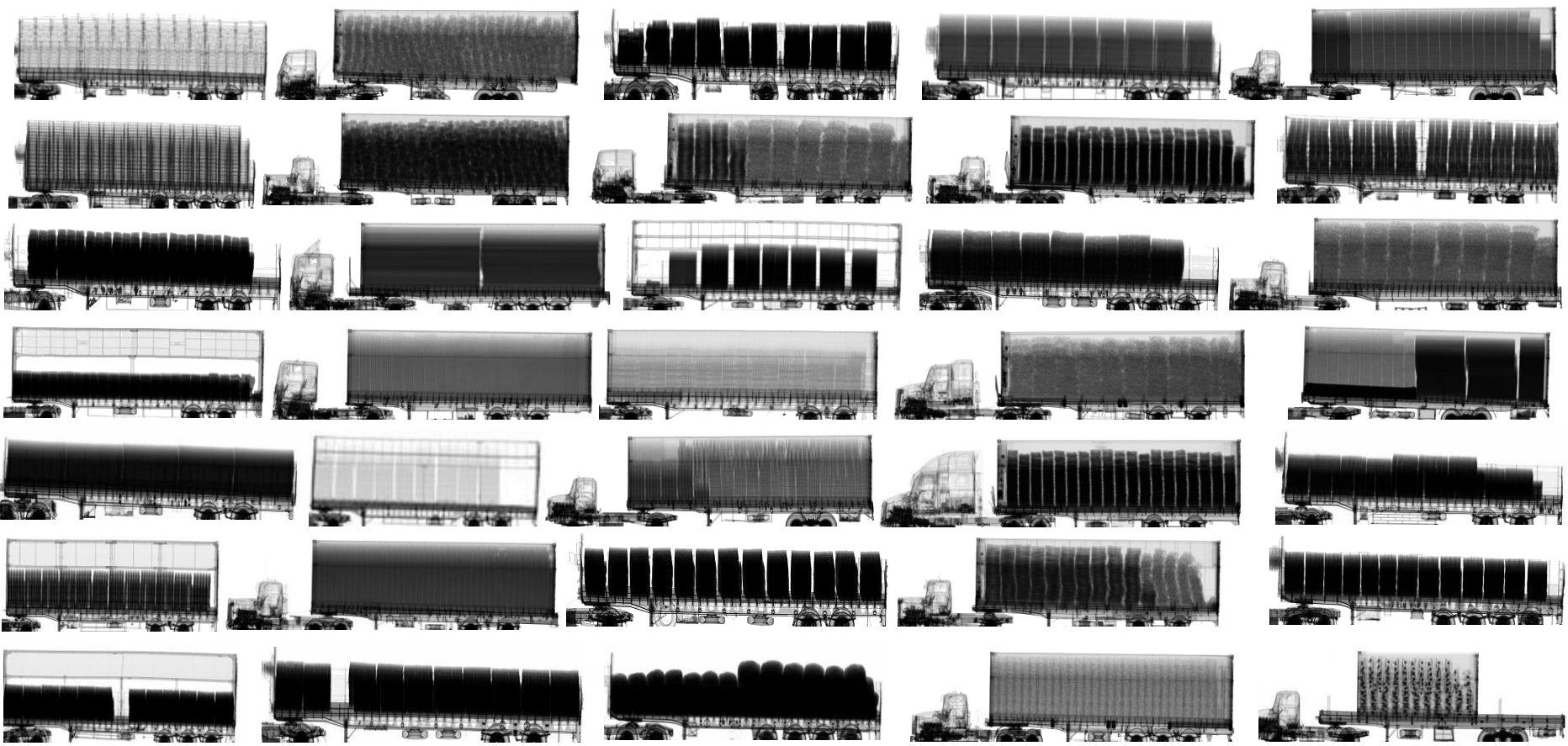


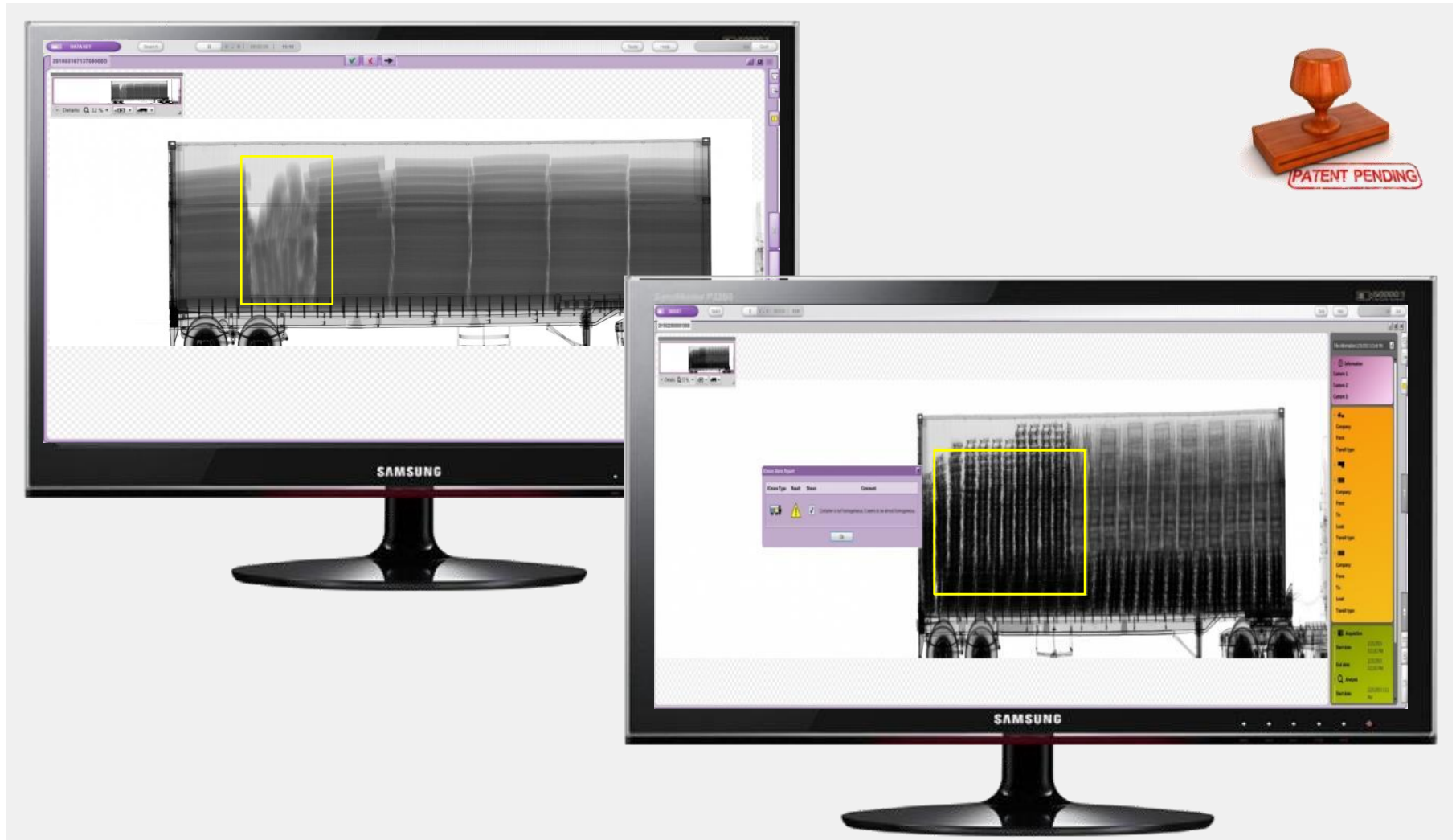
Situation: the operator only wants to be alerted if something is wrong (automatically display of the suspicious non empty containers).



iCMORE
Almost- Homogeneous

iCmore Almost Homogeneous





How to use iCmore ?

Case 1: High security level



Situation: the operator wants to see on the screen every scanned vehicle and he wants to be automatically alarmed when the load of a container seems to be not homogeneous.

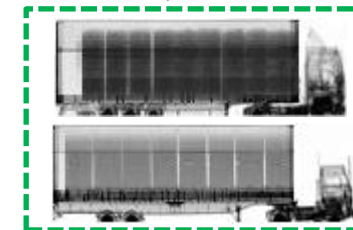
iCmore

Suspicious

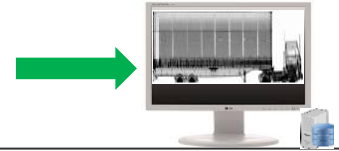


Suspicious Images displayed

Non Suspicious



Non Suspicious Images displayed

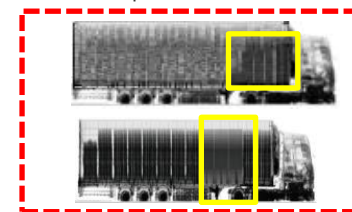


Case 2: High throughput (iCmore combination)

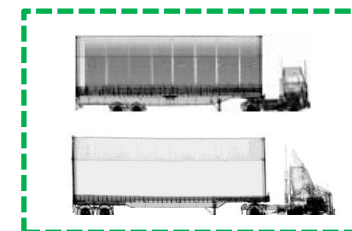


Situation: the operator only wants to see on the screen potential suspicious images
He has to scan a big amount of vehicle and doesn't want interrupt the fret flow.

Suspicious

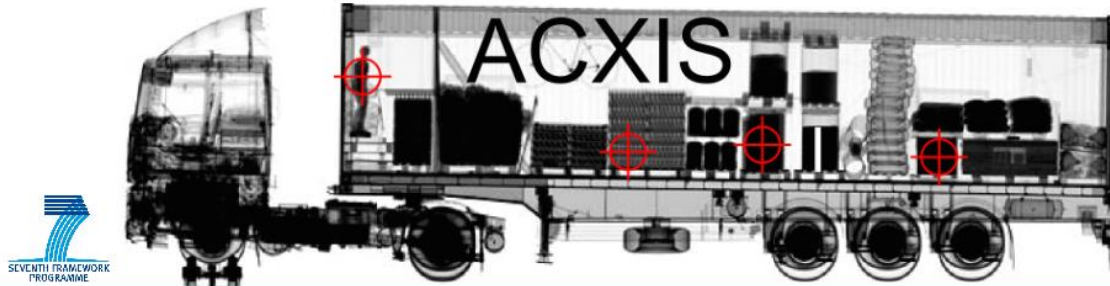
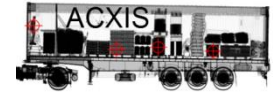


Suspicious Images displayed

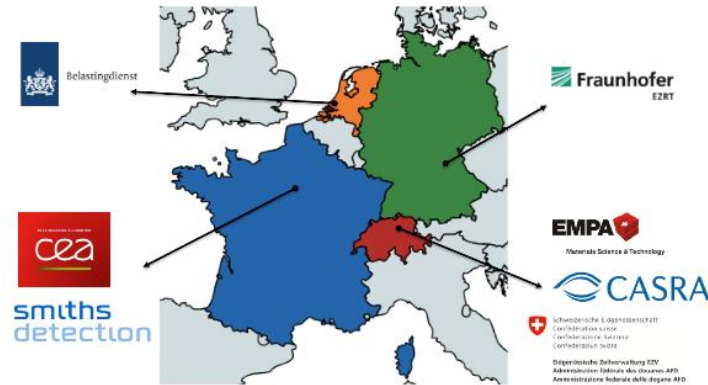


Automatic Storage in database

ACXIS : Automated Comparison of X-ray Images for cargo Scanning



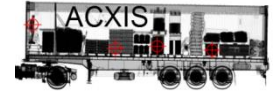
- Home
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- Partners
- Work Plan ▼
- Publications
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In this FP7-project, 7 partners are contributing:

- | | | |
|---|-----------------------|-----------------------------|
| Eidgenössische Materialprüfungs- und Forschungsanstalt | EMPA | Zürich (Switzerland) |
| Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung | EZRT | Fürth (Germany) |
| Commissariat à l'énergie atomique et aux énergies alternatives | CEA | Saclay (France) |
| APSS Software & Services AG | CASRA | Zürich (Switzerland) |
| Smiths Detection | SH | Vitry (France) |
| Eidgenössische Zollverwaltung | FCA | Bern (Switzerland) |
| Ministerie van financiën directoraat generaal - Belastingdienst | DTCA | Rotterdam (The Netherlands) |

ACXIS : Automated Comparison of X-ray Images for cargo Scanning



European research project within the seventh framework program answering the call SEC-2012.3.4-1

« Research on Automated Comparison of X-ray Images for cargo Scanning »

Objectives:

- Develop a manufacturer independent reference database of X-ray images of illegal cargo.
- Algorithms implemented to uniform X-ray images of different cargo
- New image and signal processing algorithms to amend artifacts from X-ray scatter
- Improve the rendering of the cargo images simplifying the detection of illegal objects.
- Software for automated identification of known illegal objects.
- Software for automated identification of potentially illegal cargo with high reliability

Planning

- ✓ Project start in 2013
- ✓ Preparation and compilation of scenario proposals (closed)
- ✓ Interviews with end-users (closed)
- ✓ Agree on priorities
- 👍 Development team (ongoing)
- Implementation and tests
- Project end forecasted in spring 2017





This feature is applied either locally or globally across the container or truck load.

It allows the comparison between the declared weight on the manifest and the real one.



Gross weight, including background contribution:

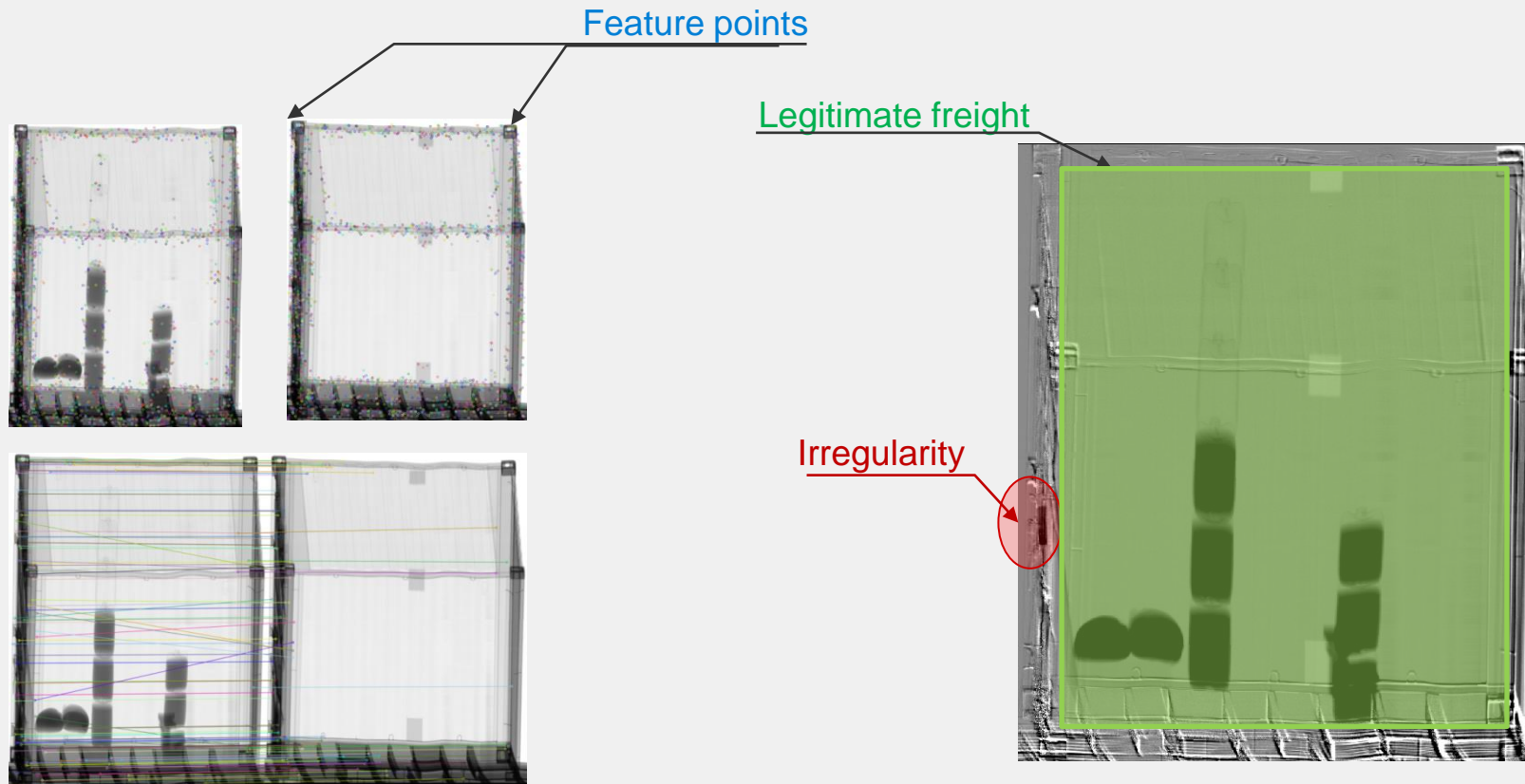
- Weighing machine: 986Kg
- X-ray weight estimation: 1051 Kg

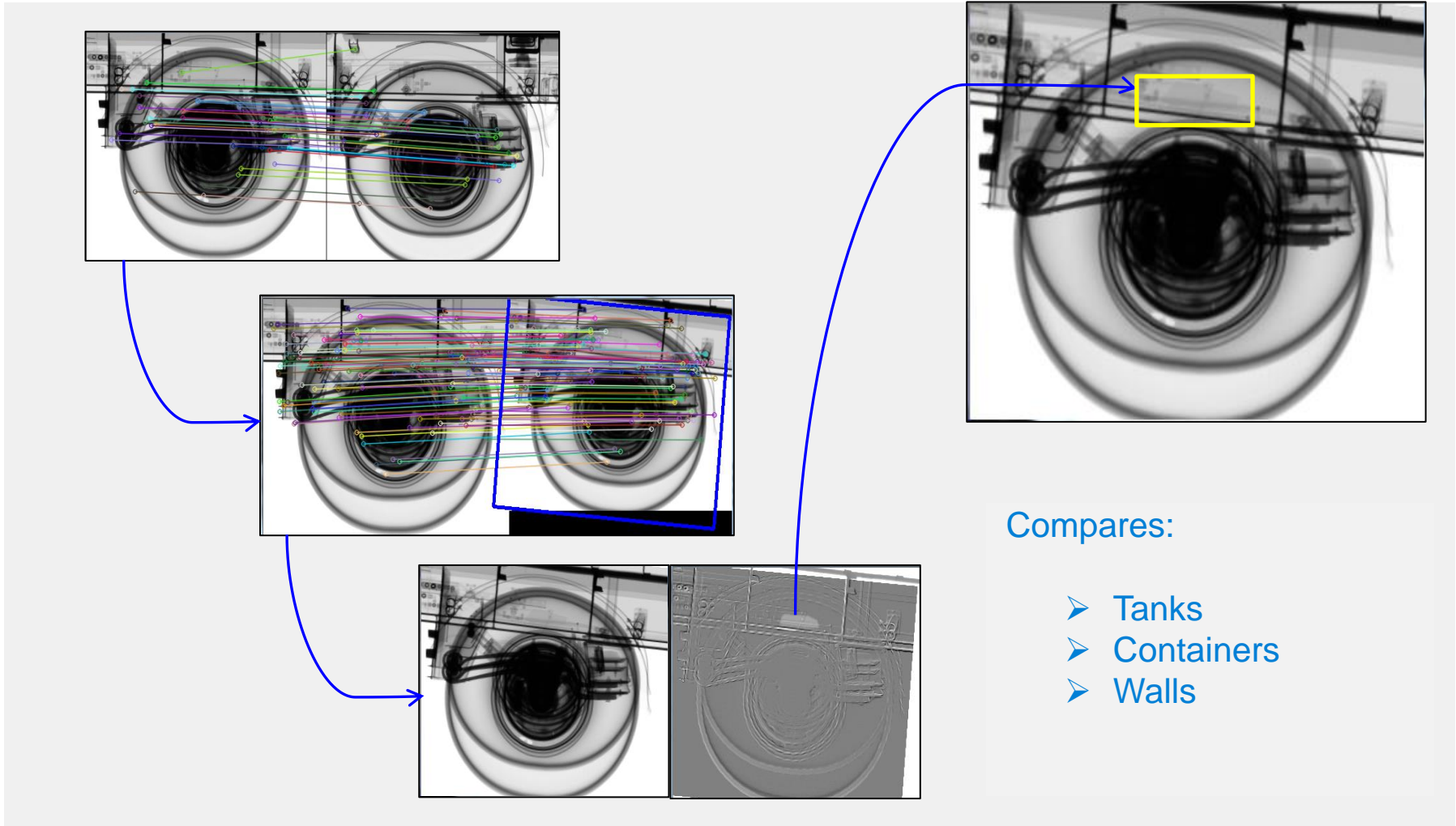
Real weight, removing the background contribution:

- Weighing machine: 986 Kg
- X-ray weight estimation: 990 Kg

Analysis of the walls, doors, roof, floor

Wall analysis (registration from feature points):





Compares:

- Tanks
- Containers
- Walls

iCMORE

Increases operator accuracy by removing the guess work

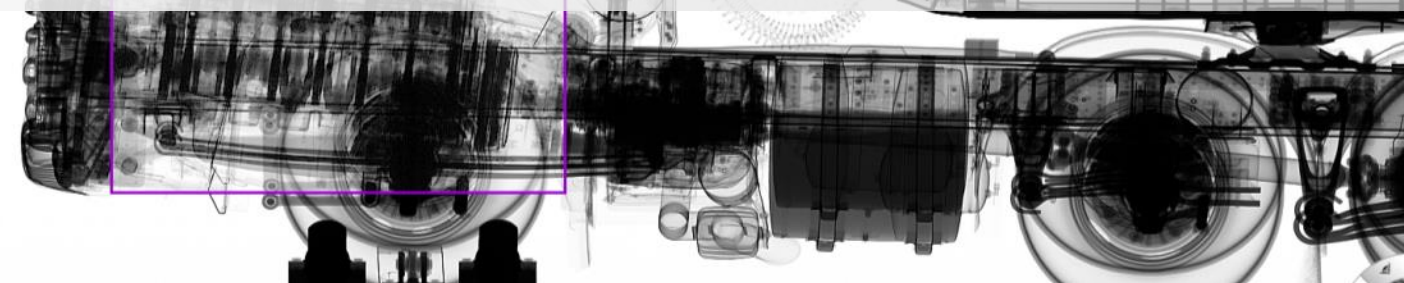
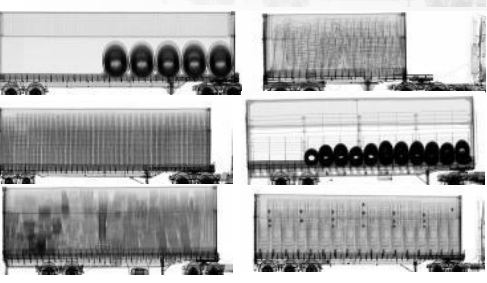
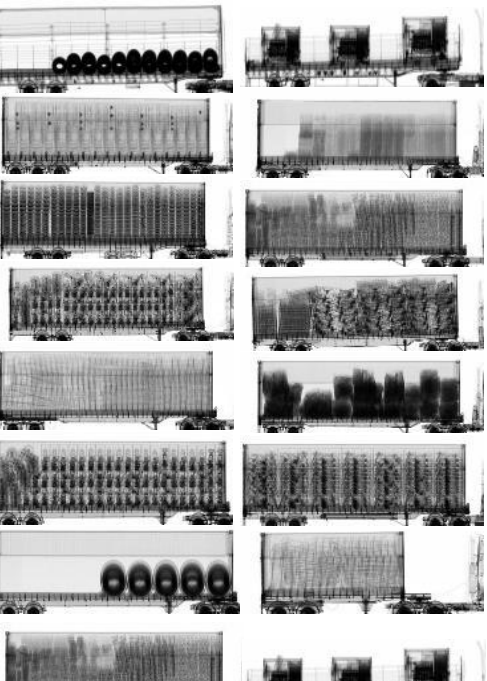
Automates threat/target recognition, reducing analysis time and increasing throughput

Focuses operator attention on the relevant threats and targets

Makes borders safer and security procedures more efficient

Increases inspection throughput and free flow of trade

Grows the detection capacities by widening the scope of threats being detected



smiths detection

bringing technology to life



Contact:

Jean-Olivier Fer

Global Cargo Product Director

jean-olivier.fer@smithsdetection.com

Stop guessing and start seeing with iCmore

