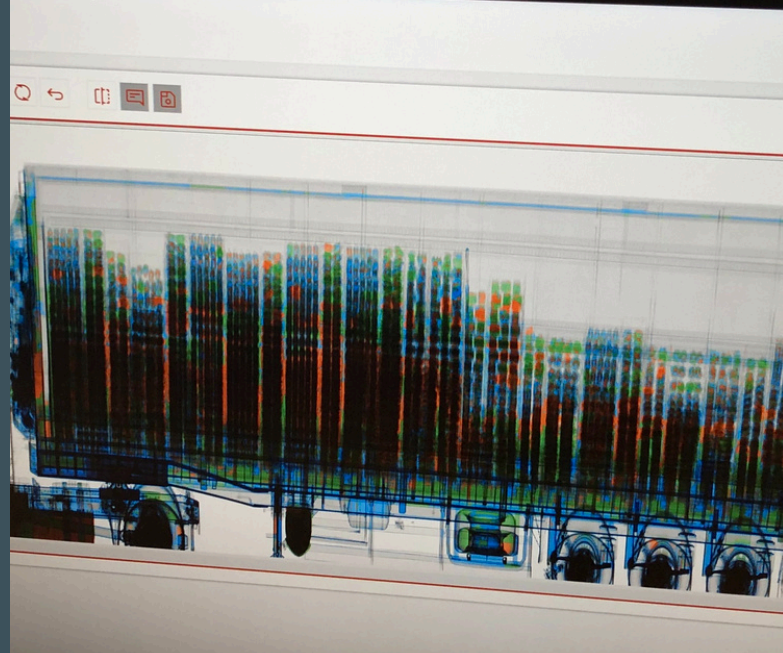# Smart Scanning Solutions & SGS D-TECT®

Cargo Image Analysis Solution
For Ports & Customs

SGS

World leaders with unique expertise

With over 20 years of experience spanning across the globe, we are the leader in the provision of Non-Intrusive Inspection (NII) of Cargo, Vehicles and Baggage Services.

SGS Smart Scanning Services

SGS finances, owns, operates, and maintains several non-intrusive equipment (cargo scanners, pallet scanners, radiation portals, trace detection systems, radiometers, etc.) from the most important manufacturers in the world: Astrophysics, Rapiscan/ASandE, NUCTECH, Smiths Heimann.

SGS is responsible not only for executing the infrastructure and hardware aspects of the project implementation, but also for the hiring and training of new and existing personnel, both for SGS staffing and the client's side.

SGS D-TECT®

Since 2015, SGS has developed and deployed the first universal application for image centralization and screening management, SGS D-TECT®, compatible with the top market brands and models of cargo scanning equipment (NII equipment) available in the world.

SGS D-TECT® creates a unique, fully digital, and remote operational environment, offering users advanced images and AI analytics for radioscopic image interpretation, in a single platform, anytime, anywhere.

SGS D-TECT® is not just an image analysis tool. It is the right ecosystem for any high-end x-ray scanner as it supports its integration within the operational workflow, allows remote screening, and provides real time information and KPIs on scanner related performance to the management level and all the decision makers within the customer organization, in a simple and user-friendly interface.

What makes our solutions unique?

Data Centralization & Remote Access

One-stop solution to gather, harmonize, and analyze images from multiple locations and multiple devices from different manufacturers.

Image Traceability & Data Matching

Automatic optical character recognition (OCR) reading of number plate and container number to match image with declaration.

Scanning Intelligence Module (SIM)

Automatic Compliance Assessment through AI Modelling and Smart Scanning Flow allowing customs to adjust control levels to increase efficiency and/or compliance thresholds.
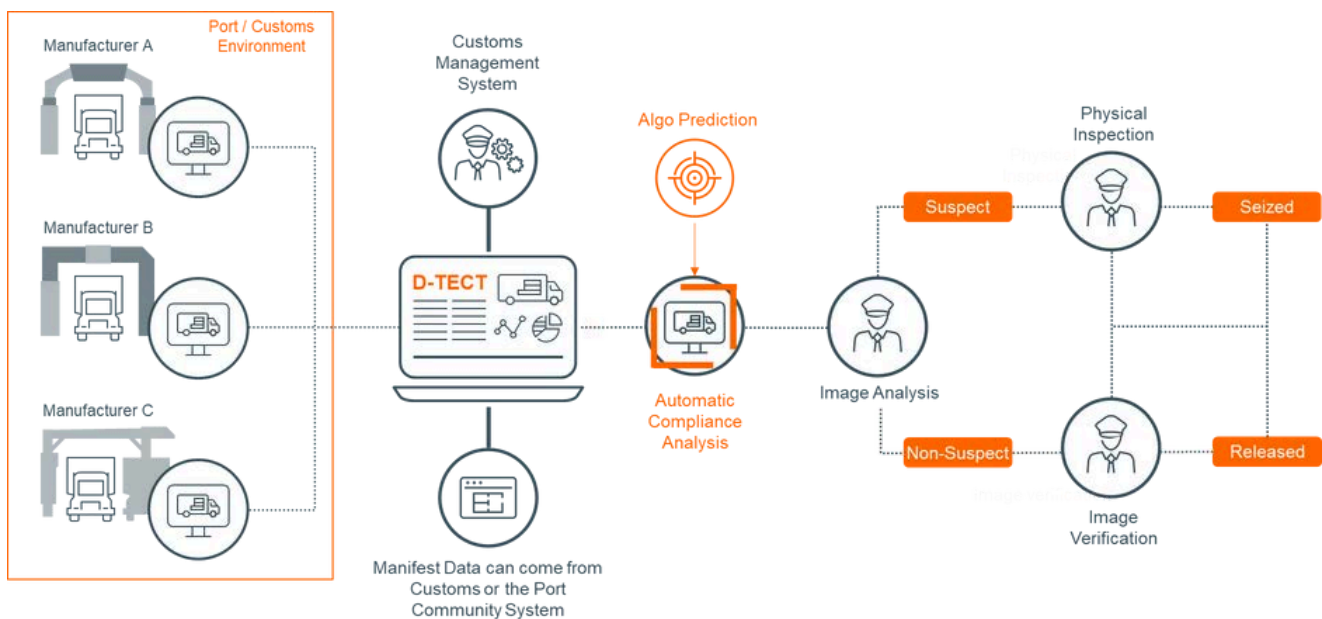
Our solutions in detail

Smart Scanning

At SGS, our solutions integrate not only top scanner manufacturing brands but also peripheral technologies to create seamless scanning operations.

- Drive through scanning (vehicle drive through the scanner tunnel and the scan is performed automatically).
- Radiation monitoring (detecting non-natural source of radiation within the containers). Since 2018, we have the capability of interfacing the readings from the RM panels within SGS D-TECT alongside the radioscopic images both for Portal and Gantry type of scanners.
- Optical Character Recognition (OCR) for container Number and License Plate Recognition 'LPR' system both in western and Arabic characters.
- Under Vehicle Surveillance (UVSS) images integration
- Material discrimination (Organic, inorganic and metallic materials are differentiated on the radioscopic images with colors).
- CCTV with 24hours recording and the capacity to extract video sequence.
- Interconnection with Traffic Management System and weight bridges.
- Interconnection with Customs Management System and Port Management Systems for monitoring and organization of the scanning process in an integrated manner both with the Customs and Ports authorities.

Discover SGS D-TECT®

By combining the scanner equipment to SGS D-TECT® as an integrated module, Ports and Customs gain access to a universal viewer which centralizes and harmonizes images from any scanning equipment manufacturer and interfaces with various Customs Management System providers.

SGS D-TECT automatically matches scanned images, container pictures, and measurements from the radiation portal to their respective export file (export declaration, manifest, bill of lading).

The scan can take place at any moment during the entry process as the matching of the image with the export file is performed when both are available.

Images to be analyzed can be filtered per user's profile with specific criteria, such as the country of origin or type of goods and the user has the possibility to see batches of images of the various containers included in the export file.
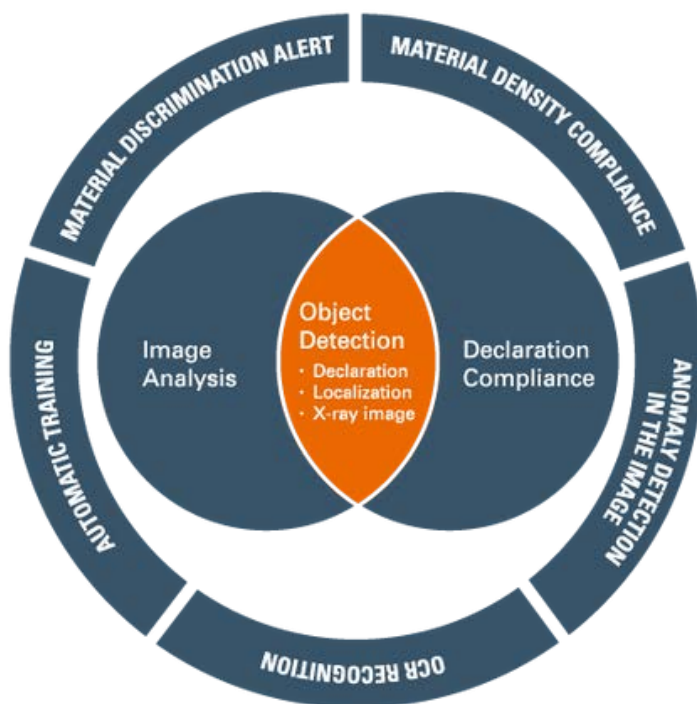
Integration of Artificial Intelligence (AI)

The SGS D-TECT team has more than 5 years of experience in developing AI specifically in the field of X-Ray Images to support Customs assessments with automated image analysis.

D-TECT AI is designed to support scanning operations via D-TECT's workflow before image acquisition and after images/declarations are received.

The aim of D-TECT® AI is to support the maximization of image acquisition volumes while helping Customs to identify the riskiest images to be analyzed.

To do so, the system is grounded in:
- The Historical Data Prediction (HDP)
- Automatic Compliance Assessment module (ACA)

Key highlights

- 76 classes detected covering 60% of the HS codes processed in D-TECT
- Weapons detected
- Evolved compliance: the compliance is not only comparing between object detection and declared goods, but also considering any kinds of anomalies even if it's not related to a specific class
- Data sets built directly from production databases
- Heatmaps to highlight detected objects in the image and anomalies (even not related to classes)
- Automated labeling to create new classes
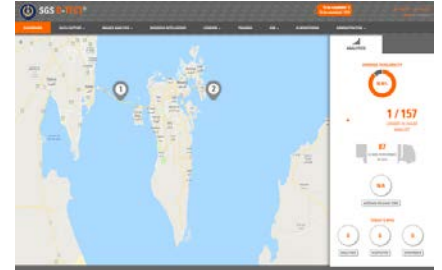
Why choose SGS D-TECT?

- Improve the scanner operations by allowing government administrations to see in real time the scanned images from isolated container scanners in different locations, even if the images are being recorded by different brands of scanners.

- Reduce time and costs associated to the printing and manual transmission of images. D-TECT will avail the original format images in a secure manner to the authorities within a secure network.

- Automatically integrate the scanned images with data from other automated systems such as the Single Window and the Customs management system.

- Offer the possibility to relocate trained Image Analysts to a central command center as they will no longer be needed in remote locations.

- Provide all scanned images from remote scanners available for audit purposes. Data mining functions enable Management to audit the performance of individual scanner units, individual operators their actions, comments, and decisions.

Proven track record

SGS has successfully deployed the Smart Scanning and D-TECT® solutions in multiple countries:
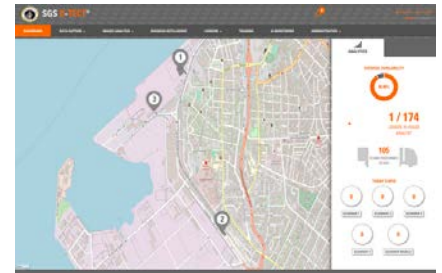
Bahrain D-TECT Smart Scanning Solution

In 2018, SGS signed a contract with Bahrain Customs Authority to deploy a Smart Scanning Solution, involving the implementation of Portal Scanners and Gantry Scanners at two distinct locations, along with traffic management systems and e-gates. SGS D-TECT Cargo serves as the central hub for data integration and processing, incorporating compliance assistance tools driven by artificial intelligence.

Portal Scanner Hardware and Software solution in Cameroon

This contract centered on the financing, deployment, and installation of 4 Portal Scanners for the 100% scanning of containers (import, export, transit and empty) located at the Douala Port as well as the deployment of SGS D-TECT solution. The project includes two Control Rooms, one in Douala and the second within Yaoundé's Customs HQ.

Madagascar

As a module of SGS Single Window solution, D-TECT allows the national integration of the images and accessibility at Customs' main offices in Antananarivo. In this operation, we have a mix of Mobile and Gantry scanner units.

Scanner services delivered in more than 15 countries with over 40 units

100% 1st to deliver a 100% scanning operation on a port's import/export operations

97.5% reliability and availability for all our operating equipment

Over 1.5 million images generated every year by our operations

Over 1,500 operators trained in image analysis, radiation safety and scanning

5 min – average scanning time (from truck entering to image availability)

More than 70 units inspected under SGS FAT/SAT technical services
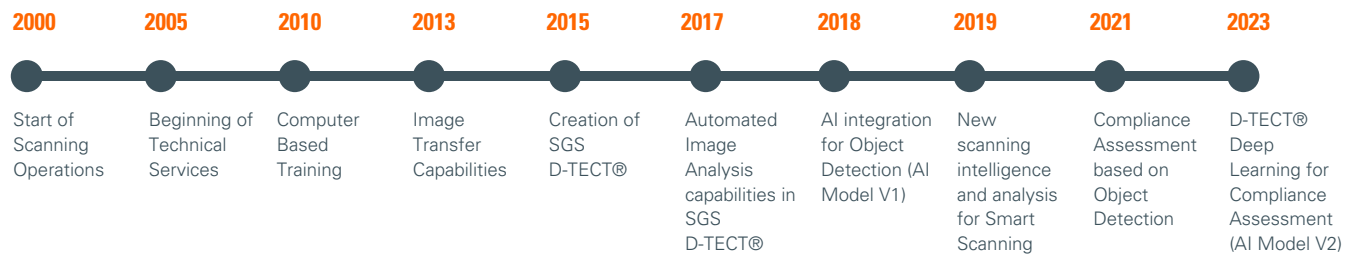
24/7 24/7 operations all year round

45 seconds – image transmission time (in a dedicated network of 100MB)

Why SGS

We are the world's leading testing, inspection and certification company. We are recognized as the global benchmark for sustainability, quality and integrity. Our 99,600 employees operate a network of 2,600 offices and laboratories, helping customers navigate an increasingly regulated world by offering local expertise on a global scale.

SGS is a global specialist with worldwide experience in implementing and operating solutions for Governments that provide accurate and real-time data alongside effective revenue collection.
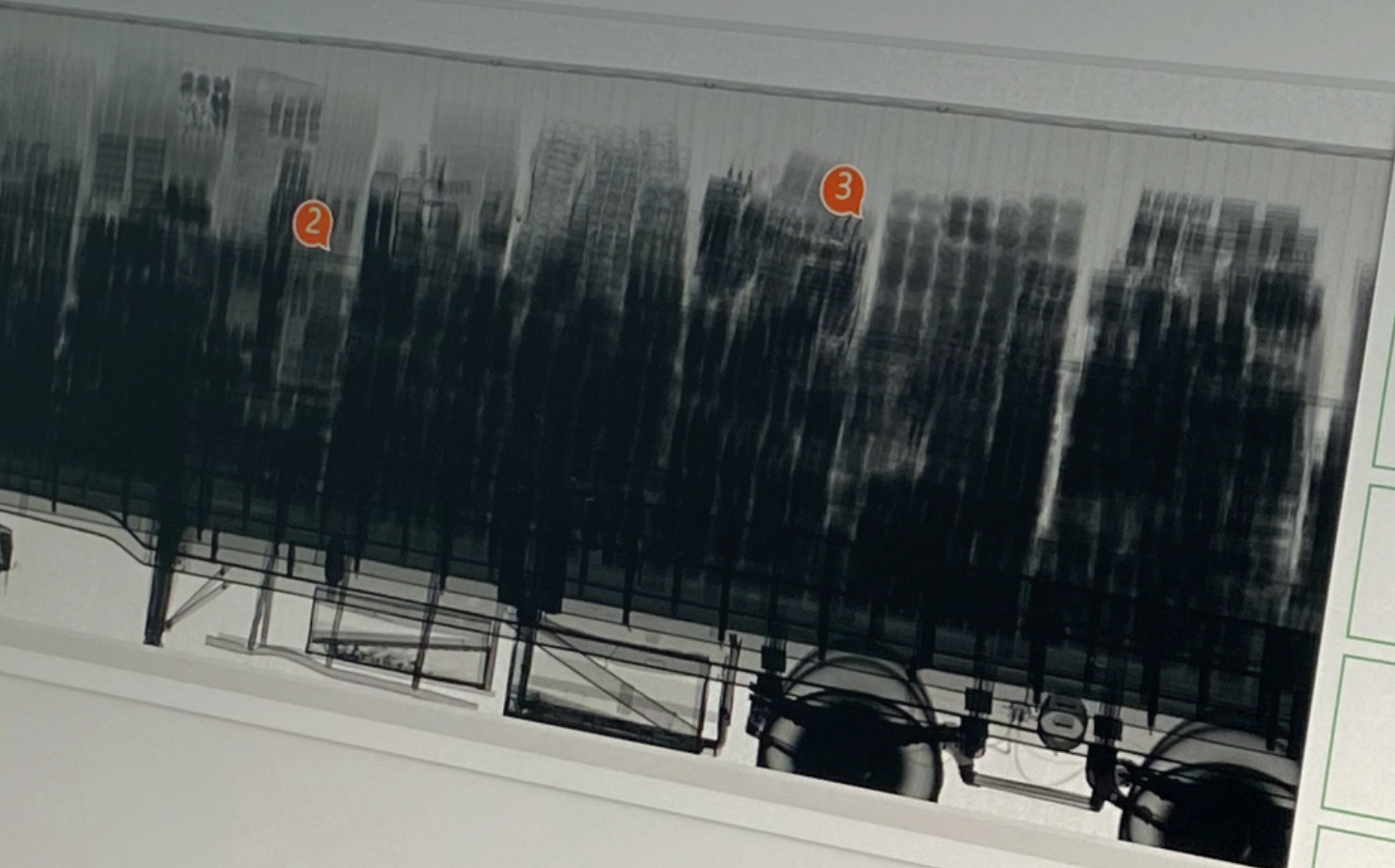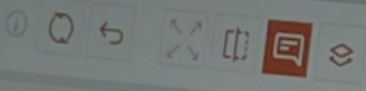
OVER 20 YEARS OF SCANNING SERVICES EXPERIENCE

2000	2005	2010	2013	2015	2017	2018	2019	2021	2023
Start of Scanning Operations	Beginning of Technical Services	Computer Based Training	Image Transfer Capabilities	Creation of SGS D-TECT®	Automated Image Analysis capabilities in SGS D-TECT®	AI integration for Object Detection (AI Model V1)	New scanning intelligence and analysis for Smart Scanning	Compliance Assessment based on Object Detection	D-TECT® Deep Learning for Compliance Assessment (AI Model V2)

ACCROSS THE GLOBE

EXPERTS IN

- **Anomaly and Threat Detection**
- **Artificial Intelligence**
- **Backscatter**
- **Binocular**
- **Data Centralization**

- **Declaration Compliance**
- **Double Energy**
- **Image Calibration**
- **Object Detection**
- **Radiation Measurement**

- **Remote Image Analysis**
- **Single Energy**
- **Smart Data Matching**
- **White Label**

To find out more about
our Smart Scanning Solutions
and how SGS can help you,
please contact DTECT@sgs.com

When you need to be sure

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