

SARS RFP 11/2025

**APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR THE SUPPLY,
MAINTENANCE AND SUPPORT OF NON-INTRUSIVE INSPECTION SCANNING
AND DETECTION SOLUTIONS.**

BUSINESS REQUIREMENTS SPECIFICATION

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1 REFERENCES AND DEFINITIONS

1.1 References to Approved Business Cases and Projects

1.2 References to Legislation, Policies and Associated References

TYPE OF REFERENCE	DESCRIPTION OF REFERENCE:
SARS	Customs and Excise Act, (91 of 1964)
South African Government	Protection of Personal Information Act, (4 of 2013)
SARS	South African Revenue Service Act, (34 of 1997)

1.3 List of Acronyms and Definitions

ACRONYM/DEFINITIONS	DESCRIPTION
SARS	South African Revenue Service
NISDS	Non-intrusive Scanning Detection Solution
NVR	Network Video Recorder
CMP	Customs Modernisation Programme
WCO	World Customs Organisation
NTOC	National Targeting Operations Centre
ANPR	Automatic Number Plate Recognition
POPI	Protection of Person Information
ULDs	Unit Load Devices
NII	Non-Intrusive Inspections
UPS	Uninterruptible Power Supply
TIP	Threat Image Projection
VSAT	Very Small Aperture Terminal

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Business Requirements Specification

The document sets out the business requirements for establishing a panel of service providers for the procurement of high energy and Low Energy backscatter mobile in-line cargo scanners for commercial goods and the software to centralise cargo scan analysis and apply advanced analytics for fast detection as part of the SMART Border Secure and Automation capability. This specific procurement event will be initiated with the purchase of one scanner.

2 USAGE OF TERMS IN THIS DOCUMENT

The singular includes the plural and vice versa, unless the context otherwise requires;

- Capitalised terms that are not defined within this document have the meaning assigned to them in Schedule A to the NISDS Agreement. Capitalised terms that are neither defined in this document nor in the Glossary (Schedule A) to the NISDS Agreement have their generally understood meanings, or if the terms are technical in nature they will have their generally understood meanings in the security, scanner and information technology industries.
- The words "include" and "including" mean "include without limitation" and "including without limitation". The use of the words "include" and "including" followed by a specific example or examples will not be construed as limiting the meaning of the general wording preceding it.
- For the purpose of this document, scanning/NII equipment means equipment/technology that is deployed to inspect all types of cargo and conveyances, such as a road vehicle, train, aircraft, or ship, in a non-intrusive manner.

Important note to Bidder: The specifications set out in this document contain mandatory and directory requirements. Where a mandatory requirement is set out in this document (indicated by 'must' in the stated requirement) the Bidder's Proposal must address such requirement. If a Proposal fails to meet or does not address a mandatory requirement, the Proposal may, at SARS's discretion, be disqualified at any stage of the evaluation process as being a non-responsive Proposal.

Directory requirements are requirements that serve to guide the Bidder in proposing a solution and consequently may improve a Bidder's score in the evaluation of its Proposal.

3 INTRODUCTION AND BACKGROUND

The Customs Modernisation Programme (CMP) is intended to drive the SARS compliance philosophy, strategic objectives and to achieve the SARS Vision in respect of the Customs component.

Within the modernisation programme, there is the Smart border project as recommended by WCO which aims to improve systems and technologies that will expand current processes thereon by means of enhancing and implementing automated processes using technology tools. The scope for the smart borders project which will be delivered in phases include implementing:

- ANPR system for arrival and exit management.
- Automated booms, retractable spikes, and radiation portals.
- Single inspections to avoid multiple stops, costs, and delays.
- Non-Intrusive In-line cargo scanners.
- Seal integrity programme, track, and trace, etc.
- Inspector body cameras and remote viewing.
- Command centre scanner image analysis and centralised operational control.
- National Targeting Centre for combined agency risk-profiling.
- Alignment of border processes.

- Use of customs connectivity with neighbouring countries for data and information sharing
- Implementation of single window processing
- Consulting Corporate Legal on the implications of protection of personal information (POPI) with reference to the number plates and body cameras.

The main design principles of the Smart Border project include:

- Fully automated border processes to be implemented at the land ports; and
- Use of technology tools to manage border management processes.

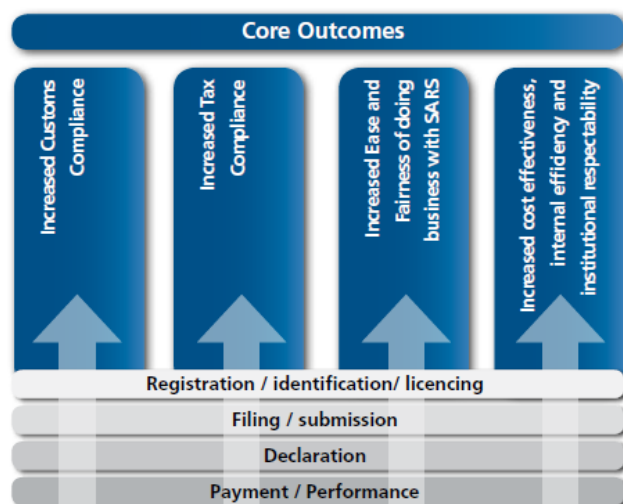
It is therefore key to the success of SMART Borders to apply new methodologies and latest technology capabilities to the non-intrusive inspection capabilities.

3.1 **Mandate**

In terms of the South African Revenue Service Act (No. 34 of 1997), SARS is mandated to:

- Collect all revenue due;
- Ensure maximum compliance with Tax and Customs legislation; and
- Provide a customs service that will maximise revenue collection, protect the borders of the Republic and facilitate trade.

Given these objectives, SARS has established four core outcomes for the organisation that will serve as the foundation for all current and future strategies:



All four outcomes are interdependent, as the pursuit of achieving one outcome frequently enables achieving another outcome.

Modernisation has enabled SARS to re-engineer key processes in the Tax and Customs environment, enabling SARS to put in place more resilient, efficient, and effective solutions that will ensure future productivity increases and sustainability.

The modernisation of Tax and Customs systems and processes at offices and ports of entry offer trade the benefits of greater ease of movement of goods, faster turnaround times and cost savings. This has included the introduction of an advanced case management system; an enhanced inspection process; the electronic submission of supporting documents; and an electronic release system. SARS now also has a centralised enterprise view of risk which has positively impacted on our ability to effectively mitigate risks.

The increase in compliance over the past few years was underpinned by improvements to the risk engine which has allowed SARS to focus its attention on higher risk consignments while allowing legitimate and lower risk imports and exports to move quickly through the Republic's borders.

The implementation of the risk engine has enabled SARS to pre-identify risk and initiate the performance of targeted manual acquittal / inspection of cargo and passenger luggage using an integrated case management approach. Given the manpower demands associated

with inspections, strategic investments in non-intrusive inspection solutions will be evaluated and deployed based on their effectiveness.

3.2 Problem Statement/ Opportunity

According to WCO, Customs administrations are faced with increasing volumes of traffic and greater expectations from business for faster clearance times without a corresponding increase in resources. At the same time, governments and society expect customs to provide an effective control of imports, exports, and transit traffic.

Global terrorist attacks have also raised the expectations placed upon customs administrations in respect of border security. To cope with this situation, many members are looking at the potential of technical equipment, particularly X-ray or gamma ray NII equipment to help meet their objectives by increasing efficiency in inspections.

This request for installing in-line scanners at the ports of entry seek to address other systemic challenges being experienced currently which include, but not limited to:

- Non-intrusive inspection of import, export and transit – to detect hidden illicit goods.
- Inspection of containers and vehicles for identification of the cargo compliance to the transportation documents, detection of contraband, illegal drugs, weapons, and other illicit or dangerous objects.
- Security controls
- Innovative “drive-thru” technology

3.3 Summary of the Business Needs and Opportunity

A need has been identified by SARS Customs as part of an effective trade facilitation for introducing smart borders for Customs and to leverage on existing SARS technology and capabilities such as:

- Automated arrival and exit management.
- Non-intrusive cargo scanners

3.4 Current Scanner Initiatives

SARS has deployed container scanners to the Cape Town and Durban harbours as well as the Beit Bridge border post and a pallet scanner to the ORTIA Cargo area. In the next 36 months SARS intends to roll out additional NISD Solutions to border posts; ports and other SARS sites where the effectiveness of such deployments can be shown.

SARS intends to centralise the scanning solutions' output; integrate scanner systems with complementary SARS systems; and remotely access scanners for utilisation statistics, backup, and administration purposes.

3.5 Objectives of this Procurement Initiative

The main aims of the acquisition of NISD (Non-Intrusive Scanning Detection) Solutions are to:

- Increase successful detection of undeclared, mis-declared, restricted, and prohibited goods through the utilisation of scanner solutions.
- Avoid unnecessary manual inspections which will reduce the impact on trade.
- Ensure greater operational efficiency by reducing dependency on human resources for inspections.
- Store and retrieve scanned images thus being able to conduct audits on the inspection process.
- Link scanned images to a case as part of the case management processes.
- Provide operations and management with comprehensive reporting.

Additionally, SARS is seeking specific solutions to provide the ability to:

- Deploy a scanning, inspection, and detection capability rapidly at any geographic location as required by business, including remote locations with little or no infrastructure.
- Relocate a scanning, inspection, and detection capability easily to accommodate changing business priorities.

As such SARS seeks to build a partnership with successful bidders to ensure the delivery of best-in-class solutions, including solutions that will facilitate the non-intrusive:

- Inspections of vehicles (including busses); trucks; containers and containerised cargo (legal sized road vehicles).
- Detection of restricted and prohibited goods by the recognition of organic versus inorganic items; displaying the shape of the item and the chemical make-up of an item to assist in the identification of narcotics; dutiable goods; tobacco products; currency; trafficked humans and animals; weapons; explosives and sources of radiation amongst others and
- Automated identification of as broad a range of restricted and prohibited items as possible.

4 LEGISLATIVE AND POLICY REQUIREMENTS

4.1 Legislative Requirements

The proposed solution is governed by the following legislation:

- The Customs and Excise Act, 91 of 1964
- Health and Safety Legislation
- Hazardous Substances Act
- Disaster Management Act;
- Code of Practice for Industrial Radiography
- Environmental Laws
- WCO framework and standards (SAFE)

Bidders to conform and meet all the criteria and regulations required for X-Ray or other high energy penetration equipment (Gamma, Neutron or X-Ray) as per Bidder's submission products as per SAHPRA legislation and rules as well as the license for the X-Ray (Gamma and Neutron included) machines, issued in terms of the Hazardous Substance Act (Act 15 of 1973). Including ISO standards (ISO 45001 and ISO 14001).

5 DESCRIPTION OF NON-INTRUSIVE HIGH ENERGY IN-LINE CARGO SCANNER REQUIREMENTS

In-line scanning will be performed on the trucks passing through the Customs Controlled Area or the border for image analysis and matching to the declaration information received. The use of in – line scanners will be part of the Automated Arrival Management process.

5.1 Technical, System and Software Requirements

- The scanner solution must cater for the full image analysis data package to be stored and analysed centrally.
 - All image analysis will be conducted from the SARS National Targeting and Operations Centre, while maintaining the onsite image analysis capability. Images need to be transferred for real-time analysis.
- The scanner system should be compatible with existing centralised analysis software in the market (i.e. unified image format), and compatible with the follow-up standard data formats, based on meeting the WCO's standards.
 - The scanner shall be able to generate X-ray images in unified file format.
 - Specifications to meet the UFF2.0 WCO standard file format compatibility
 - Latest generation detectors and resulting image calibration tools with interpretation software should be part of the standard system.
- The scanner software must have contraband detection functionalities, with a capability of auto detection of illegal goods or substances and issuing an appropriate alert to the operator.

- The detection x-ray system must contain imaging software for materials discrimination, which can discriminate and highlight foreign objects such as explosives, drugs hidden among other cargo in cars, lorries and containers.
 - Adding colour (linked to the atomic number) to the detailed radiosopic image of the container or vehicle, for rapid and reliable results in a single scan will help to distinguish unexpected loads. It also allows the operator to distinguish objects such as firearms, hidden in or among organic objects and alert the operator.
- The software must be capable of automatic false threat insertion to calibrate image analyst and analysis software.
 - The software that generates the scanned image must be capable of threat image projection to help improve operator proficiency and calibrate the image analysis software by inserting fictional threat images at configurable intervals.
- Capability to detect known patterns of concealment or circumvention through advanced image algorithms.
 - Detect known patterns of circumvention or signature of items that are not listed on manifest through built in software.
- The solution setup needs to be configured to form part of a larger network of scans that can be compared with subsequent scans by more deep-level scans in the near future.
 - Images need to store, sort and compare with advance software with other scanner images of the same conveyance when possible.
 - Capability to compare scanned images from different ports of entry and exit of the same consignment.
- The Centralised Solution must allow all images to be analysed and supervised centrally which includes the automatic threat detection and advanced image analysis tools (Artificial Intelligence)
 - The networked machines must be capable for allowing data and images to be accessed in real time by a centralised supervisory workstation.

- This system enables the supervisor to perform key tasks for multiple units, including second level screening of suspect objects, centralised monitoring of operators' performance using Threat Image Projection feature.
- The scanner must have the capability to perform high throughput scanning of trucks and larger vehicles. The scan quality and speed should not be less than that of a relocatable or fixed scanner type. The scanner design must be the latest type with latest generation design features incorporated.
 - Bidders to ensure that the scanner has the capability to perform high-throughput scanning (>60 vehicles per hour) of large trucks, with scan speed up to 10 km/h, without loss of image quality.
- The scanning equipment must allow for all legally sized (including road legal oddly shaped) cargo to be scanned.
 - The scanner should be able to provide a warning for cargo that exceeds 3.5m cargo width and higher than 4.7m above ground level. Cargo that is not loaded according to the South African Road Transport Act must be prevented from entering the facility through integrated sensors. The event must also be auto recorded by the peripheral CCTV system.
 - System should auto-create a case if truck cannot be scanned due to size or any other detected infringements that prevent the truck from being scanned (not including manual reasons that cannot be auto-tracked).
- Number Plate Recognition (NPR) for Truck & Container, and other identification equipment must be catered for to clearly identify truck and container without time consuming manual/human recording/intervention. Cargo manifest display option must be available if back-end system can match it against NPR or Container Number
 - The NPR and container number reader must be of latest generation camera equipment to ensure >98% reading accuracy with misreads to be rectified by visual camera footage.

- The NPR data should be displayed as part of the scanner dataset of the scanner image and also searchable.
 - Traffic lights and booms should form part of the scanner system and must be included to control traffic flow and managing speed of vehicles at the scanner site.
- The in-line scanner must have advanced (latest advances in technology) scanning capabilities to enhance the process of image analysis or interpretation. The software needs to be compatible with integration requirements in Appendix 1:
 - The scanner solution must cater for the full image analysis data package to be stored and analysed centrally.
- The in-line scanner facility should have cameras and be able to capture real-time video that is streamed to the Operations Centres with auto event driven stored images (visual applications) that are saved to the scan event. This will allow all scanned cargo to be trackable in full if anomalies are detected during later audits.
- The scanning footprint, which includes the radiation safety exclusion zone must be of reasonable size due to the limited space available at the inspection sites.
 - The safety/radiation exclusion zone shall be as reduced as possible and not larger than 46x12 metres. It can be achieved by sufficient shielding material (Concrete wall, gabions etc) to meet the required radiosopic parameters.
 - Less space should be catered for to fit into congested border posts - WCO guidelines indicate that scanner control officers must be outside of recommended exposure area
- The high energy equipment must have auto-detect of driver's cab functionality to allow in-line scanning without scanning the driver cab. Safety precautions to be built into the system to ensure that drivers are not exposed to unacceptable levels of radiations.

- Bidders to ensure that high energy equipment has auto-detect of driver's cab functionality to allow in-line scanning without scanning the driver cab. The equipment can distinguish between the actual container and the cab to perform selective scanning on the container. Safety precautions to be built into the system to ensure that drivers are not exposed to unacceptable levels of radiations to ensure safety precautions and adherence to WCO Regulations

5.2 Installation, Maintenance, & Operational Reporting Requirements

- The installation setup to be secure to accidental and deliberate damage through robust barriers and high-volume traffic management conditions to protect the equipment at all costs.
 - Scanners must include adequate flood lights and CCTV cameras with Network Video Recorder NVR to record each event in detail and allow for scanner operator and command centre (NTOC) to clearly view operations during scanning for any anomalies. Camera system to cover:
 - Entrance of the exclusion Zone
 - Exit of Exclusion Zone
 - Scanning Area
 - It needs to be free of complex ground works and must make use of the existing infrastructure (i.e., standard concrete paving) where possible to minimise the initial turn-around time.
- Radiation Monitoring Systems must be included and active both during operations and standby mode. For example. The nuclear detection portal for the detection of any nuclear or radiation within containers or vehicles entering the scanner hall should be installed for monitoring of nuclear threat. Detection Monitors to detect cargo radiation levels and provide necessary alarms and location.
 - The scanner should have nuclear detection portal for the detection of any nuclear or radiation within containers or vehicles entering the scanner hall and should be installed for monitoring of nuclear threat.

- Radiation detection portal embedded within the scanner system and enable accurate location.
- The scanner should be capable to measure environmental radiation and radiation levels
 - Scanner radiation monitors to be installed for health and safety and measures the environmental radiation when the scanner is not operational and the radiation level during scanning.
- The scanner should be able to be positioned in line with traffic flow to minimise cargo vehicles to be diverted from normal traffic flow and not obstruct traffic movement.
- Scanners should have backup power capability
 - The scanners must be available 24/7 without interruption, including loadshedding or power failures (power supply backup to ensure continuous and cost-effective operation).
- Training to be given to all SARS Officers that will be operating, reading and conducting image analysis on the scanner images (i.e. Command Centre).
 - The bidder should provide training to transfer comprehensive knowledge and techniques for:
 - System Operation
 - Image analysis and interpretation
 - Training program to permit continuous integrated training with Supplier's accredited Resource in image analysis when equipment is upgraded and/or new software is uploaded. Training should include training of SARS official that will be able to train staff in the future (train the trainer). Training will be conducted centrally.
- The Supplier should provide regular and scheduled inspections and maintenance in accordance with the manufacturer's specifications and associated infrastructure for the lifespan of the equipment.

- The provision of maintenance and support should comprise all activities including calibration necessary to restore the full functionality of the scanning solution after the occurrence of an incident or to rectify a problem in accordance with the service level agreement.
- The supply of PCs & monitors should meet the SARS approved specification.
 - The bidder to supply PCs & Monitors to meet the SARS approved specification and compatible with SARS IT platforms (refer to appendix 1 – integration requirements and applicable standards)
- The system should be able to operate in extreme conditions that applies at most of our ports, air-conditioned and dust free equipment enclosures with no down-time due to mainly over-heating. An auto calibration system must verify the performance and detection capability to ensure correct performance and operation.
- The system performance and operation.
 - The equipment should be dust proof and operate under the following conditions:
 - Temperature: -10° to 50° C
 - Relative humidity up to 100%
 - The system should be resistant to the wind (constant 70km/h & gusts up to 100km/h)
- Integration capability with scanners at Inland Border Processing Centres (data should be available for import into SARS case management application systems in a non-proprietary format).
- SARS intends integrating and centralising the scanning solutions output, image artefacts and specifically the results of inspection “hits” for evidence in further actions. SARS also intends remotely interrogating the scanner management systems for utilisation statistics, backup and other administrative purposes.
 - The bidder should ensure the integration capability with scanners at Inland Border Processing Centers (Data should be available for import into SARS case

management (i.e. SARS Service Manager) application systems in a non-proprietary format).

- Images need to be stored against declared manifest.
- The proposed solution should be capable of connecting to SARS network and, the scanners able to integrate transparently to the SARS network, systems and processes.
 - All scanned images and related metadata should be able to be extracted in industry standard formats and data structures and be transmittable through the SARS network.
- Real time data transmission - All captured information must be sent to the SARS National targeting Operations Centre (NTOC)
 - Scanned images should be transferrable to SARS command centre (NTOC) for real time analysis and bidder's data requirements needs to be defined to facilitate this requirement (e.g. Processing time vs scanning throughput)
 - SARS should provide high bandwidth.

6 DESCRIPTION OF NON-INTRUSIVE IN-LINE BACKSCATTER (LOW ENERGY) CARGO SCANNER REQUIREMENTS

The backscatter cargo scanner has potential applications, where less-destructive examination is required, and can operate even if only one side of the target is available for examination.

6.1 Technical, System and Software Requirements

- The scanner software must have contraband detection functionalities, with a capability of auto detection of illegal goods or substances.
- The scanner solution must cater for the full image analysis data package to be stored and analysed centrally.
 - All image analysing will be conducted from the SARS National Targeting and Operations Centre (NTOC) while maintaining the onsite image analysis capability.

- Images need to be transferred for real-time analysis.
- Number Plate Recognition (NPR) for Truck & Container, and other identification equipment must be catered for to clearly identify truck and container without time consuming manual/human recording/intervention. Cargo manifest display option must be available if back-end system can match it against NPR or Container Number
 - The NPR and container number reader must be of latest generation camera equipment to ensure >98% reading accuracy with misreads to be rectified by visual camera footage. The NPR data should be displayed as part of the scanner dataset of the scanner image and also searchable.
- The solution setup needs to be configured to form part of a larger network of scans that can be compared with subsequent scans by more deep-level scans in the near future.
 - Images need to store and sort and compare with advance software with other scanner images of the same conveyance when possible.
- The Centralised Solution must allow all images to be analysed and supervised centrally which includes the automatic threat detection and advanced image analysis tools (Artificial Intelligence)
 - The networked machines must be capable for allowing data and images to be accessed in real time by a centralised supervisory workstation. This system enables the supervisor to perform key tasks for multiple units, including second level screening of suspect objects, centralised monitoring of operators' performance using Threat Image Projection feature.
- Capability to detect known patterns of concealment or circumvention through advanced image algorithms.
 - Detect known patterns of circumvention or signature of items that are not listed on manifest through built in software.

- The detection x-ray system must contain imaging software for materials discrimination, which can discriminate and highlight foreign objects such as explosives, drugs hidden among other cargo in cars, lorries and containers.
 - Adding colour (linked to the atomic number) to the detailed radioscopic image of the container or vehicle, for rapid and reliable results in a single scan will help to distinguish unexpected loads. It also allows the operator to distinguish objects such as firearms, hidden in or among organic objects.
- Bidders to ensure that the scanner has transmission view to allow acquiring of transmission images and photo-like Backscatter images from low energy transmission source.
 - Consideration of the Compton scattering principle to emit low-energy X-Rays, typically ranging up to 450keV (kilo-electron Volts). The system should be able to generate dual-energy images using the same X-ray source. The backscatter imaging must provide photo-like images that are easy-to-interpret and highlight commonly smuggled organic threats and contraband
- The scanner has the capability to perform high throughput scanning of trucks and larger vehicles. The scan quality and speed should not be less than that of a relocatable or fixed scanner type and the scanner design must be the latest type with latest generation design features incorporated.
 - The scanner has the capability to perform high-throughput scanning. (>60 vehicles per hour) of large trucks, with scan speed up to 10 km/h (6 mph), without loss of image quality.
- Scanning equipment should allow for all legally sized (including road legal oddly shaped cargo) cargo to be scanned.
 - The scanner should be able to provide a warning for cargo that exceeds 3.5m cargo width and higher than 4.7m above ground level. Cargo that is not loaded according to the South African Road Transport Act must be prevented from entering the facility through integrated sensors.

- Bidders to ensure that scanner system is compatible with existing centralised analysis software in the market (i.e. unified image format), and compatible with the follow-up standard data formats, based on meeting the WCO's standards.
 - The scanner shall be able to generate X-ray images in unified file format
 - Specifications to meet the UFF2.0 WCO standard file format compatibility.
 - Latest generation detectors and resulting image calibration tools with interpretation software should be part of the standard system.

6.2 Installation, Maintenance, & Operational Reporting Requirements

- Scanners must be setup to be secure to accidental and deliberate damage through robust barriers and high-volume traffic management conditions to protect the equipment at all costs.
 - Scanners should include adequate flood lights and CCTV cameras with NVR to record each event in detail and allow for scanner operator and command centre (NTOC) to clearly view operations during scanning for any anomalies. Camera system to cover:
 - Entrance of the exclusion Zone
 - Exit of Exclusion Zone
 - Scanning Area

It needs to be free of complex ground works and must make use of the existing infrastructure (i.e., standard concrete paving) where possible to minimise the initial turn-around time.
- Scanners should have backup power capability
 - The scanners should be available 24/7 without interruption, including loadshedding or power failures (power supply backup to ensure continuous and cost-effective operation.)
- Training to be given to all SARS Officers that will be operating, reading and conducting image analysis on the scanner images (i.e. Command Centre).

- The bidder should provide training to transfer comprehensive knowledge and techniques for:
 - System Operation
 - Image analysis and interpretation
- Training program to permit continuous integrated training with Supplier's accredited Resource in image analysis when equipment is upgraded and/or new software is uploaded.
- Training should include training of SARS official that will be able to train staff in the future (train the trainer).
- Training will be conducted centrally
- The Supplier must provide regular and scheduled inspections and maintenance in accordance with the manufacturer's specifications and associated infrastructure for the lifespan of the equipment.
 - The provision of maintenance and support must include all activities necessary to restore the full functionality of the scanning solution after the occurrence of an incident or to rectify a problem in accordance with the service level agreement.
- The supply of PCs & monitors should meet the SARS approved specification
 - The bidder to supply PCs & Monitors to meet the SARS approved specification and compatible with SARS IT platforms (refer to appendix 1 – integration requirements and applicable standards)
- The system must be able to operate in extreme conditions that applies at most of our ports, air-conditioned and dust free equipment enclosures with no down-time due to mainly over-heating. An auto calibration system must verify the performance and detection capability to ensure correct performance and operation.
- The system performance and operation.
 - The equipment should be dust proof and operate under the following conditions:

- Temperature: -10° to 50° C
 - Relative humidity up to 100%
 - The system should be resistant to the wind (constant 70km/h & gusts up to 100km/h)
-
- SARS intends integrating and centralising the scanning solutions output, image artefacts and specifically the results of inspection “hits” for evidence in further actions. SARS also intends remotely interrogating the scanner management systems for utilisation statistics, backup and other administrative purposes.
 - The bidder should ensure the integration capability with scanners at Inland Border Processing Centers (Data should be available for import into SARS case management (i.e. SARS Service Manager) application systems in a non-proprietary format).
 - Images need to be stored against declared manifest.
 - Real time data transmission - All captured information must be sent to the SARS National targeting Operations Centre (NTOC)
 - Scanned images should be transferrable to SARS command centre (NTOC) for real time analysis and bidder's data requirements needs to be defined to facilitate this requirement (e.g. Processing time vs scanning throughput)
 - SARS should provide high bandwidth.
 - The proposed solution should be capable of connecting to SARS network and, the scanners able to integrate transparently to the SARS network, systems and processes.
 - All scanned images and related metadata should be able to be extracted in industry standard formats and data structures and be transmittable through the SARS network.

7 MINIMUM REQUIRED FEATURES

7.1 Scanner and Inspection System Integration Requirements

As a minimum, the following data should be available for import into SARS case management applications system in a non-proprietary format:

- Operator details
- Date and time stamp of image
- Marked up image
- Management and daily reports

SARS intends integrating and centralising the scanning solutions output, image artefacts and specifically the results of inspection “hits” for evidence in further actions. SARS also intends remotely interrogating the scanner management systems for utilisation statistics, backup, and other administrative purposes.

SARS does not intend to be prescriptive regarding the equipment proposed and is expecting the Supplier to advise and motivate the integration of equipment and optional components that will modernise and enhance SARS’s detection and enforcement efforts.

It is imperative that a solution proposed be capable of connecting to SARS network and SARS should be able to integrate the scanners transparently into SARS network, systems and processes. The integration work itself, however, will be done at the sole discretion of SARS and will not necessarily coincide with the initial installation of the equipment. The bidder must provide software interfaces to SARS to allow the integration with SARS systems.

All scan images and related metadata should be able to be extracted in industry standard formats and data structures and be transmittable through the SARS network.

SARS must be able to import and manage the images and inspection results with SARS applications and SARS's enterprise document solution (Documentum).

Further detailed information on SARS integration requirements and applicable standards are described in Appendix 1 to this document.

7.2 Threat Image Projection

SARS requires that the supplier has sophisticated software accompanying the scanner solution capable of threat image projection. Threat Image Projection (TIP) must enable SARS to improve operator proficiency by inserting fictional threat images at configurable intervals.

7.3 Automatic Threat Object Detection

The software must be capable of the highest level possible of automatic threat object detection and be capable of issuing an appropriate alert to the operator. Automatic threat object detection functionality, capable of distinguishing organic from inorganic objects is required.

7.4 Device Duty Cycle

SARS requires that all scanner devices be capable of 24x7 operations, interrupted only for required maintenance and possible break-fix incidents. This must not be confused with the service coverage period requirement set out in paragraph 7.8.2. The device duty cycle refers to the minimum capability of the device whereas the service coverage period refers to the required hours of service support.

7.5 Image Archiving

SARS requires that proposed scanning solutions have the ability to archive images and related data. On demand de-archiving must also be supplied as part of the scanning solution.

7.6 Backup/Recovery Functionality

- Taken into account the sensitive nature of scanned data (images) as well as all other operational data residing on the device. SARS requires that the scanner solution must provide seamless backup and restoration capability (inverter with battery backup power supply), to ensure continuous operation of the scanner until the load is transferred to the generator system.

7.7 Health, Safety and Security Requirements

Bidders to conform and meet all the criteria and regulations required for X-Ray or other high energy penetration equipment (Gamma, Neutron or X-Ray) as per Bidder's submission products as per SAHPRA legislation and rules as well as the license for the X-Ray (Gamma and Neutron included) machines, issued in terms of the Hazardous Substance Act (Act 15 of 1973). Including ISO standards (ISO 45001 and ISO 14001).

The identity numbers and SABS BIN No. of the Bidder's service technicians registered to carry out the servicing of the X-ray machines in accordance with the requirements of the South African Bureau of Standards must also be submitted as part of the Bidder's Proposal. Bidders to ensure that all assigned personnel under its control possess the accreditations and qualification to provide the requested equipment, maintain the system, and the scheduled training. This includes the references of accredited training personnel, appropriately accredited maintenance, Engineers and appropriately accredited technical installation Team. (References to be provided and accreditation certificates must be included with bid).

A standard minimum radiation exclusion zone will be accommodated for onsite to meet environmental health and safety standards. Any larger required facility needs to be noted by the respondent with detailed explanation. Exclusion zone details must be stated by each bidder.

SARS prefers that the scanner devices have the option of being equipped with CCTV camera facility for observation of operator activity.

7.8 Maintenance and Support Requirements – (Service Level and Coverage Requirements)

In addition to the best-in-class scanner technologies SARS requires the provision of maintenance, support, and project management services to ensure the investment delivers optimum business value. The Supplier must provide the required services in any of the geographic regions and sites as specified by SARS (see Appendix 2). The services to be provided include the following main activities:

- The planning, vision, delivery, installation, commissioning and decommissioning of the scanner solution and infrastructure as well as moves, additions, and changes.
- Maintenance: Regular and scheduled inspections and maintenance in accordance with the manufacturer's specifications of scanners and associated infrastructure for the lifespan of the equipment.
- Break-fix: all activities necessary to restore the full functionality of the scanning solution after the occurrence of an incident or to rectify a problem in accordance with the service levels.
- Incident, problem, and operational change management relating to the scanner solution.
- The timeous supply of up-to-date configuration information to SARS

- Adherence to the applicable SARS IT policies processes procedures standards & guidelines. These will be advised at the time of contracting by SARS for a specific solution acquisition.

In addition, all outages and maintenance will be centrally reported and managed by SARS central incident management systems based on SARS IT Service Desk System (BMC Remedy).

- Reporting to SARS representatives.

In addition to the requirements set out in this Business Requirement Specification, all scanner services must be provided in terms of the specific terms and conditions and metrics set out in the NISDS Agreement. The Bidder is required to read all terms contained in the proposed NISDS Agreement and to respond in the format set out in the RFP Main Document.

7.9 Service Levels

SARS has designated three separate Support Levels of the SARS sites. These are “Level 3,” “Level 2” and “Level 1”. SARS may change the designation of a SARS site at SARS’s sole discretion upon no less than 30 (thirty) days prior written notice to Supplier.

Supplier must respond to and resolve an incident affecting a NISD Solution within the period set out in Table 10 that corresponds to the classification of the site (“Level 1”, “Level 2” or “Level 3”) where the NISD Solution is located.

Table 10: Support Levels

Support Level	Service Level Target	
	Time to Respond	Time to Resolve
Level 3	4 hours	8 hours
Level 2	2 hours	4 hours
Level 1	1 hour	2 hours

An incident will be deemed to begin at the time that it is first reported to, or otherwise when discovered by Supplier. Supplier shall ensure that all incidents are recorded on SARS's IT Service Desk system (BMC Remedy) as soon as the Supplier becomes aware of such incidents.

7.10 Service Coverage Periods

Each SARS site is assigned one of two service coverage periods which is the period during which Service Levels are to be measured against supplier's provision of the deliverables. Each NISD solution maintained at a SARS site will be assigned the Service Coverage Period of that SARS site. For example, if a NISD solution at a SARS site that has been assigned a Service Coverage Period of standard and a Support Level of Level 2. The four (4) hours' time to resolve requirement will only be measured during the hours of 06h00 to 22h00.

If no Service Coverage Period is specified for any SARS site, its Service Coverage Period shall be deemed to be "Standard" (see table below). SARS may change such designations at SARS' sole discretion upon no less than 30 (thirty) days prior written notice to Supplier. The Service Coverage Periods are set out in table 11 below:

Table 11: Service Coverage Periods

Service Coverage Period	Time to Respond
Standard	06h00 to 22h00 (7 days a week)
Premium	24 X 7 x 365

8 FEATURES THAT MAY BE REQUIRED AS PART OF FUTURE RFQS

8.1 Enhancement, Customisation, Development, and Integration Services relating to the Software and Systems

The Supplier must assist and provide SARS with enhancement, customisation, development, and integration services during the lifespan use of the various scanner

products, software and systems. All modifications to systems hardware and software will be tested in advance and deployed using SARS's change management process.

8.2 Infrastructure Requirements

The in-line scanner solution should include limited infrastructure and shielding, which is designed and manufactured in such manner to be free of complex ground works and must make use of the existing infrastructure where possible to minimize initial turn-around time. Site requirements should include only a subterranean reinforced cable channel and a standard heavy-duty paved surface.

These requirements, if any, will form part of an RFQ specification subsequent to the appointment of Panel. Suppliers will be expected to respond to such an RFQ requirement with an installation specification/report, including details of all manpower, materials, and transportation requirements. The CIDB registration certificate of the Supplier and/or its Subcontractor(s) must be submitted as part of the RFQ process for all construction work quoted on.

8.3 Training

The Supplier must provide training in the operation of the provided scanner solution. Must include the price for the training in the implementation cost when responding to an RFQ. The Supplier must also provide training on request by SARS in the operation of the scanner solution during the life of the scanner solution. Such training must be provided on a time and materials basis. The price for training on a time and materials basis must be specified accordingly in the time and material portion of the Pricing Template under personnel rates (Hardware Operations). The content of such operational training must include.

- Archiving and retrieval of images
- Quality Management
- Scanner Operating Procedures
- Health and Safety Compliance

The Supplier is expected to provide advanced image recognition training to SARS image analysis staff.

Training to be given to all Officers that will be reading and conducting image analysis on the scanner images. The Supplier must allow for continuous integrated training in image analysis centre. The Bidder must provide details of the training that it offers in this regard and the pricing of such training in the time and material portion of the Pricing Templates under personnel rates (Image Recognition).

8.4 Reporting

SARS intends integrating and centralising the scanning solutions output, image artefacts and specifically the results of inspection “hits” for evidence in further actions. SARS also intends remotely interrogating the scanner management systems for utilisation statistics, backup, and other administrative purposes. Therefore, data requirements must be described to allow for real time analysis.

Management and operational reporting are essential for effective and efficient operation of the scanning facilities. Bidders must have the capability to develop at least the initial set of reports. Where possible the use of, and integration to, SARS security systems (Active Directory) and logging for reports to Microsoft SQL server is encouraged to simplify the reporting requirements across Supplier and SARS systems. Sample productivity reports should show how a consolidated view of reporting data across both Supplier and SARS systems and the Bidder should include sample reports demonstrating its compliance to these requirements.

8.5 Additional Equipment

Associated with each scanner category SARS may procure additional equipment to enhance a specified solution. Bidders should include specifications and pricing information on all additional available equipment that may enhance their solution as part of their Proposal.

9 OVERALL SOLUTION SCOPE

9.1 Description

- Number plate camera reader
- In-line cargo scanners.
- Automated boom gates
- Digital billboards
- Linking and integrating processes to the to the Command Centre
- Training of all impacted customs staff and trainers
- Implementation and post - implementation support

Please note the above items are non-negotiable for success of awarding the bid:

This document will focus on the requirements for centrally operated In-Line Scanners which will assist in non-intrusive inspections that are controlled and processed from a Central Scanning Processing facility with intelligent software tools to optimise the X-Ray equipment.

The in-line cargo scanner should be deployed within six (6) months (depending on bidder submissions) of awarding of the RFP. A contractual commitment will be required by the successful bidder before awarding of the bid.

Due to the mobility aspect of the solution, there is no constraint in terms of the ground works on site. Grid Power must be supplied by SARS or BMA at the designated ports of entry. The battery solution as per requirement above must be supplied as part of the bid and will be required as part of the deployment. The primary WAN link to the SARS image analysis centre and National Targeting and Command Centre will be supplied by SARS at the time of deployment.

All software setup and training of the centralised image analysis and advanced analytics software will be provided by the awarded bidder at the time of awarding the bid.

APPENDIX 1 – INTEGRATION REQUIREMENTS AND APPLICABLE STANDARDS

1. Scanner And Inspection System Integration Requirements

This section has been prepared to provide guidance to the objective of integration of scanners and inspection equipment to SARS systems where this integration is possible and supported.

In simple terms the requirement is, wherever possible devices and specifically the inspection artefacts produced by these NISD Solutions must be available for inclusion in the SARS Inspection Case Management solution described above. Ideally this should be on SARS network and the artefacts should be in a standard format that SARS can readily consume either as files or through an API.

SARS has a country wide Wide Area Network (WAN) to all significant ports of entry with other agency sites and smaller SARS sites covered by VSAT. SARS has rolled out significant enhancements to its customs systems including a single risk engine approach (CRE) that assesses, on a case-by-case basis, the risk of every movement of people and cargo and the central delivery of a case management system. This has led to an increase in the requirement for targeted inspections and interventions and hence there is a requirement for scanner solutions to support the effective application of case management in SARS.

To achieve the integration of the scanner solutions with SARS systems, SARS seeks to utilise existing hardware, software, standards, and infrastructure.

All scanner equipment and software will be tested for compatibility with SARS systems and networks by SARS before acquisition or acceptance. To assess compatibility testing, all Bidders must provide SARS with the following information to be provided in the Technical Template:

- The full specification of integration capability.
- Examples of how the integration capability works.
- Customer references and how these interfaces have achieved integration between the customer's systems and inspection devices.
- Examples screens of the API, File Transmit (XML) mode functionality, and HTTP Request Transmit mode functionality in use.
- Sample programmes where API, File Transmit (XML) mode functionality and HTTP Request Transmit mode functionality are used to integrate with the scanner operating system.

In addition, the Suppliers on the Panel may be requested to provide a working copy of the software that SARS can utilise to verify the capability of the proposed integration interface as part of due diligence or as part of the RFQ process.

Any guidelines in this document detailing SARS's physical infrastructure and software are accurate at the time of publication and may change over time. From time to time the Supplier will be required to work with SARS to ensure the supplied software remains compatible to SARS standards.

The cost for this effort must be included in the Bidder's pricing for maintenance of proposed solutions and systems. Any enhancements, patches and fixes by the Supplier to software and hardware must and will be pretested by SARS before deployment.

2 General Design Principles Required for Every Model and Scanner Type Proposed

Specification
All scanners and devices should be network enabled where possible.
Integration must be performed over SARS's Ethernet network.
SARS standards as to operational changes, security, version control, change, and release management, impact, and compatibility testing (RTR) relating to software will apply to all scanners deployed.
The SARS support desk will act as a centralised support centre for all technical support for scanners and will liaise (manage and co-ordinate) with the Supplier in the event of the scanners requiring support. Outages for maintenance must also be co-ordinated through this centre.

3 SARS STANDARDS

Wherever required, equipment and systems must be compatible to SARS standards. SARS will supply and support hardware and software which is not directly related to the specialised scanning system to achieve the integration to SARS's systems. This includes:

- Server Hardware and Software;
- Workstation Hardware and Software;
- Application Integration; and
- Image and file.

3.1 SARS Current Server Hardware and Software Standards

Server Hardware Specification
<ul style="list-style-type: none"> • Dell Servers <ul style="list-style-type: none"> ○ PowerEdge 740 Rack Servers • Storage of data - internal server storage or EMC Storage Array
Server Software Specification
<ul style="list-style-type: none"> • Windows Server 2019 • SQL Server 2016 • Any Microsoft server software as needed • Symantec anti-Virus software • Active Directory to SARS security Standard • Any other software required to maintain and manage the server

3.2 Workstation Hardware and Software Standards

Workstation Hardware Specification
<p>*****The application owners, in collaboration with software vendors, are responsible for evaluating the impact on their respective applications and determining the best option of procuring either a Standard or High Specification Device. This evaluation process should consider the specific requirements and performance needs of the applications in question. The decision-making and procurement process should align with SARS policies and guidelines. *****</p> <p>High Specification Workstation (Dell/Lenovo)</p> <ul style="list-style-type: none"> • Intel® Core™ i7-12700 vPro® Processor (up to 4.90 GHz) or later • 32 GB RAM (DDR5 4400MHZ or later) • 512 GB (m.2 2280 SSD) Storage • Enhanced Graphics Card (4GB GDDR6) or later • Biometric Mouse • 2 Network Cards (if still required for cargo scanning) • 5 Year Premium Warranty (Next Business Day Support) • 5 Year Keep Your Hard Drive Service • Accidental Damage Protection Warranty(optional) <p>Standard Specification Workstation (Dell/Lenovo)</p> <ul style="list-style-type: none"> • Intel® Core™ i5-12500 vPro® Processor (up to 4.60 GHz) or later

- 16 GB RAM (DDR5 4400MHZ or later)
- 512 GB (m.2 2280 SSD) Storage
- 2 Network Cards (if still required for cargo scanning)
- Biometric Mouse
- 5 Year Premium Warranty (Next Business Day Support)
- 5 Year Keep Your Hard Drive Service
- Accidental Damage Protection Warranty(optional)

Workstation Software Specification

- Microsoft Windows 10/11 Operating System
- Microsoft Office 365 or later
- Microsoft Outlook 365 or later
- Symantec Antivirus V14.3 RU6 or later
- Microsoft Edge Web Browser
- Active Directory to SARS security Standard
- Any other software required to maintain and manage the workstation

3.3 Application Integration Standards

Specification

SARS can support the following application integration methodologies and standards:

- XML – Extensible Mark-up Language
- Direct application to application integration – Simple Object Access Protocol (SOAP) / Simple Query Language (SQL), Others
- Enterprise Service Bus (ESB) – WebSphere and BizTalk
- Electronic Data Interchange - EDI
- Permissible Services (ESB's)– Web Services Definition Language (WSDL) / Java Beans / MQ WebSphere
- File Transfer Protocol (FTP) – batch interfaces – IBM MQFTE can also be utilised.
- Where possible World Customs Organisation data standards will be applied

3.4 Image Standards

- SARS's requirement is for the images to be made available in a non-proprietary format such as JPG, TIFF, PNG, GIF bmp, etc. If proprietary formats are required for image processing reasons. it must be possible to export images to industry standard formats. The conversion to industry standard format must be lossless i.e., high quality and no notations or colour should be lost.
- Specifications to meet the UFF2.0 (WCO standard) file format compatibility.
- Operator must not be able to modify, delete or tamper with, in any way, images stored in the Specialised scanning system.

APPENDIX 2 – DIAGRAM OF SARS PORTS OF ENTRY

