



SAAB

SAAB CBRN SOLUTIONS

The CBRNe threat is real.
Are you **prepared?**



Protect and **secure.**

Early warnings to units and personnel in the field are a key factor in limiting the effects of CBRN threats. With Saab's coherent and integrated CBRN defence communication and information system (CBRN CIS), CBRN specialists and decision-makers will have efficient tools to detect and identify a wide range of threats and receive the support needed for providing fast and accurate early warning.

We offer

Our CBRN solutions include systems for Automatic Warning and Report (AWR), customizable sampling equipment and certified transport packaging as well as a wide range of services and solutions for CBRN training, individual protection and support, to mention some examples.

Challenge conventions

Today, both military and civil forces rely on Saab's CBRN solutions for protection of people and for securing operational capabilities. By challenging the conventional and by putting new ideas to the test we support our customers in protecting and securing their operational capabilities.

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From pilot study to phase-out

When the unthinkable happens, the AWR puts you **in control.**

The Saab CBRN automatic warning and reporting system is unique in that it integrates Detection, Identification, Monitoring, Warning and Reporting and provides a consolidated threat picture to the operational forces.

It negates the need for specialist CBRN personnel to be employed widely throughout the operational forces, reducing training and personnel management costs.

The system can use virtually any type of sensor – meteorological, chemical, biological, radiological, positioning or video, to mention a few – from any manufacturer. It is based on a modular and open architecture that allows users to change sensor configuration over time in response to changing threats. All units, from fixed and mobile to the soldier system, are fully integrated.

The AWR system is robust, weather-protected, EMC/HPM-protected and designed for use in harsh environments.

It can be installed in headquarters, camps and vehicles as well as on hand-held computers.

It is based on Saab's recognised Safir BMS, which is designed to meet military communications and management requirements. The AWR system also supports international standards such as ADatP-3, ATP45 and JC3IEDM to make it possible to exchange warnings and reports with other forces.



AWR MONITORING - KEY BENEFITS

- The National Control Centre monitors, presents and controls the CBRN sensor network
- The centre is expandable with fixed, deployable and mobile sensor systems
- Role based information sharing
- Capabilities can be added and customized

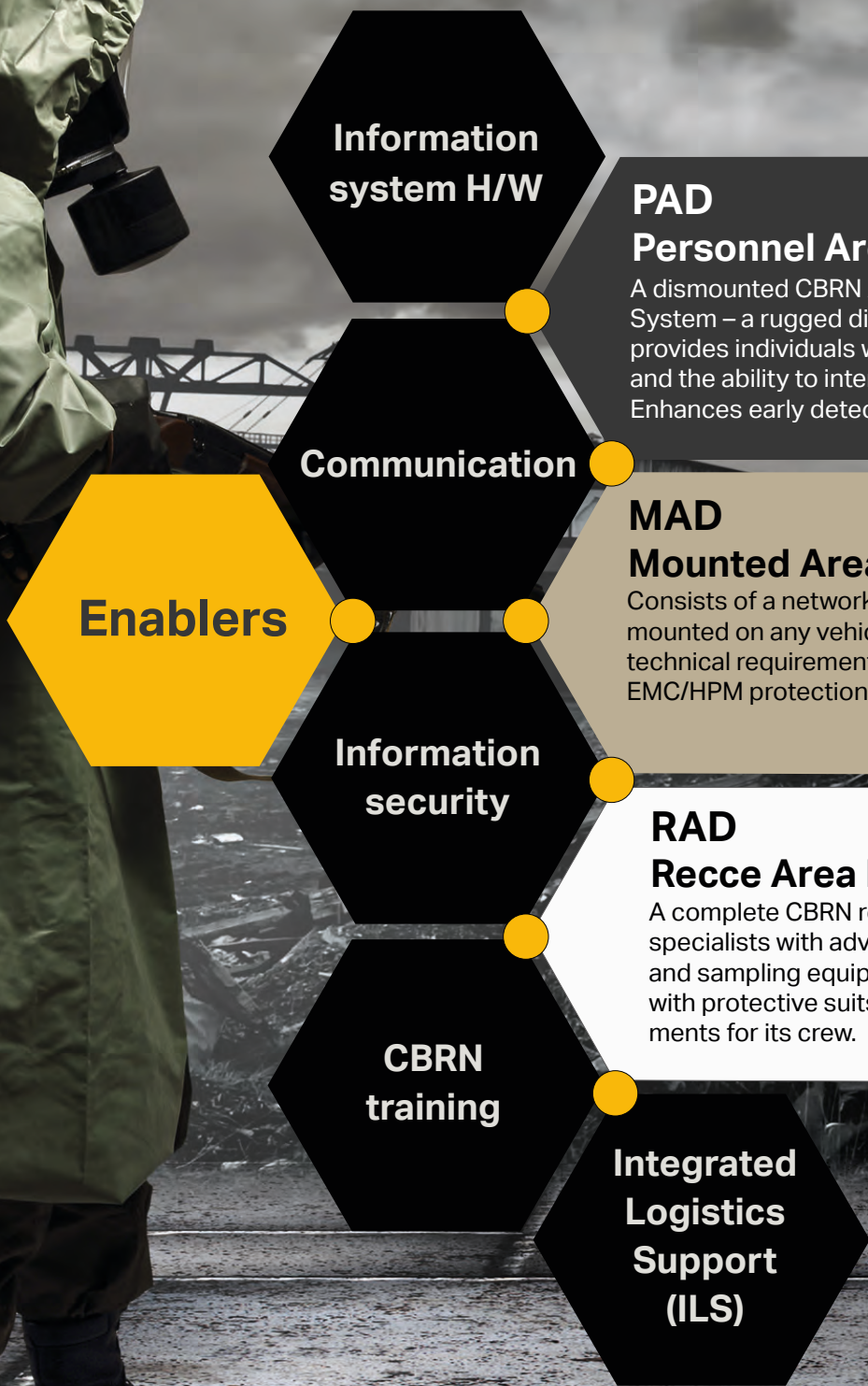
Basic Capabilities:

- 24/7 monitoring of CBRN events
- Sensor supervision connected to ERG and Medical handbook
- Sensor history
- CBRN reporting
- Warning areas and Warning system





CBRN products



DAD Deployed Area Detection

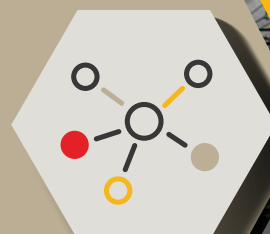
A stand-alone solution that works autonomously and automatically reports any events through TCP/IP.



oldier
faces
radio.

CAD Command Area Detection

Mission Control solution that supports international standards and is able to exchange warnings and reports with other coalition forces. It also includes applications for planning, decision support, monitoring, tracking, control, configuration, test, geographical fences and calculation of warning areas.



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SAD Stationary Area Detection

Permanent surveillance of strategic sites, buildings etc. Designed for long-term installation and can accurately detect C, B and RN events.



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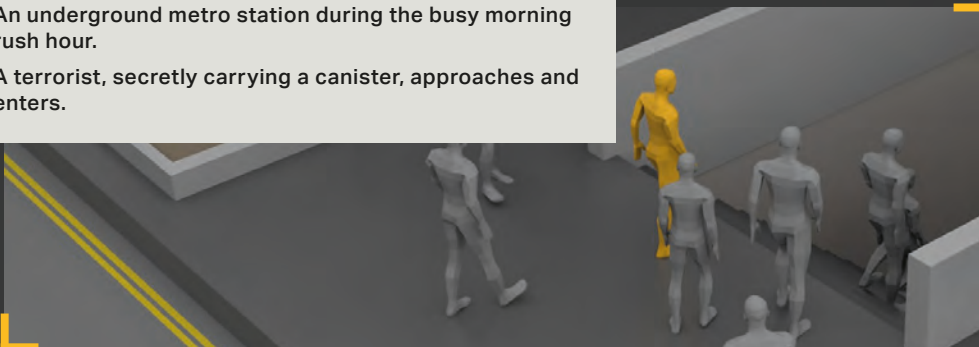
Civilian scenario

Metro - chemical attack

In this scenario – a terrorist event in a crowded metro station – we see how Saab’s complete CBRN solution comes together to coordinate support and ensure a joined-up response.

An underground metro station during the busy morning rush hour.

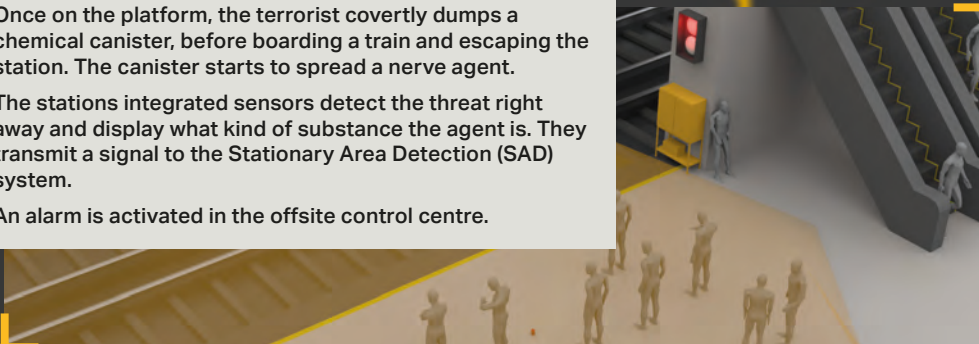
A terrorist, secretly carrying a canister, approaches and enters.



Once on the platform, the terrorist covertly dumps a chemical canister, before boarding a train and escaping the station. The canister starts to spread a nerve agent.

The stations integrated sensors detect the threat right away and display what kind of substance the agent is. They transmit a signal to the Stationary Area Detection (SAD) system.

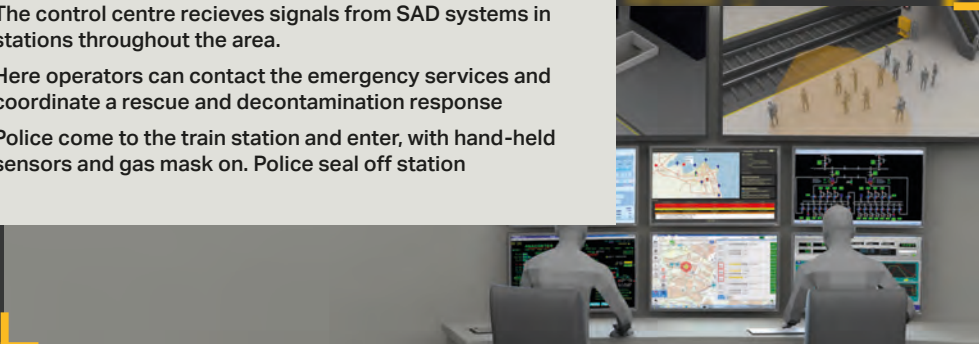
An alarm is activated in the offsite control centre.



The control centre receives signals from SAD systems in stations throughout the area.

Here operators can contact the emergency services and coordinate a rescue and decontamination response

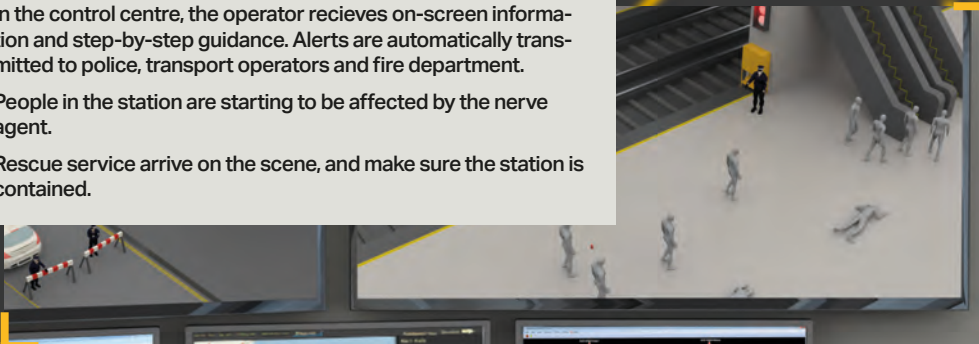
Police come to the train station and enter, with hand-held sensors and gas mask on. Police seal off station



In the control centre, the operator receives on-screen information and step-by-step guidance. Alerts are automatically transmitted to police, transport operators and fire department.

People in the station are starting to be affected by the nerve agent.

Rescue service arrive on the scene, and make sure the station is contained.



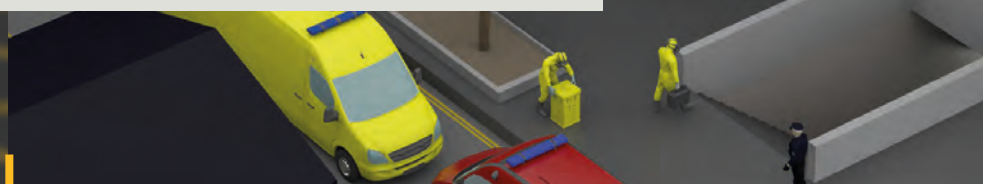
People in the station are ordered to leave the platform immediately. The transport operator stops inbound and outbound trains to stop airflow and reduce the spread of the threat. This also stops the flow of people.

The operator in the control centre monitors the situation using a network of cameras. The station operator closes ventilation to stop the spread of infection. All those possibly affected are isolated and treated.



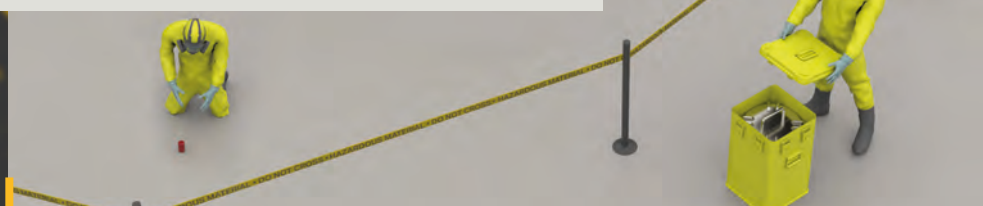
The rescue agencies send in available teams, wearing protective suits. Right away the teams start to help injured people and transport them from the platform.

The Personal Area Detection (PAD) system is used and is connected to the control centre.



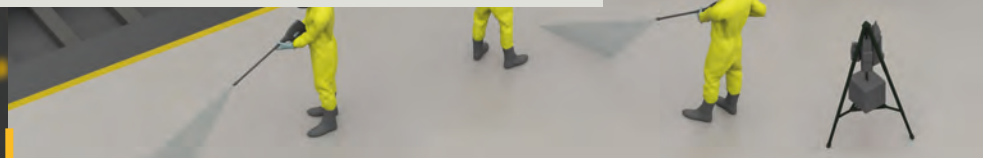
The HAZMAT team arrives to the scene and enters the station to take samples for identification.

The team brings sampling equipment and chemical sensors to provide provisional identification of the substance.



The fire and rescue department sends fast response personnel down to the platform. The rescue workers spray decontamination agents on the source to stop the spread.

They then place modular, deployable sensors around the station to reinforce the chemical network, monitor levels and ensure a final "all clear" status.



The HAZMAT team exits the station, having collected samples of the material. These samples are documented and packed into CBRN transport packaging, before being sealed and sent away to a laboratory for testing and analysis.

The HAZMAT team then undergo decontamination.

Following the all-clear, people can be allowed to re-enter the station and return to normal.



Military scenario

Gas attack

In this scenario, we follow Saab's advanced solution for threat detection, reporting and containment, which means soldiers in theatre can detect and contain a potential enemy CBRN risk before it can disrupt their supply route.

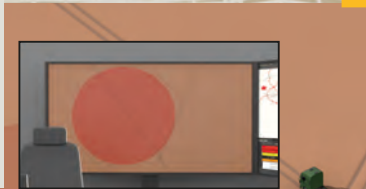
A truck driving along a logistics route enters a contaminated area. It detects VX nerve gas using its onboard CBRN Automatic Warning and Reporting system.



An automatic alert is sent out and a preliminary risk area established.

Automatic alerts are instantly presented for all system installations in the sensor network before entering the risk area.

Warnings and reports are exchanged with other coalition forces by way of the Command Area Detection (CAD)



The driver turns on the CBRN overpressuring system, sealing the vehicle and protecting occupants from the threat.

Units in the risk area put on protective equipment and start the filter stations in their vehicles, as well as updating their dress code in order to protect themselves from a potential attack.

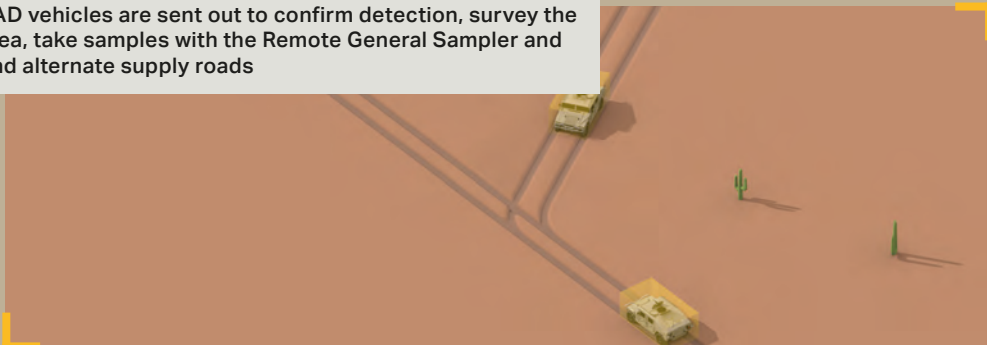


CBRN experts from the theatre level connect and verify functions and readings from MAD through the network.

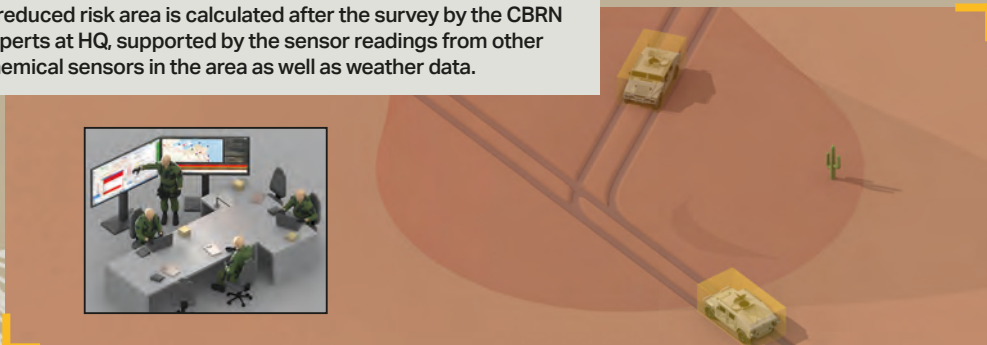
Information from other sensors in the Automatic Warning and Reporting system indicates no detection.



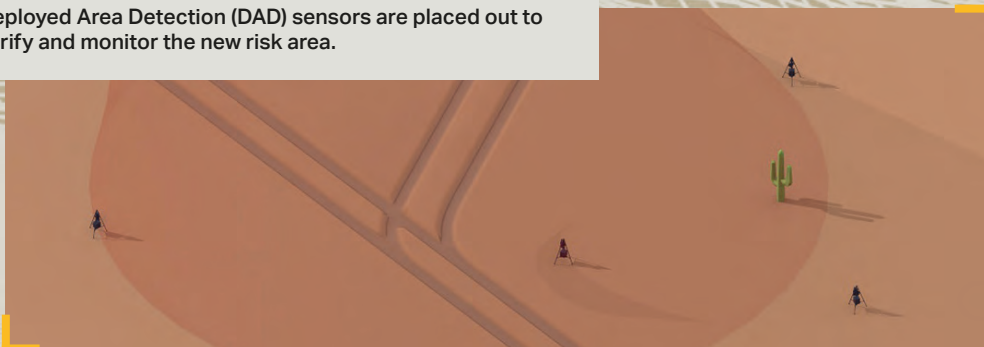
RAD vehicles are sent out to confirm detection, survey the area, take samples with the Remote General Sampler and find alternate supply roads



A reduced risk area is calculated after the survey by the CBRN experts at HQ, supported by the sensor readings from other chemical sensors in the area as well as weather data.



Deployed Area Detection (DAD) sensors are placed out to verify and monitor the new risk area.



The vehicle and all equipment are decontaminated before entering the base.
The CBRN sample is removed from the RGS and put into the transport packaging, which is sealed and sent to the theatre level for validation.



Dress code is lowered - there is no longer any need for respiratory protection.
A new supply road is ordered.
The area is monitored.



Customized **sampling concept**

Saab's sampling equipment and transportation packaging is designed to suit the needs of any operational force that requires the ability to conduct safe and efficient field sample collection during a CBRN event, whether it is a man-made or an accidental event.

CBRN Sampling Kit

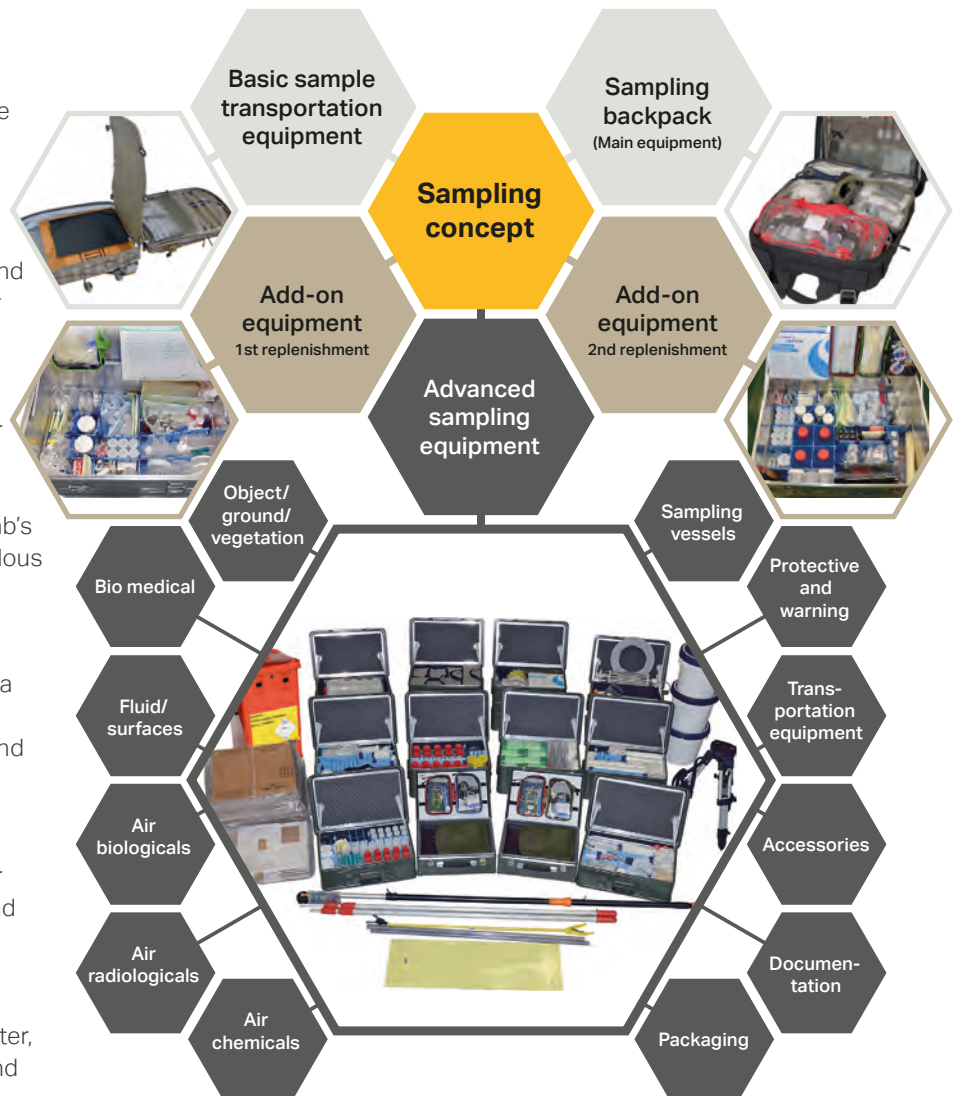
The CBRN Sampling Kit is a man-portable case with a selected range of sampling equipment. It provides first responders, military or other operational forces with all the tools they need to conduct efficient, proper and secure field collection of all types of chemical, biological and radiological agents, including toxins and other toxic industrial materials.

The CBRN Sampling Kit comprises the equipment and procedures needed for proper collection of a wide range of sample materials, including, liquids, soil, powder, objects, and vegetation. It is also designed to work with Saab's CBRN transport packaging solution for hazardous materials.

Advanced CBRN Sampling Equipment

The Advanced CBRN Sampling Equipment is a dynamic and customizable collection of field sampling equipment that can be combined and packed to suit precise customer needs and requirements.

The collection includes everything needed for sampling of all types of chemical, biological and nuclear warfare agents, toxins and industrial chemicals as well as radiological substances. It contains more than 300 different articles for forensic sampling of CBRN agents from air, water, liquids, soil, powder, objects and vegetation and includes 11 different sampling kits, one record kit, one accessory kit, three mission boxes and a cooling box for samples. All equipment follows NATO Standard AEP 10 and AEP 49.



Key benefits

- User-friendly
- Just bring the needed equipment
- Add-on modules for a higher level of complexity
- Handbook with step-by-step guide
- Based on Nato standard AEP-66

Transportation

Saab's sampling equipment and transportation packaging is designed to suit the needs of any operational force that requires the ability to conduct safe and efficient field sample collection during a CBRN event, whether it is a man-made or an accidental event.

CBRN Transport Packaging

The transport packaging solution provides safe transportation of hazardous CBRN samples and toxic industrial chemicals. Easy to handle even in full protection clothing and approved for air, land, sea and rail transports. The package consists a case and a transportation container.

The plywood case has aluminium-reinforced edges, is furnished with shock absorbing material and has a documentation compartment for signs, seals, transportation documents, test documents, manual and spare parts list. The transportation container is made of stainless steel with two shock-absorbing inserts housing 1 litre or 250 ml assaying vessel.

Approvals

Saab CBRN Transportation Packaging is approved for transportation by SP Technical Research Institute of Sweden according to ADR, RID, IMDG, ICAO, IATA and UN regulations. Transport Packaging and Advanced Sampling Equipment is available with NATO stock numbers.

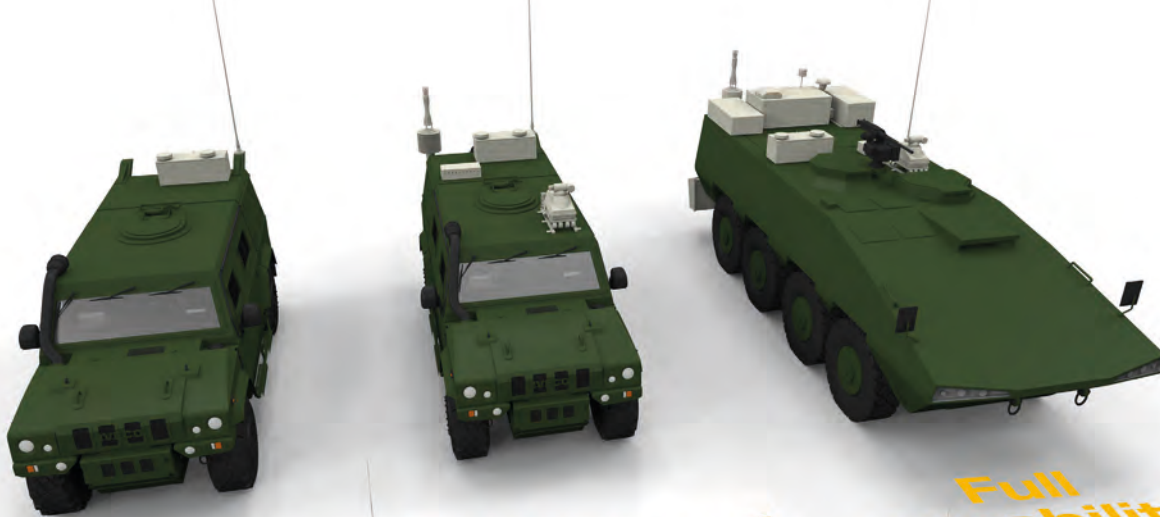
Key benefits

- Certified for transport of explosives. CBRNe
- Certified for all types of transportaion including road, railway, boat and airplane.
- Certified according to the transport regulations of ADR, RID, IMDG-code and ICAO-TI/IATA
- High quality and professional design of the packaging makes sure that the transportation and the storage of hazardous materials is safe and without any possibility for leakage to the environment.
- Dimensioned and approved for maximum one bottle with 1 litre of liquid. It is also possible to transport air-samples, powder, objects, soil-samples, medical samples and more.
- Easy to handle with protective clothing
- Low weight
- Possible to procure in several colours
- Labelling and transport documents
- Service and support



CBRN **recce kit**

Saab's CBRNe recce kits are modular and adapted to be mounted on any military or civilian 4x4 or 6x6 vehicles, enabling users to monitor the outside from their work station.



Basic

Advanced

Full capability



		Basic	Advanced	Full capability
Main task	CBRN reconnaissance	X	X	X
	CBRN monitoring	X	X	X
	Ground survey			X
	Confirmed identification			X
	CBRN-sampling			X
	CBRN-Marking			X
Supporting task	CBRN survey	X	X	X
	CBRN surveillance	X	X	X
	Unambiguous identification with the on-board sampling and CBRN transport package			X
Capability	Provisional identification of C/TIC	X	X	
	Confirmed identification of C/TIC, RN and B			X
	Detection of R and B	X	X	
	Stand-off detection		X	X
	Air-sampling		X	X
	Weather data		X	X
	Ground temperature measurement		X	X
	Ground detection			X
	Ground Sampling			X
Solution	Saab mobile sensor platform	X	X	X
	Rugged Vetronics computer	X	X	X
	Saab software	X	X	X
	Sensor for C/TIC and RN	X	X	X
	Sensor for B	X	X	X
	Communication VHF and/or LTE	X	X	X
	Electrical mast		X	X
	Weather sensor		X	X
	Temperature sensor		X	X
	Sensor for stand-off c/TIC detection		X	X
	Saab remote general sampler		X	X
	Saab manipulator			X
	Saab heated ground detection			X
	Saab Marking module			X
Saab confirmation module			X	

CBRN training

Realistic live exercises with emission of real CBRN substances and agents are often costly, complex and environmentally hazardous to conduct.

The need to train with real substances and agents can never be entirely eliminated. However by using realistic simulations of dispersions together with source strengths, spill locations, geographical environment, weather conditions and positions of simulated sensors, live sensors, vehicles, personnel etc., this can be greatly reduced.

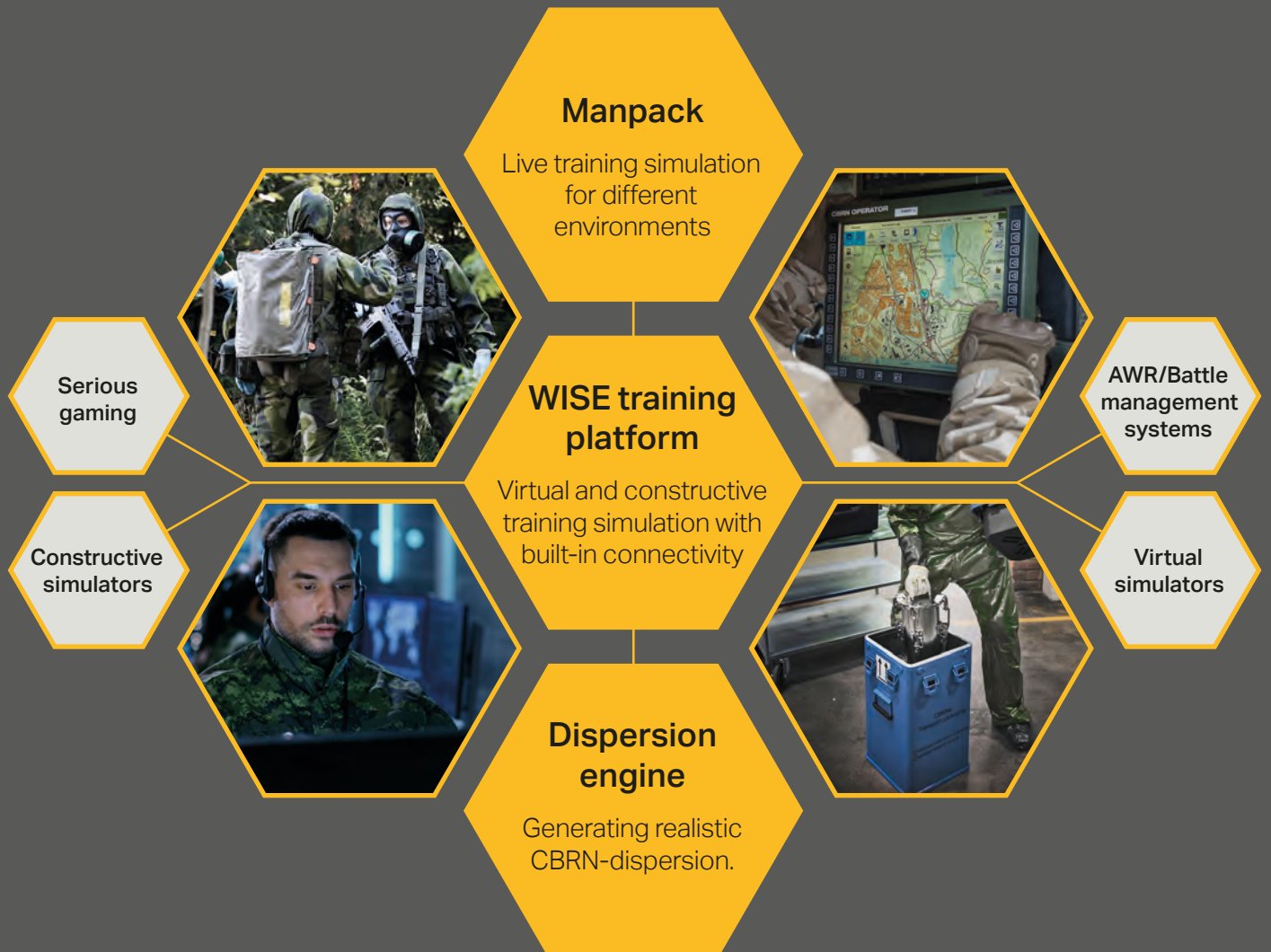
Together with the Swedish Defense Research Agency (FOI) Saab has developed a simulation based on realistic CBRN-dispersion data generated by the FOI Dispersion Engine.

The simulation can support different training needs such as the AWR simulation system which has the capability to simulate the dispersion of a chemical agent and then provide

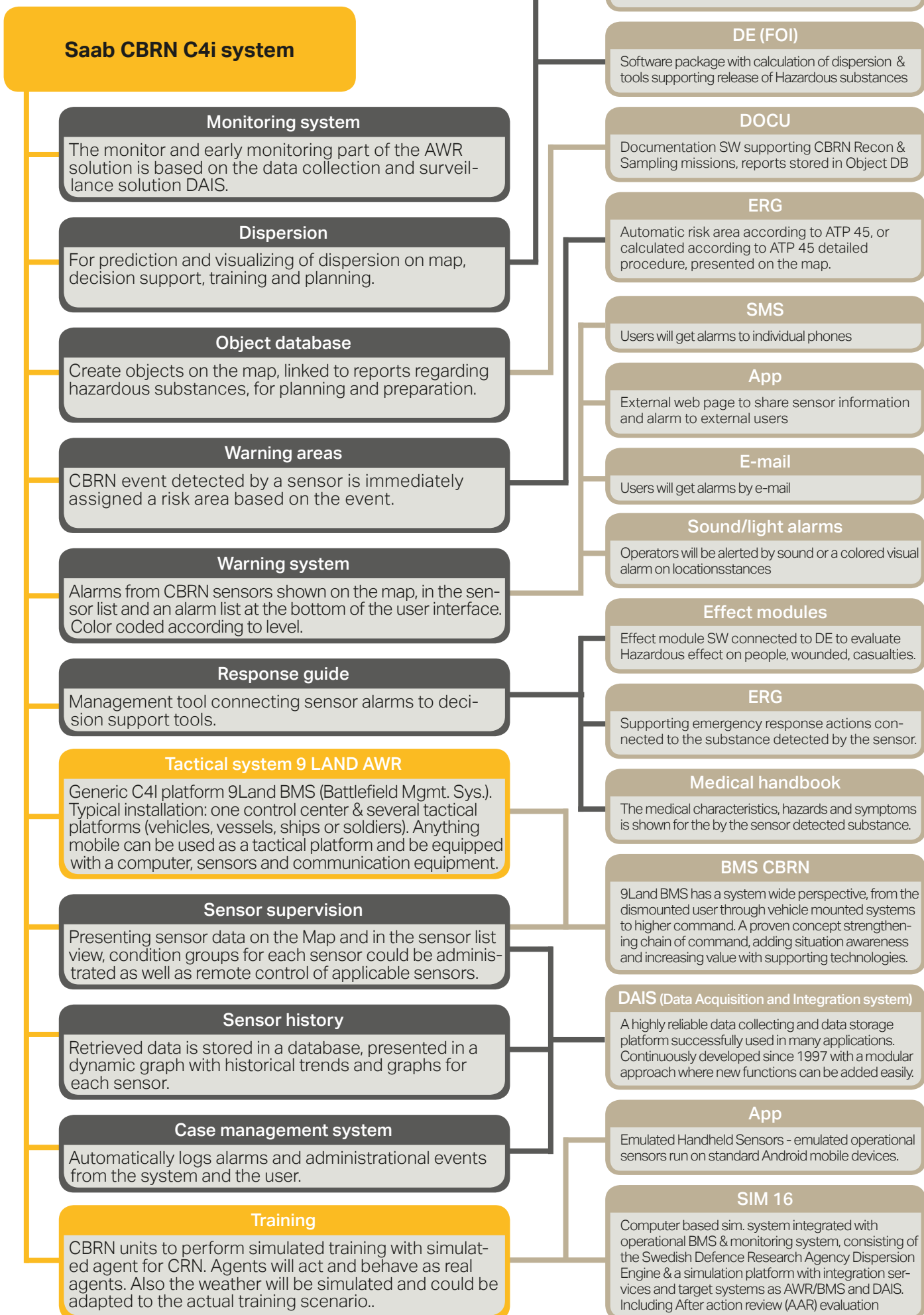
relevant CBRN-sensor information in a Battle Management System for warning and reporting. The simulation also allows for the distribution of biological and radiological dispersions in the air as well as ground surfacing of CBRN agents.

Integrated real-time data collection

To enhance the value of the training course an easy-to-use system is integrated in the simulation platform. It allows for real-time organized collection of large amounts of information from different sources – technical systems as well as personnel – to support After Action Reviews, evaluations and analysis.



CBRN C4i system



Total CBRN commitment

From pilot studies to phase-outs

In the CBRN field, Saab can provide a wide range of advanced technical services. We perform traditional tasks such as maintenance engineering, production of documentation, follow-ups and technical support services in connection with procurements, operation and phase-out of CBRN equipment.

Saab also undertakes product development and production and we offer tailor-made system solutions including system integration and handling systems.



SOME EXAMPLES OF OUR SERVICES:

- Pilot studies
- Project management
- Requirement specification
- Documentation
- System integration
- System safety analysis
- Quality testing
- Technical documentation
- General technical support
- Sensor integration
- System delivery and maintenance
- Maintenance analysis
- Training
- Environmental impact studies
- Modifications
- System delivery and maintenance
- Product delivery and manufacturing

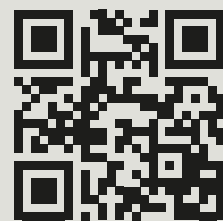




You can rely on Saab's thinking edge to deliver innovative, effective products and solutions that enhance your capabilities and deliver smarter outcomes.



Visit us for more info
and product details



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