TRAINING & SIMULATION PRODUCT OVERVIEW

The frontline of modern training

Our training philosophy

At Saab, we know that the most realistic training, followed by immediate feedback and detailed evaluation, is the best way to prepare for the real operation.

That is why we put the individual at the very centre of training operations and build our system from there.

This is an approach that saves lives and, with ever-changing threats, applies to experienced soldiers as well as new recruits.

The learning cycle allows soldiers to constantly and consistently add new knowledge to their bank of experiences. When exposed to a realistic situation, they use their existing experience to make quick, correct decisions. Their actions are carefully reviewed during the training session, and the results of this analysis add to their wealth of experience.

Thus soldiers are better prepared for the next exercise or mission, also allowing the commander to plan training with greater precision and decide when objectives have been achieved.

With adaptable training systems, accurate down to the last detail, you are able to provide the best preparation for soldiers and officers deploying on operations where real lives are at risk.

Therefore, the challenge is to turn training into learning. Not just to learn how to fight, but also to learn how to win.

This is the Saab training philosophy.

A complete training concept

We understand training and provide state-of-the-art, live and virtual training as well as LVC Integration solutions that support all phases of your training cycle.

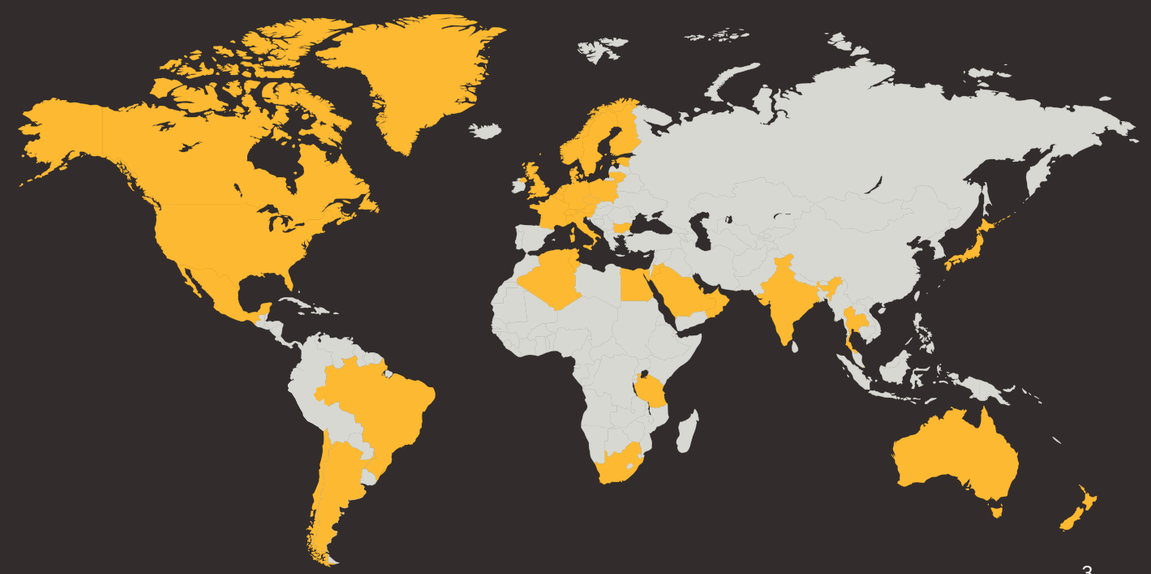
This requires high fidelity and interoperable systems for live, virtual and constructive training, providing not only a professional training environment, but also a realistic training experience, as real as the heat of the battle. Saab provides solutions that suit your precise needs with realistic exercises in both open and urban terrain, from individual and combined arms at platoon level to joint operations at brigade combat team level.

Training & Simulation is the centre of excellence for training within the Saab Group. Our engineers and scientists, many with a military background, focus on providing the level of technology and performance expected of a world class training provider like Saab.

As your Total Training Provider, it is our objective to improve training performance and increase equipment availability. For this reason, we provide a broad spectrum of services; from training need analysis to worldwide logistics support and services.

At Saab, we know that, in addition to improving your skills, training is about preparing for mission success.

In service around the world



Training for land operations

As global security threats change, operations – both military and civilian – require the utmost co-ordination and synchronization. Training must offer the same interoperability.

With Saab's solutions for realistic training, you have access to unique and world-leading training competence and solutions, including unique integration capabilities.

Saab Training & Simulation has built a modular and scalable system for live laser-based training. The system, called GAMER, is easy to configure to suit precise needs. This means that the Military, Special Forces, Police and other units can start with a smaller instrumented training system and then grow with more players and functions when the needs arise.

The GAMER System is based on Combat and Gunnery Training, and other packages for Urban Training, Medic, CBRN and Counter IED Training can easily be added. Different units can train separately or together.

The GAMER system provides powerful tools for analysis of performance at both individual and unit levels. Modularity and scalability are key for cost effective training.

Interoperability between countries is increasingly important. In Europe, we see an increased interest for multinational exercises.

Today, the Interoperabilty User Community (IUC) has 16 members whose common goal is to create more realistic and effective exercises.

Saab is the leading supplier of training systems in Europe with an offering that comprises solutions within the live, virtual and constructive domains. All combined with in-depth knowledge in planning, integration and executing mission-specific training solutions.

Total training provider

Live Training

Bringing you experience in advance

Preparing for battle requires training systems which allow soldiers to explore the elements of combat – in advance. Live training with Saab's simulator systems provides efficient tools for rapid analysis and evaluation of soldier skills and tactical behaviour.

With unsurpassed realism and precision, we bring trainees experience in advance.

Live Fire Training

Ensuring that skills and tactics are in place

Live fire allows soldiers to familiarize themselves with their weapons and their use, individually or within a unit.

Saab's solutions for live fire training include targetry and range equipment for gunnery, force-on-target and urban training.

Everything you need to ensure both individual skills and tactical behaviour are perfected.

Virtual Training

Preparing for tomorrow's demanding scenarios

Real missions require the complex integration of resources and capabilities. With Saab's high-fidelity virtual simulation solutions it is possible to create realistic training scenarios that reflect this level of complexity and ensure optimisation of training.

Training Services

Support where it counts

Training needs and training technology constantly evolve. At Saab, our focus is set on bringing you support and services which improve training performance and reduce training costs.

Solutions that will make a real difference in your day-to-day operations.

Training at all levels

By using coherent and scalable systems from individual and unit training through to training for combined arms, joint operations and multinational exercises, Saab is able to significantly enhance your training and contribute to operational effectiveness.

Individual performance

- Individual and two-man team weapon handling procedures
- Aiming procedures
- Firing techniques
- Individual firing positions
- Live fire training
- Continuation training to maintain and consolidate skills

Unit performance

- Crew and commanders influence on unit performance
- Unit TTPs
- Performance under increased stress and complexity (weather, day, night etc)
- Performance against opposing forces
- Live fire as part of a unit's training exercises

Combined arms operation

- Combined arms operations (including operations with engineers, artillery, medical, etc)
- Introduction of protective measures (such as CBRN)
- Increasing stress factor due to neutral forces and undefined targets
- Operations in special environment, such as MOUT, rapid reactions, desert environment, etc

Joint operations

- Additional stress factor introduced, especially for commanders
- International mission environment
- Mission changes and rules of engagement
- Interface different systems, e.g. close air support and C2 systems into one controllable training environment

Joining forces with interoperable training

Members of the Interoperability User Community (IUC)

The reality of multinational and coalition operations means that training across international borders will become increasingly common. Most of the IUC member armies use the same laser codes for their firing and target simulators, as well as data radio communication equipment and exercise command and control systems that are built on the same platform.

At Saab, we see the need for interoperability between armies becoming increasingly important. Our common platforms and interoperable solutions enable joint international training in diverse environments with the opportunity to exchange national tactics, doctrine and best practice in order to deliver operational effectiveness.

U-LEIS, the laser code for interoperability
Historically, armies have developed their own live training capabilities with main focus on national defence, weapons and training needs. Operations where different nations cooperate have proved that current and future conflicts are likely to be fought within a multinational structure. Examples of these structures include the NATO ISAF (International Security Assistance Force), NATO Response Force (NRF) and EU Battle Groups. This approach demands that nations who fight together must also train together and, as a result, the adoption of common standards within training equipment is vital.

UCATT (Urban Combat Advanced Training Technology) asked SISO to administrate the design of an optical interface specification document using "OSAG 2.0 Standard" as a base. UCATT was established within the NATO Modelling and Simulation Group and is responsible for exchanging and assessing applications for training and simulation systems. Today, the laser code is called U-LEIS (UCATT Laser Engagement Interface Standard).

A number of European armies recognized the need for multinational exercises and interoperability requirements early. As an initiative to implement common standards between nations, Saab, together with seven European nations, formed the Interoperability User Community (IUC) in 2008.

IUC member armies implement U-LEIS with a higher degree of simulation realism including ballistic/ missile trajectory, weapon lead angle, weapon super- elevation and eliminating "kill at speed of light" scenarios. The users also receive engagement feedback including tracer, burst on target and sight obscuration. Missiles and projectiles used worldwide can be simulated and the user also receives engagement feedback including tracer, burst on target and sight obscuration.

Thanks to U-LEIS, it is today possible to conduct advanced and realistic Multinational exercises.

GAMER Live Training

The Saab concept covers all training needs from individual up to and beyond brigade level. With a scalable and modular system, bespoke customer requirements can be easily met. Saab's systems can be upgraded to meet changing training needs.

Real-time control and evaluation

The Saab Instrumented Training System can be used from squad level upwards. It can also be configured as a fully deployable system, container-based or stationary in buildings. This reliable and established system gives high availability and outstanding quality in training, as proven by the delivery of many systems worldwide.

World-leading communication system
The Saab communication system is unique in its performance as it can handle unprecedented number of events per second.

The system also offers the highest available update rates and security, even storing offline data for automatic downloading later.

Scalable for your training needs
The radio system and software are scalable up to and beyond brigade level. This makes it simple to start with a smaller system and grow later as needed.

Post exercise evaluation

All of Saab's simulator systems can also be used for realistic exercises without the communication infrastructure. There are several options:

Basic non instrumented live training
This equipment allows realistic high fidelity training. All products are developed to function together in the field as well as in urban environments. Events such as fire, hits and shooter ID are recorded and stored in the equipment. This data can be downloaded after the exercise and evaluated using COTS software to perform an effective AAR.

Medium-instrumented live training
Soldiers are equipped with GPS tracking and all events (firing, hits, wound or kill status, etc) are stored. This system supports full MOUT training with indoor tracking. After the exercise, all data is easily and automatically downloaded via WLN. With Saab's After Action Tool the exercise can be evaluated in detail. This tool supports 3D maps and advanced graphical player models which contribute to situational awareness and understanding in an AAR.

Communication system – add-on to other systems

The Interim Range System (IRS) is an add-on system for instrumentation of soldiers and vehicles.
The system can link together over a thousand laser-based instrumented simulation kits for dismounted soldiers and vehicles to the EXCON hardware and software.

GAMER training system – modular and scalable

The GAMER Live Training System is based on a series of simulators and communication systems that can be configured to different needs. From platoon training, up to and beyond brigade level.

Besides normal force-on-force training, Saab has developed a number of add-on packages making it easy to perform training with special objectives. Add-on packages can be used separately or mixed together in different scenarios. The communication system is available from one-man portable to fixed installations. With the GAMER System it is possible to start with a smaller system and then grow step by step to a complete instrumented Combat Training Centre.

Expansions packs

LVC Integration. We are following the latest within gaming technology and use different products when devising our customers' solutions. Examples of this are integration of VBS, Steelbeast, Unity3D and Microsoft Hololens into Live Training.

Urban training. The Urban Training Package adds the capability of implementing an urban training environment within the exercise box. Units can seamlessly train the full spectrum of fire and manoeuvre from open to urban terrain. The system is modular, deployable and easily configured to meet differing training needs and budgets.

Medical training. Medical Training can be performed during exercises by using a handheld computer in the field for simulated examination and treatment of soldiers. Type of wound, status and treatment are automatically transmitted to Exercise Control (EXCON) for evaluation.

C-IED training. The Counter-IED Training Package has a unique and progressive feedback system to measure/validate an individual's use of C-IED equipment, squad command and control and the overall employment of Tactics, Techniques and Procedures (TTPs) – this was previously addressed solely by the subjective judgement of an instructor.

CBRN training. A virtual CBRN area is defined in EXCON and distributed to the players via the instrumentation system. The fields are updated according to the wind speed and direction. EXCON presents the dynamic concentration of the CBRN field during the training exercise. The system provides real-time monitoring of player status regarding use of protective mask and clothing, contamination state, decontamination and medical treatment performed.

Combat support. Today we integrate mortar simulators, UAVs, C2-systems and artillery as players in Live Tactical Training. The ability to use an asset such as a virtual UAV simulator based upon the live players takes the training to new dimensions. This will help the commanders in the field as well as being a key contributor during the AAR.

GAMER training system – system configurations

Manpack – man-portable system

The Manpack is a small unit training tool that provides almost identical functionality to a full scale CTC. Manpack can be used for all types of exercises with different players including personnel and vehicles. The small size of the man portable system provides excellent mobility and capabilities for exercise monitoring, control and AAR.

The Manpack is available in two versions, for up to 120 players and a more powerful version for up to 300 players.

Portable and trailer-based systems

Saab's portable instrumented system is configured in ruggedized boxes that are easy to deploy anywhere. The system can also be pre-packed in a trailer.

The system's scalability supports connection of several base stations to achieve extended radio coverage as well as more functions, such as recording of Combat Network Radio and video.

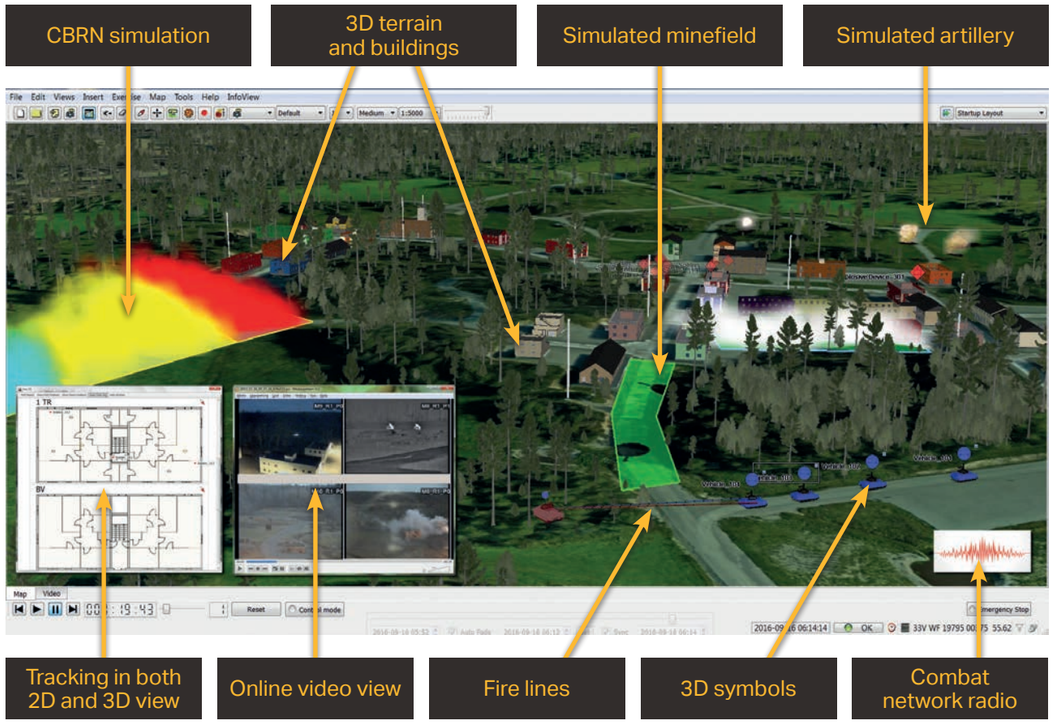
Fixed installations and container-based systems

Saab provides complete, fully equipped Combat Training Centres including infrastructure and buildings. The mobile configuration is container based, meaning that all functions for Command, Control, After Action Review, storage and maintenance are integrated in standard containers.

The containers are easily transportable by truck, train, boat and aeroplane.

Control and evaluation

WinExcon is a suite of interoperable software tools designed to help you prepare, plan, execute, control and evaluate first class military training exercises. By providing detailed, accurate and rapid feedback, training units and commanders have access to comprehensive AAR paving the way for a genuine learning experience. WinExcon is in use with leading armies around the world enabling high quality live combined arms Force-on-Force, Force-on-Target and gunnery training in open and urban environments. It is scalable and supports collective training from individual soldier level through battalion task force levels and beyond.



Digital maps and aerial photos

WinExcon displays training exercises against a 3D or 2D backdrop from imported digital maps or aerial photos. The exercise terrain can be realistically depicted with nature, buildings and elevation data providing vital realism to the AAR.

Tailor-made models and urban environments

All 3D player models such as vehicles, Blufor, Opfor, and civilians, etc are easily imported to WinExcon. The program supports 3D building models used in instrumented urban tactical training. This enables individual instrumented players to be tracked inside buildings and monitors the status of engagements, the effects of direct/indirect fires and booby traps. With a click, buildings can be made transparent making it easy to get an overview of players in buildings and rooms. The situational awareness can be enhanced by viewing each building in a 2D detailed view.

Artillery, minefields, CBRN

The system simulates the effect of minefields, artillery/mortars and CBRN weapons. This is represented on the screen and individual players receive feedback through their Personnel Detector Device (PDD) speakers.

Statistics/AAR/Take Home Package

The essential function of the AAR is to analyze the exercise and provide feedback to the units. All exercise data from the units in the field (down to the individual soldier) is transferred online and stored in WinExcon.

The software has a comprehensive set of AAR tools. A feature of the Take Home Package is a viewer making it easy for team leaders to review the exercise on a laptop.

Comprehensive presentation

WinExcon has a powerful graphical presentation in near real-time including audio effects from weapons fired. For example, fire and hit is represented on the screen with fire lines including distance. The 3D models show the player status e. g. live, wounded or killed.

Immersive holographic EXCON

Microsoft HoloLens® offers a unique way to collectively share the situational awareness between multiple users. All data from the exercise is collected, in real-time, in the Saab WinExcon. With HoloLens this data is displayed in a 3D holographic sandbox.

Integrated video and audio

All video and radio communication is time stamped and available for online and replay monitoring. The video and audio data presentations are time synchronised with other exercise data and also available for use in AARs and THPs.

WE:ARE - situational awareness for O/C's

It is often the case that it is difficult for O/Cs to follow and have a view over both blufor and opfor during an exercise. It is also hard to recognize and identify engagements and computer-generated actions such as virtual artillery and minefields.

Saab has developed an application called WE:ARE that is built on Augmented Reality for smart phones and tablets. O/Cs can through this device have a 360 degree overview of the battlefield and get real-time visualization of engagements, movements, etc. With a click the view changes between the real world and a map over the exercise area.

WE:Go - feedback for the soldier

Learning and building up confidence are the essentials of military training and cornerstones in simulated exercises. After Action Review is the common way to present the results of exercises for the group, platoon and company.

WE:Go is an application for smart phones and tablets that focuses on and monitors the individual soldier. It is available for everybody participating in an instrumented exercise with Saab simulators. How did I perform? What were my positions, movements and engagements? How many rounds did I fire and how many hits and misses did I have? Where and when was I wounded?

The Saab GAMER system collects a lot of data from live exercises and these are automatically downloaded and presented in WE:Go. In addition, videos from, for example, head cams can be replayed in the app.

Blended training

Now virtual simulators can train together with live players and be a vital part of the exercise and the AAR.

Integrated simulators

Saab training systems are modular and scalable and built around a powerful Exercise Control System. By integrating virtual assets, such as a Mortar simulator that replicates the complete mortar training process, a UAV simulator based upon the live players, as well as C2 and video, you bring new dimensions to your live training domain.

Integrated into Live Training and the Exercise Control (EXCON), virtual crews participate and have an impact on the operation in the field. Soldiers, vehicles and buildings are vulnerable and all shells and the effects on target thereof are recorded. Both Live and Virtual events are shown in EXCON during the exercise and can easily be replayed.

These virtual assets help the commanders in the field and are also a powerful AAR tool.

Simulators for gunnery and combat training

The famous BT46 simulator solution has been selected by the majority of key NATO countries and has been proven to be superior to all other systems on the market. The realism and precision of the BT46 is a standard for precision gunnery as well as combined combat exercises.

Today, Saab provides both true ballistic 2-way and 1-way laser simulators that can be used for all types of weapons from small arms to shoulder-fired anti- tank weapons and main battle tanks. Common to all Saab simulators is that BT46 is transparent during use with a rugged design which gives high availability and low lifecycle costs.

Realism is vital

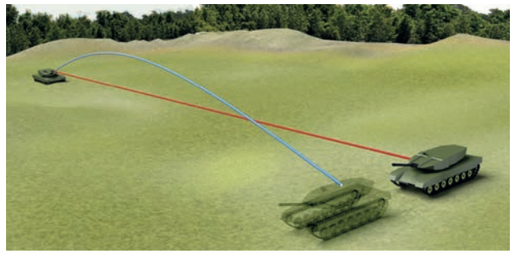
The BT46 laser simulator has set a world standard for realism, operational reliability and accurate analysis of results. Immediate feedback from each engagement is provided through a realistic simulation of tracer and burst on target/ground in the gunner's and commander's sights as well as sound cues over the intercom system and visual cues on the target. The target computer combines information about its vulnerability with data received from the firing system to determine whether it has been hit and, if so, what effect has been caused.

A higher level of high-fidelity

Modular Target System (MTS) is based on the latest version of the renowned BT46 family of high-fidelity simulators. This enhanced laser-based training solution provides wireless technology and app-based controls which increase the ease of setup and reduce through-life costs. It also provides augmented reality functionality in the vehicle's optics that simulate tracer and strike, resulting in a truly immersive training experience. Capabilities that make it ideal for both tactical and precision gunnery training.

The crew receives real time feedback

- Tracer trajectories and obscuration (when applicable) in the gun sights
- Burst on target and ground burst
- Sounds of weapon loading and firing heard over the intercom
- Audio feedback of the effect of incoming rounds
- Graphic and numeric display of gunnery results
- Targets indicate the effect of an engagement via strobe light



The BT46 simulates the ballistics and time of flight of the selected type of ammunition.

Facilitating interoperability

Precision simulation is a combination of high technology and the laser code U-LEIS. This code is used by many armies around the world and makes high quality joint training easier.

True ballistic simulation for small arms weapons

The Compact Ballistic Laser (CBL) is a new 2-way laser simulator designed to meet modern-day requirements for both gunnery and force-on-force combat training. An ideal simulator for effective learning of all weapon procedures.

Saab is expanding its training segment with a new compact laser simulator designed to raise the bar for small arms weapons training. The Compact Ballistic Laser (CBL) as it is named, offers true ballistic real-time simulation with all capabilities from Saab's renowned, high-fidelity BT46 two-way simulator system.

Improving small arms skills

Primarily designed for machine guns, sniper rifles, Remote Weapon Stations (RWS), lighter Anti-Tank Weapons (ATWs) and hand-held grenade launchers, the CBL makes tangible training benefits available for a wide range of arms. This way, soldiers get a true weight and balance of latest-generation ATWs like the Carl-Gustaf M4 (USA M3E1) and even 40 mm handheld grenade launchers.

Real-time feedback

Immediate feedback from each engagement is provided through realistic simulation of tracer, burst on target or ground burst in the gunner's sight. The CBL also simulates the ballistics and time of flight of the selected type of ammunition, meaning the gunner can concentrate on achieving improved lead angle and elevation – just like firing live ammunition.

Realistic tracer simulation

In the optical or video sight, the gunner sees simulated fire smoke obscuration, projectile flight path (tracer) and burst on target/ground.

Modular Target System

The vehicle simulator solution, based on the latest and improved generation of BT46, is a modular system for exceptionally good sustainment and upgradeability, implementing new wireless COTS interfaces in an even more compact form factor than before.

Major Benefits

For ease of installation, the modular target system units are to a great extent wireless with commercial interfaces, such as Bluetooth and WiFi.

The system is available as an "out of the box" Regular Line or bespoke Premium, all using the same modular core building blocks.

Modular means superior supportability and logistics, for lower operational costs.

Premium Line

The premium line seamlessly attaches to the combat vehicles and interfaces to operational switches and fire control. It truly enables the crew to master its gunnery skills and work as a team without inducing negative learning. Hence the ballistic weapon simulation enables dual use of laser-based, precision gunnery into traditional tactical training.

Premium line replicates the true outline and vulnerable areas on a vehicle and enables true understanding of different tactics and strong points. The high-fidelity vulnerability models enable the gunner to accurately select an impact point to achieve effect on target. This supreme accuracy also enables simulation of countermeasures such as individual Reactive Armour plates or Automatic Protection Systems.

The automatically collected engagement data supports elaborate technical and tactical analysis thus truly enabling the OODA loop in doctrinal development.

Regular Line

The regular line is designed for non-frontline vehicles but equally important for the tactical understanding of the battlefield. Building on the same modules, this product line is using a generic silhouette and vulnerability that is easily mounted on any vehicle using just Velcro. The perfect choice for e.g. a visiting international training partner.

LIVE TRAINING

Soldier training devices

The individual soldier is the key player in real missions. That's why we focus on high quality simulation that enhances realism and motivates individuals to train as they fight. Saab offers a complete range of products for both small and large scale training. The simulators are interoperable with MILES equipment.

The Personnel Detection Device (PDD) is one of the most important pieces of equipment in instrumented training exercises. The PDD communicates with EXCON and sends position, all simulated weapon effects and engagements from the soldier's weapon. It enables the individual to realistically experience the effects during and after action.

The new generation PDD is modular, making it easy to start with a non-instrumented version and add capabilities when the need grows. Miniaturization has made it possible to integrate the computer, battery and speaker, into one single unit located on the chest. This placement is chosen partly for ease of access and partly for human awareness.

On top of that, Saab has also integrated a GPS sensor for automatic time sync and uninstrumented position recording, and a motion sensor for automatic adaptation of vulnerability when standing or laying down. The PDD also includes a compass to enable an analysis of where the soldiers are focusing during AAR.

It provides the wearer with realistic simulation cues that reflect hit and medical status. Audio cues are fed to the user via a small ruggedized speaker. Simulated body and head armour protection levels can be conveniently changed to reflect the level of operational protection worn or if no protection is worn by neutral role players.

The PDD tackles the simulation challenge of area suppression weapons e.g. GMG or GPMG by communicating the individual effect and sound cue to other PDDs in the predicted effect area. There is also short range communication to simulated weapons to record firing data and also disable weapon function if the soldier is badly wounded or killed.

Halo with 360 degrees coverage designed for the latest helmet versions. Available with and without reflectors for 2-way simulators.

Dual field detectors
Saab has always been focused on fidelity and true 360 degrees coverage in combat scenarios. The PDD makes no exception, but to increase wearability we have developed a cutting edge dual field detector enabling us to remove the shoulder sections without compromising our sideways performance.

Small Arms transmitter (SAT)

The SAT is designed for transparency and to take soldiers as close to the experience of firing live rounds as possible. Soldiers can pick up any weapon and fire it – so-called dynamic association – just as in real combat. The SAT impacts targets at all correct ranges and its unique laser design enables close quarter engagement.

The fitting and alignment of weapons requires a minimum of effort and is easily performed by the soldiers with the Small Arms Alignment Device (SAAD). The SAT contains several anti-cheat functions. SATs require an "alive" PDD and laser pulse triggering is only enabled when detecting a combination of flash and shock preventing silent fire by soldiers tapping or knocking on the SAT.

Engagement Feedback Device (EFD)

The EFD improves the ability to sense a simulated wound/kill state and detected near miss in high adrenaline/noisy training environments. This enhanced feedback is achieved by the EFD producing a haptic feedback in the form of vibration together with a shrill beep. The EFD also has a flashing LED to provide the wearer and others with a visual cue of an engagement effect. The EFD is also available in a version that includes a simple function for medical treatment, so called Buddy Aid.

WE:Treat – medical treatment simulator

WE:Treat is an app from the WinExcon family that augments the basic wound simulation capabilities in Saab's Personnel Detection Devices (PDDs), based on the IUC common wound database. The software is used on a smartphone device in the field for simulated examination and treatment of soldiers. The simulator can be used both in instrumented and non-instrumented training systems.

Hand Grenade Simulator (HGS)

The HGS opens a new dimension in close combat training. It makes soldiers wearing the PDD vulnerable to grenade effects at a predefined distance. They replicate modern grenades and simulates the effect via short range radio together with safe pyro and are easy to use and safe for all players in an exercise. Hand grenades are available in two versions: fragmentation and stun.

Vehicle association

Soldiers inside vehicles are automatically associated to the vehicle and are vulnerable to incoming fire. The effect is dependent on the level of protection defined.

Anti-tank weapon simulators

Our product range includes simulation of all types of anti-tank weapons such as fire and forget, fire lead and ballistic missiles.

True ballistic simulation system

BT46 2-way simulators are equipped with a display for visual user feedback and a speaker for verbal audio information and weapon sounds. This gives gunners instant feedback without forcing them to move from their firing positions which enables efficient repetitive training. The presentation includes firing sounds, firing results, distances and corresponding hit coordinates.

1-way systems

The RPG is a 1-way, MILES and UCATT SISO Standard compatible simulator developed for opfor and combat training.

The AT4 is available in both 1-way and 2-way versions.

Urban operations tactical and skills training

The Urban Training Package is a product enhancement to Saab's proven instrumented training systems adding the capability to implement an urban training environment. Units can seamlessly train the full spectrum of fire and manoeuvre from open to urban terrain, from section/squad up to battalion combat team level.

The system is modular, deployable and easily configured to meet differing training needs and budgets.

Seamless tracking, easy handling

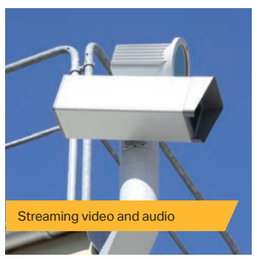
A multi-sensor tracking system follows the players through open terrain into urban streets and through the three-dimensional challenge posed by buildings. The instrumentation provides realistic combined arms simulation in buildings as well as open terrain. Buildings are instrumented with player communication devices that are simply fixed to the wall and work in conjunction with external sensors for direct fire engagements. Tackling the challenge of transitioning from unrestricted GPS coverage to movement around and inside urban structures, Saab's urban tracking system is quick and easy to install and requires no special infrastructure or cables.

Room Association Device (RAD)

Direct Fire Module

Direct Fire Module

The Direct Fire Module enables the effect of direct fire weapons on building structures to be simulated.



Streaming video and audio

Battle Effect Generator (BEG)

Streaming video and audio

The system includes an advanced audio/video system that creates multiple possibilities for detailed evaluation of soldier behaviour and their communication.

Building effects

This capability provides various visual and audio effects in and around the buildings triggered by direct and indirect fire on buildings or manually from EXCON.

Rehearsal, during and After Action Review

The rehearsal and After Action Review (AAR) are augmented with features such as the visual depiction of the fields of fire and observation views from any point.

Live Fire Training

For more than 50 years, Saab has supported armies around the world with systems for Live Fire Training. Saab supports training for all types of armed troops and weapon calibres, from individual/crew training to collective forces training. Our offer comprises a large portfolio of standard products configurable to unique systems to meet every customer's need.

Marksmanship and qualification

All systems have a mechanical hit sensor registering hits and commanding targets down after a preset number of hits. To further enhance training effectiveness and throughput, a LOMAH bar (Location of Miss and Hit) can be connected to targets. The LOMAH bar registers location of hits and misses and instantly provides this result back to the soldier on his Scoring Monitor eliminating the need to move to the target to collect results.

Sniper training

With LOMAH, snipers can effectively engage targets at long distances and receive instant feedback to correct the aim point and refine their skills in minimizing dispersion.

Weapon zeroing

LOMAH provides an effective means to align weapons and sights.

Reaction shooting and judgemental training

A swivel add-on to an infantry target will rotate the target <0,3 s providing a reaction shooting capability. Both sides of the target can be programmed to appear showing friendly vs enemy forces requiring judgement by the soldier prior to engagement of target.

Armour gunnery ranges

With a wide range of targetry products, supporting presentation of soldiers, vehicles (front and flank), moving targets, thermal imaging, animation of effects (fire effects, hit effects), Saab can design and deliver gunnery solutions for all types of mechanised forces.

Field firing and manoeuvre training

Targets can be used in a realistic environment to support training of pairs/fire teams to company level in applied training such as movement and engagement procedures, coordinating fire control, quick battle orders, target acquisition and ammunition use.

Urban operations training

The swivel target is ideal for urban operations. By adding a multi-target holder, mounting of targets in congested spaces will be supported. For example, under windows, sides of door posts, etc. The target can be programmed to swing out into a doorway or rise up from under windows where a standard pop-up motion is not possible.

Training services

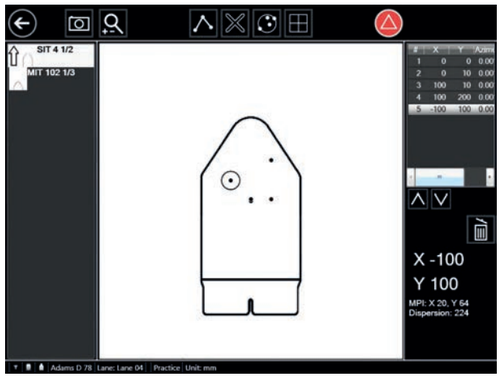
Our services include range design, system design, system integration, manufacturing, installation, operational and maintenance training, and life cycle support.

Control and evaluation

The Graphic Range Controller (GRC SW Suite) has evolved over the last 10 years and is today the leading tool for range control. Features include programming of automated scenarios, control of targets, data collection, online status and hit presentation, hit reports and AAR and range trouble shooting.

The system is configured as man portable (HHC) but it is scalable and can easily be upgraded to be Stationary (RCS) by adding a docking station, screens, etc. Both hardwired and radio-controlled infrastructures are supported.

Training support tools

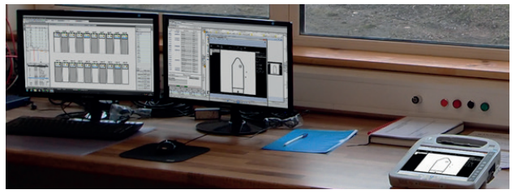


Fire Display Unit (FDU) – provides instant feedback to soldier when firing on a LOMAH system. Data includes graphic display of hits on target template, projectile location coordinate (x,y) in target plane, mean point of impact (MPI) and dispersion.

Communication infrastructure

Solutions for control and data collection;

- Hardwired control of targets (TCP/IP)
- Radio control of targets by narrow band radio (VHF 138-160MHz)
- Short-range Network (WiFi) between RCS and Scoring Monitors or between RCS and HHC

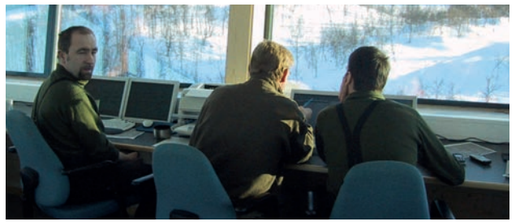


Range Control Station (RCS), stationary computer and range communication interface (radio or ethernet. For fixed installations.

Graphic Range Controller (GRC) is a software suite installed on RCS or HHC. Supports programming of automated scenarios, control of targets, data collection, online status and hit presentation, hit reports and AAR and range trouble shooting.

HHC 10 – Hand Held Remote Control for operation of up to 10 targets. Full rugged (waterproof IP68, drop proof 1.8m, operating temp -25° to +55°C).

HHC 120 – Hand Held Controller for operation of up to 120 targets. Sunlight readable 10" Touch Screen. Support for planning, control, monitoring and evaluation of Live Fire Exercises. Full rugged (waterproof IP65, drop proof 1.8m, operating temp -20° to +55°C).



Target lifters

Products are designed for high reliability and a long product life in harsh environments including arctic, desert and coastal environments. Out-door equipment is qualified to military standard (MIL-STD-810). Many of our customers are still getting reliable use of equipment installed some 30 years ago.

Infantry targets

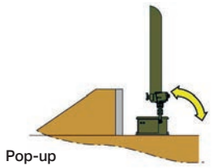
Infantry target lifters are designed for multi-use.

Stationary Infantry Target (SIT)
Robust design with motor and electronics in a watertight box. Capable of holding various size targets by means of a flexible target holder.

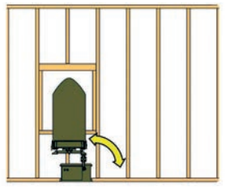
Swivel Target – Reaction shooting and friend vs enemy discrimination. Swivel includes the multi-target holder capability.

Moving Infantry Target (MIT)
SIT on a self-propelled trolley. Speed selectable between 0 and 15 km/h (9 mph) representing a walking, jogging and running target. Deployable track, easily reconfigurable.

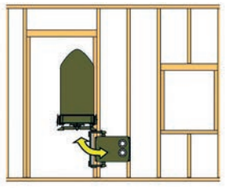
Multi Target Holder – Support for flexible mounting and presentation of targets including wall mounts and congested spaces. Can be combined with swivel target.



Pop-up



Scissor



Swing out

Armour targets

Saab's design has set the standard for tank targets and provides outstanding reliability and product life.

Stationary Armour Target (SAT)
Capable of 136 kg (300 lbs) lift.
Corresponds to target size 5 x 2.5 m in winds up to 15 m/s (35 mph).

Heavy Stationary Armour Target (HSAT)
Capable of 181 kg (400 lbs) lift.
Corresponds to target size 7 x 2.5 m in winds up to 15 m/s (35 mph).

Moving Armour Target (MAT)
Capable of 136 kg (300 lbs) lift.
Corresponds to target size 5 x 2.5 m in winds up to 15 m/s (35 mph).

Precision scoring

Grouping of fire provides the foundation for basic weapon skills training. A precision scoring system provides a tool for automatic and instant feedback of hit location and dispersion of rounds. The shooter can immediately take corrective action without having to move up to the target. This provides a significant reduction in training time and ammunition use.

Unique capabilities

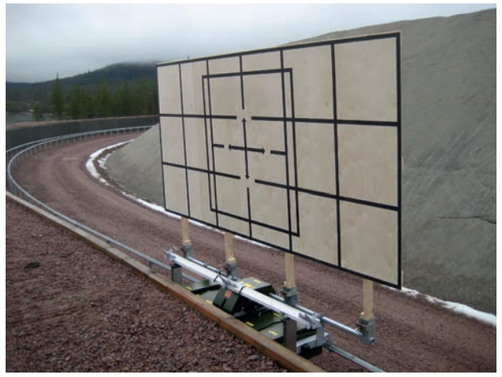
Saab's sensor for Location Of Miss And Hit (LOMAH) provides a number of features unique on the market:

- Outstanding robustness and accuracy in real (live) environments. Will perform in rain, snow, dust and dirt.
- Outstanding accuracy in cases of onperpendicular fire engagements up to ± 30 degrees. This is essential for field firing, moving target applications and in close combat engagement. No degradation of accuracy up to 15 degrees shooting angles.
- Detection probability of 99,9 % in live environments.

LOMAH 700
For stationary and moving infantry targets.
Detection area 4 x 3 m (width x height).

Weapon platform evaluation systems

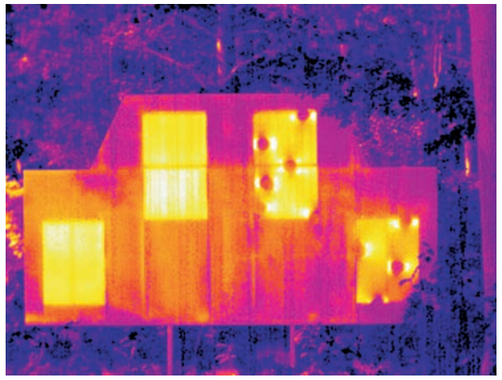
The advanced capabilities of Saab's LOMAH has made it a powerful tool for trials and verification of weapon and ammunition performance. Capabilities include calculation of time between rounds for rate of fire up to 3,000 rounds per minute and round velocity at target.



LOMAH 3000
For stationary and moving armour targets.
Detection area 12 x 5 m (width x height).

Accessories

Armour and infantry targets can be equipped with a wide range of accessories to increase realism and the training value. Saab offers accessories such as thermal panels, pyrotechnical devices, video monitoring and recording systems, target silhouettes and motion sensors.

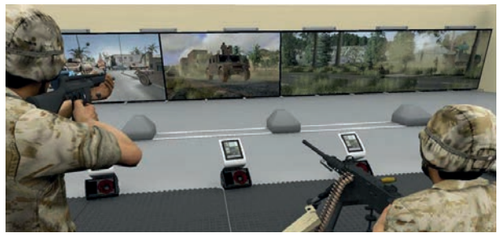


Virtual Training

Virtual training is an important and cost-effective way of preparing soldiers for the complexity of tomorrow's missions. Saab's high-fidelity virtual simulation solutions save resources and cut time in initial training. Virtual training enables training scenarios that are limited in live firing exercises and will also sustain force readiness.

Ground Combat IDT

The Ground Combat Indoor Trainer is a modular and scalable system that can be combined in several configurations to cover a variety of weapons including small arms and support weapons such as anti-tank weapons, including missiles. Main system features are the highly realistic and durable weapon replicas, the close-to real-life virtual environment and the high accuracy.



Types of Training

GC IDT supports marksmanship, Gunnery and combat training. In all types of training, the feedback is generated instantly. In skills training, focusing on the procedural memory, repetitive training is performed and impacting variables are set to optimize the learning.

By involving both the procedural memory and declarative memory in decision making training and combat training, decisions can be corrected directly and outcome from one decision can be measured and compared by the outcome of another decision.

Deployment and configurations

GC IDT is delivered as a static system installed in a facility or as a deployable system.

GC IDT supports both combined arms trainers and stand-alone specific weapon trainers. The system supports a variety of weapon types, both individual weapons and crew served weapons.

Anti-Tank and Anti-Structure weapons

Both skills and tactics are trained in realistic scenarios with different weapons such as direct fire and top attack. The high accuracy of the GC IDT enables training of fast-moving targets with different attitudes and shoot back capability.

OEM Trainers

Saab offers OEM trainers for Carl-Gustaf, AT4 and NLAW. The trainers fully correlate to customer's configurations including type of sights and ammunition.

Virtual environments

GC IDT supports training in geo-typical or geo-specific terrains with high level of details. The terrain is furnished with buildings, infrastructure and vegetation. Environmental effects such as wind, temperature and air pressure have ballistic impact according to set variables.

Light conditions and visibility

Level of light and visibility is a product of the position of the celestial bodies, clouds, precipitation and particles such as smoke, all controlled by the instructor. Dynamic lighting creates realistic effects of e.g. drifting illumination including shadowing.

Target reactions

Both humans and vehicles in GC IDT have hit areas with different levels of protection and correlating reaction when hit. With this, training of Battle Damage assessment and decision of re-engagement is supported.

After Action Review

The system automatically evaluates the engagements. Analysis is presented in different levels to enable both instant and deep analysis, depending on the training objective.

Weapon replicas

Saabs weapon replicas are high-fidelity durable replicas. By correlating to the real weapon's form, fit and function they fully support realistic weapon training without negative learning. The weapon replicas have integrated sensors that provide a unique ability for analysis and feedback.

Purpose-built

The weapon replicas are designed and manufactured with special care taken to the detail and characteristics of the original weapons. The replicas are mirroring not only the accurate operation, weight and balance but also the forces needed to operate the weapon.

Recoil

The strong force of the recoil disrupts the sight picture and requires re-aim. The recoil generation includes simulation of malfunctions, requiring proper measurements by the operator to be cleared. Small arms and shoulder-launched weapons are tether less. Machine guns and other high consumers of compressed gas are tethered.

Sights

Weapon replicas are delivered with same physical interfaces as real weapons enabling use of real sights or simulated sights.

Maintenance log

Each weapon replica has an integrated maintenance log that shows the status of the replica and supports planning of maintenance.

Fully safe

The weapon replicas are purpose-built, fully safe, cannot be loaded with real ammunition and are not considered as weapons or de-activated weapons.

Simulated Military Equipment (SME)

By utilizing simulated devices the training objectives will be enhanced. SME is offered for a wide range of devices as an add-on to weapon replicas, handheld or mounted.

SMEs of optical or optoelectronic devices contain micro displays and optical components for visualisation of the virtual battlefield. The images mirror characteristics of the accurate devices' view. The characteristics include resolution, overlaid information, reticules, night vision view, magnification and field of view.

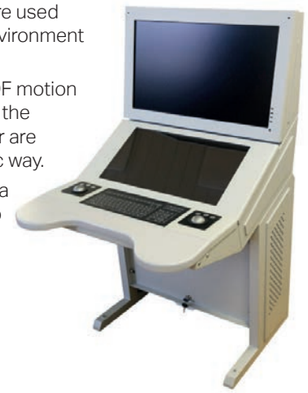
Saab offers SME of e.g. binos, scopes, night sights, NVD, thermal cameras and laser range finders.

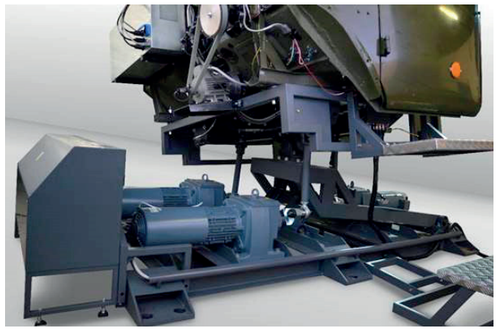
Cabin, Consoles and motion platforms

Cabin and consoles are used to create a realistic environment for the operators.

By utilizing a 3 or 6 DOF motion platform in the set-up, the senses of the operator are stimulated in a realistic way.

Saab offers a wide area of solutions in order to mirror the customer's real systems.



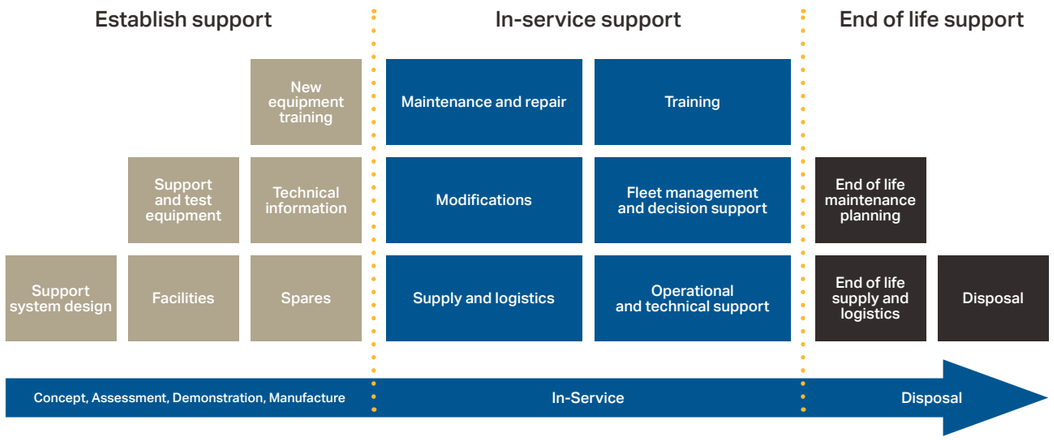


Training Services

Support where it counts

Saab's training services are designed to optimize service delivery and cover the whole range of customer needs from the provision of spare parts and repair services to fully embedded operational support products.

Tailored lifecycle support solutions



Saab Training & Simulation's lifecycle support program

Regardless of whether your purchase strategy is divided into the product's lifecycle phases of Concept, Assessment, Demonstration Manufacturing, In-service and Disposal (CADMID) where you influence the design, select your preferred supplier for each phase, or you prefer Private Funded Initiative (PFI) and pay by the hour, we have the solutions.

If you prefer to control every phase, you should look at our support products where we could provide a solution for just a single phase or a combination of them.

Our Life Cycle Support program focuses on tailored service solutions where we offer a combination of training system and logistics support to ensure the availability of the training equipment over time in combination with operational support to facilitate training.

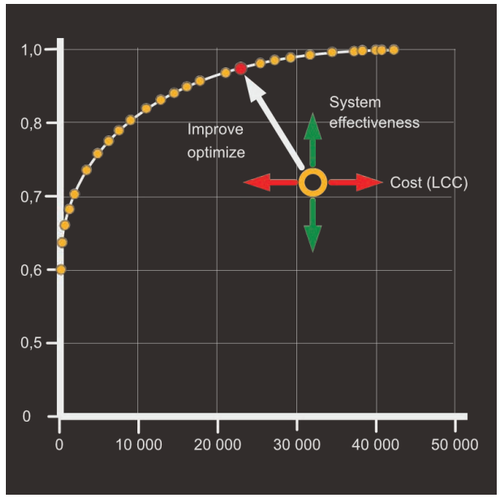
In this way, we are the bridge between the different phases to ensure that the products are designed for In-Service and Disposal, and that experience gained from one phase is exploited in the following phases and into future training products from Saab. That's why we can offer In-Service Support at a fixed price.

Integrated Logistical Support (ILS)

Saab has customers benefit from more than 30 years experience of supporting training worldwide and this experience continues to be collected, analyzed and implemented in our product design.

This experience is also the foundation upon which we base the development of our support solutions, working to tailor ILS activities throughout the proposal phase in order to produce the most cost effective solutions for our customers. Using our ILS tools, field data and knowledge, we are able to design your support solution in a way which best fits your need.

Whether it is meeting a high availability requirement, achieving the highest possible availability on a given budget, or minimising environmental impact, Saab will provide the optimal solution.



Contractor Logistical Support (CLS)

The CLS organization of Saab provides the customer with the benefit of its extensive experience gained from a wide variety of projects. This depth of knowledge and experience enables Saab to offer guaranteed system availability.

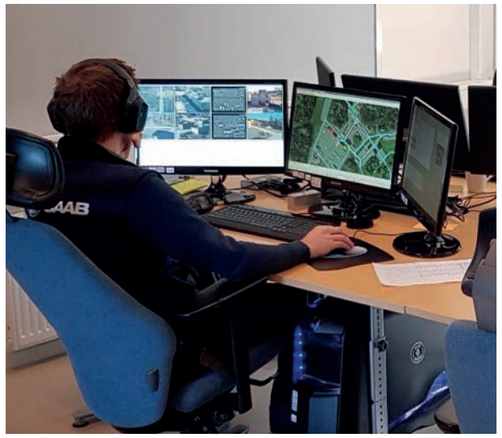
Our experience of delivering field support to fixed, mobile and deployable installations gives us the unique capability of managing and overcoming the difficulties involved when deploying personnel and supplying spares to remote training locations.

Contractor Operational Support (COS)

The extensive experience gained by Saab in support of the British Army in their DTES programme, the ISAF troops and many similar programmes throughout the world has provided the foundation for the development of a wide range of operational services.

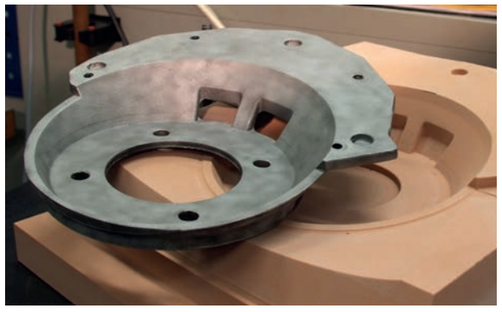
Our operational support services are designed to release your military personnel from many of the procedural training tasks and allow them to focus on their core responsibilities.

We will guarantee to meet your training needs and complement your training organisation to ensure that every soldier gains maximum benefit from the exercise.

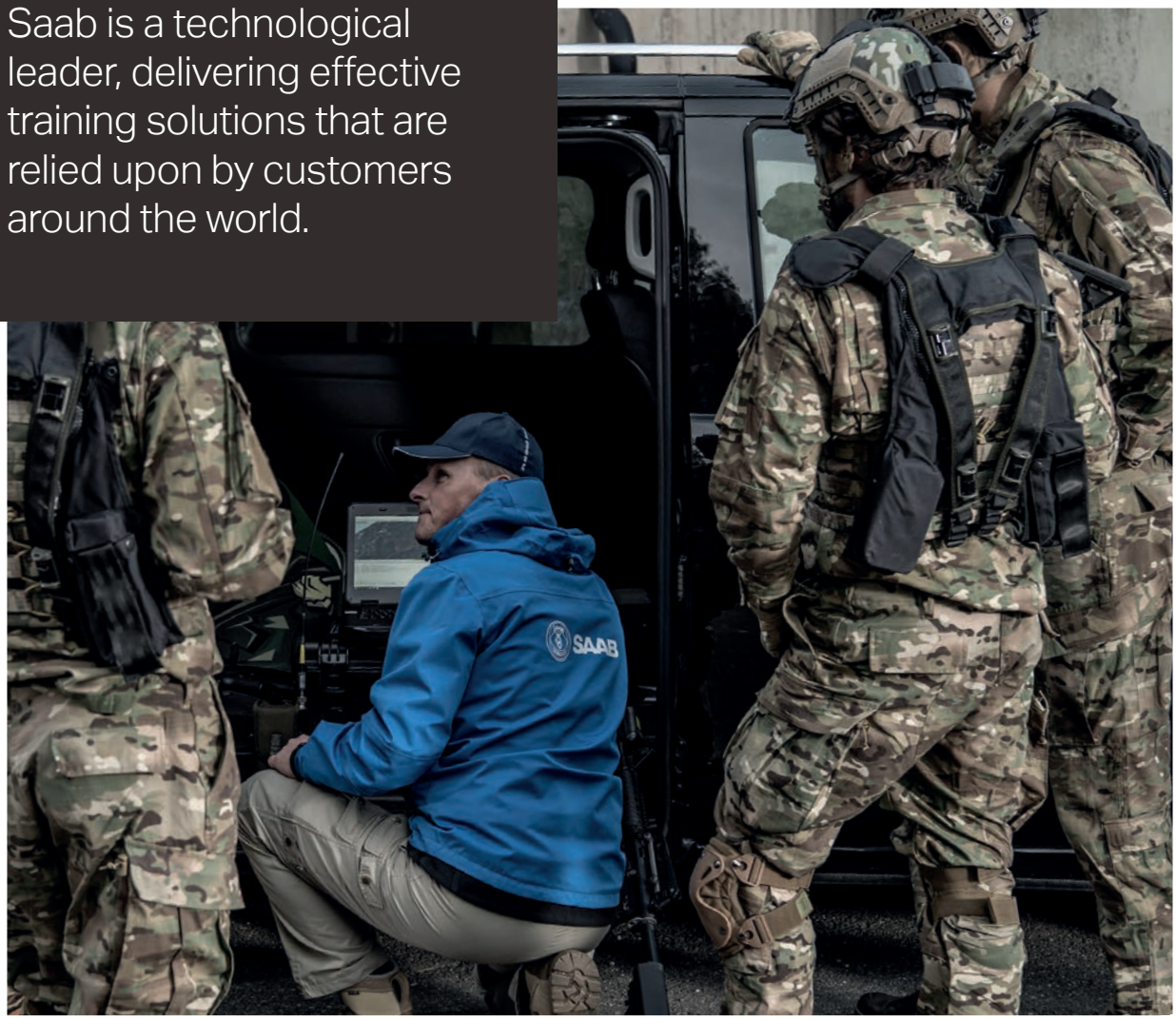


Contractor Engineering Support (CES)

At Saab, we set the mission of technical support as closing the gap between existing system functionality and the ever developing needs of the user. Engineer support provided by Saab seeks to achieve this objective in partnership with the customer by means of upgrades and modifications of hardware and software accomplished under strict configuration control.



Saab is a technological leader, delivering effective training solutions that are relied upon by customers around the world.



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