AFRICA AND BEYOND

Saab In Focus

Issue 10
Contents

Gripen enhancements boost efficacy and service life 2
The future of air traffic management is here 3
Operational confidence through safe training and simulation 4
A paradigm shift in targeting and navigation 5
Enhancing situational awareness for surface and submarine surveillance 6
Saab develops space offer 7

Air traffic management evolution

Saab’s ATM offering also includes a wide range of products and services for tower operations, navigation aids, training, landing procedures, and flight inspection.

Vricon 3D mapping

Using high-resolution 3D data, Vricon’s GeoRef solution allows analysts to automatically correlate multiple data sets with a high degree of geospatial accuracy in all dimensions and create actionable intelligence from disparate sources.
Saab continues to invest in developing technology that extends the service life of its iconic Gripen aircraft, with the latest operational upgrade and combat enhancement, MS20 putting a truly unique operational asset into the hands of Gripen operators.

The MS20 upgrade delivers a host of new capability options for air-to-air, air-to-surface and ISTAR missions plus many improved mission systems and other changes. As ever with Gripen, operators are free to choose how, when and to what extent they implement the new capabilities that the upgrade enables.

In the air-to-ground role MS20 delivers further significant enhancements. This includes integration of the Boeing GBU-39 Small Diameter Bomb (SDB) for a high-precision, long-range strike capability. A smart launcher can carry four SDBs, with a maximum of 16 on a single Gripen.

Gripen’s ISTAR (intelligence, surveillance, target acquisition and reconnaissance) capabilities are expanded through a modified reconnaissance pod that provides infra-red sensors plus real-time display of images in cockpit and increased data recording.

Furthermore, significant new advances mean that Gripen is now the world’s first and only combat aircraft to be operational with the MBDA Meteor BVRAAM missile, a capability that can be retrofitted into C and D models, as well as the E model currently in design. Meteor is a tactical missile with strategic effect. It offers extremely long-range reach (beyond 100 km) and its unrivalled no escape zone (three times greater than any current BVR missile) will dominate the future air-to-air battlespace, giving a decisive capability to Gripen and its pilots.

“Gripen is developed with the long-term future in mind, with a focus on extending service life as far as possible,” says Mats Lundberg, Senior Marketing Executive for Gripen in the Middle East and Africa. “It is designed for continuous upgrades to take on and defeat new combat challenges – a design approach that has already been proven many times. The implementation of MS20 opens a further chapter in this story, making significant new capabilities available to future users and the current Gripen family alike.”

Gripen enhancements boost efficacy and service life
We’ve moved from single-purpose land-line phones to multifunctional smart phones, and soon we’ll be driven by autonomous cars rather than having to navigate our own way through traffic.

Similarly, air traffic control has evolved beyond being a fixed tower at each airport to achieving distributed situational awareness through digital air traffic management, achieved via the Saab Smart Airport solution.

Saab’s modular-based Air Traffic Management (ATM) and airport system is a family of user-friendly systems that reflects safety and reliability standards. It is built to suit all environments, from regional to international airports, and moves Airport Terminal Services (ATS) from a single tower per airport, to creating the ability to offer ATS from any location.

The system works stand-alone or as an integrated ATM and airport system, makes way for collaborative decision making (CDM), and users can add modules when needed for future expansion.

Saab’s ATM offering also includes a wide range of products and services for tower operations, navigation aids, training, landing procedures, and flight inspection.

Building on experience from both Saab and LFV (the Swedish Air Navigation Service Provider), Saab Digital Air Traffic Solutions has developed models and processes for establishing new digital tower solutions.

These have proved very successful, and the company now has several approved systems in operation in different parts of the world. Working with everything from initial operational, technical and business case analysis, to implementation, training, and organisation change management, Saab Digital Air Traffic Solutions provides the full delivery.

Saab Digital Air Traffic Solutions delivers digital tower solutions to all kinds of airports. From regional airports with AFIS, through small and medium airports that otherwise might be at risk of being shut down, to large, complex airports, like London City Airport, that can keep expanding efficiently due to digital tower technology. Saab Digital Air Traffic Solutions also provides Digital Tower Certification Consultancy Services and Air Navigation Services.

“Going from a conventional tower operation to a digital solution digitalizes the eyes of the controllers and allows for that information to be shared with all stakeholders, enabling an increase in efficiency and productivity,” explains David Shomar, Vice President of Civil Security, MENA Region at Saab.

“The centralisation of air traffic control for towers and other services like approach, MET, training and simulation, technical supervision and rostering is the key for creating that efficiency and productivity, as well as an attractive working environment for the Air Traffic Controllers, technicians and managers.

“The digital tower and the centre will also open up new, more flexible business models for Air Navigation Service Providers and airports around the world. With several Digital Tower solutions already in play worldwide, our team is well positioned to manage the certification and safety requirements associated with the installation of such a game-changing solution.”
The full preparedness of police tactical teams, special forces and civilian emergency services is never guaranteed. However, through Saab’s comprehensive GAMER Manpack command and control (C2) system, training and simulation can exercise teams in real-life operational situations safely and with full confidence in desired outcomes.

The portable, instantly deployable instrumented training system uses a nimble wireless system to connect many players in an integrated and responsive environment. Ideally suited for police and special forces, the simulator facilitates training in civilian emergency preparedness, response training, power plant protection and Coast Guard harbour protection.

“The system is especially useful to highly mobile forces as the coverage shifts with the players and action,” says Ufukumele Moeti at Saab. “It’s designed to flow and shift with the nucleus or area of interest of the training exercise as the Manpack control device is designed to be worn by a controller, observer or carried in a support vehicle.”

The system comprises a ruggedised exercise-command-and-control (ECC) laptop and a miniaturised radio base station. It provides a roving exercise player radio coverage of a typically one to three kilometres radius and is optimised to support up to approximately 120 real-time players.

Alongside this is a Command and Control (C2) node and the players are linked via man-worn vests and vehicles equipped with a GPS, radio and laser detectors/transmitters. Every action and movement from participating players is monitored in real time and recorded for evaluation after the exercise is complete.

A common challenge faced by troops is that of applying improvised explosive device (IED) jamming devices effectively for fast-moving mobile forces.

As personnel move along a terrain, counter-IED equipment moves along with them, sweeping a large area and interfering with any transmitting device used to trigger explosives, such as cell phones. The biggest problem is in ensuring that troops on the move are always under the jammer’s coverage footprint. The Manpack system enables troops to rehearse prior to entering the field, to ensure that their movement is perfect.

A powerful Windows-based suite of exercise-control tools enable on-the-spot control of field-simulated indirect fires, minefields, nuclear/biological/chemical (NBC) contamination, improvised explosive devices (IED) and reactive targets. Exercise players are displayed in 3D against a high-resolution 2D or 3D terrain background, providing a detailed real-time situational view of the training flow and individual events.

A during-action review/after-action review (DAR/AAR) can be readily conducted at any time using the display screen for a small group or hooked up to a projector for a larger audience. The exercise can be selectively replayed, zooming in and jumping to sequences and events of interest. Comprehensive filters, tracking and statistical tools enhance the feedback, clearing the fog of war.

“As the system undergoes continuous development, we are able to display players and buildings in increasingly higher resolution and detail, along with a closer match to the firing of dummy ammunition with simulated effects of direct and indirect fire, booby traps and any other relevant action,” Moeti says.
Saab company Vricon uses advances in remote sensing to provide decision-makers with new answers to key national security and civil defence questions.

Strategic and tactical challenges require actionable intelligence, which requires knowing the precise location of data and information. This becomes even more critical when working with multiple types and sets of data.

Using high-resolution 3D data, Vricon’s GeoRef solution allows analysts to automatically correlate multiple data sets with a high degree of geospatial accuracy in all dimensions and create actionable intelligence from disparate sources.

Vricon’s 3D surface models and precise digital elevations enhance GEOINT data—covering the globe to support preparation, rehearsal, and execution. 3D models provide a foundation to correlate information layers, while True Ortho provides lucidity into inaccessible and dense urban areas. This helps warfighters find safe, efficient routes.

Surface models are not just essential tools for military and defence requirements – they can help emergency services quickly compare post-disaster imagery with those taken before the event, to assist with recovery and rebuilding programmes.

From a more commercial point of view, telecommunications service providers need accurate geodata to improve their current networks, and to plan effectively for future expansion.

Increasing demand for video, 5G and the Internet of Things requires denser networks, which in turn increases demand for accurate, high-resolution geodata.

“Vricon combines Saab’s unique 3D technology and know-how with DigitalGlobe’s unrivalled archive which contains billions of square kilometres of the world’s highest quality commercial satellite imagery,” explains Tommy Hultin, Senior Director of Business Development at Vricon.

“Vricon’s high scale production capabilities create highly accurate photorealistic 3D products and elevation data of the earth, accessible via a unique visualization platform and standard based data formats,” he adds.

“This creates an unparalleled geospatial capability and enables the production of The Globe in 3D at an extremely rapid rate and significantly reduced cost.”
The Saab Medav Technologies CRS-Submarine is an integrated system for tactical Communications Electronic Support Measures (C-ESM) tasks on submarines. It uses C-ESM and Communication Intelligence (COMINT) in addition to Radar ESM (R-ESM) and Electronic Intelligence (ELINT) to enhance situational awareness.

The submarine system supports surfacing decisions with a Commms Warning Receiver (CWR) and processes surfacing information within minutes. It also creates a complete picture of the surroundings using radio monitoring, with information being further processed during dive time.

Together with R-ESM, an integrated solution comprising the R-ESM and C-ESM subsystems, the identification of emitters and related platforms can be improved. It also assists in detection of small objects that are invisible to radars or optical systems.

The Saab Medav Technologies C-ESM and COMINT is an integrated radio reconnaissance mobile system suitable for both strategic and tactical applications and offers complete surveillance coverage. The system is modular, scalable and flexible, allowing for updates, upgrades and integration of other functionalities as demand dictates.

The system is delivered as a set of stations housed within ruggedised racks to face the rigors of the harsh naval environment. A single control system and intuitive user interface make it easy to use – even suitable for non-expert operators deployed in remote locations.

With its Software Defined Intelligence Architecture (SDIA®), one of the system’s main benefits is its ability to evaluate speech and data communication signals in the operational theatre, enabling situational awareness, force protection and improved mission effectiveness.

The Saab Medav Technologies CRS-Naval ship-based system comprises automatic signal detection, classification, demodulation, decoding, recording, listen-in functionality, direction finding and geolocating of radio emitters in the High Frequency (HF) and Very/Ultra/Super High Frequency (VUSHF) frequency bands. Attended (manned) operation is also supported. It is also Wi-Fi compatible, and handles analogue and digital transmission methods, including fast frequency hoppers.

The system includes comprehensive online and offline analysis, as well as being able to generate signal reports for further detailed analysis.

The identification of platforms and related threats is significantly increased through this innovative approach, while configuration flexibility includes switch-over of the Command and Control (C2) role to one of the ESM stations on request or if communication is lost.

Tailored solutions are possible, taking the objectives and operational environment into account.
Saab broadens its offer with a solution connecting several of the company’s existing products and combat management systems with satellite data. Saab will also offer a surface-based space surveillance radar.

The new solution will allow fusion of satellite data with other products, including Saab’s airborne surveillance solution GlobalEye, the Giraffe family of surface radar and the 9LV combat management system. It will allow users to compare big data from a wide range of sources simultaneously.

Saab is also developing its existing radar technology offer to include satellite-space debris and intercontinental ballistic missile surveillance.

“We see an increasing demand for more comprehensive situational awareness. We are now developing a platform that allows fusion of satellite data from space with our existing products,” says Anders Carp, Senior Vice President and Head of Saab’s Business Area Surveillance.

Space solutions can support existing military technology and improve accuracy in determining time and location. They can also be used for surveillance, early warning and to detect what others are doing in space.

“Analyses of how movement patterns change over time can be used not only for military purposes but also for other things, such as tracking iceberg movements in the Arctic to prevent ships colliding with them or protecting societies by tracking how wildfires are spreading,” says Anders Carp.

The international space industry is expanding fast. Almost 2,000 active satellites are currently circulating the Earth and this number is expected to increase rapidly over the next few years.