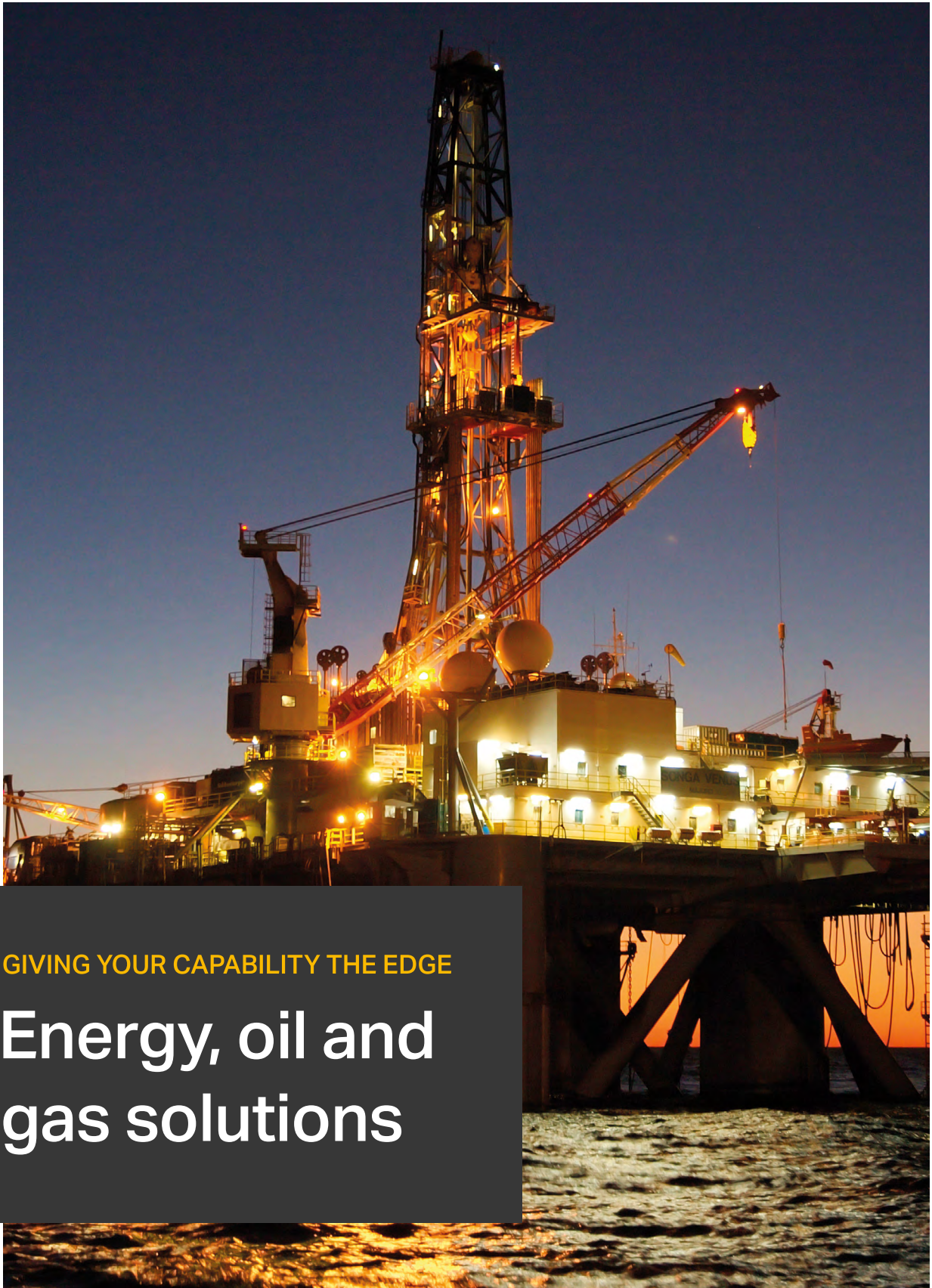




SAAB



GIVING YOUR CAPABILITY THE EDGE

Energy, oil and gas solutions

Comprehensive support for the **global energy industry**

Saab provides a wide range of solutions to the complex needs of the modern energy, oil and gas industries. We enhance energy businesses with comprehensive support that gives their capability the edge. Combining global authority with local presence, Saab delivers groundbreaking technology which improves efficiency and cost-effectiveness, safety and security, while also protecting the environment.

Meeting energy industry needs in a changing world

Saab serves the needs of energy, oil and gas companies around the world, with customers in over 60 countries.

Each location presents unique challenges, from the remote, icy seas of the Norwegian oil fields to the busy shipping waters of the Arabian Gulf. Saab responds to these specific situations with robust and reliable solutions that give our customers' capability the edge.

Saab's specialist solutions for the global energy industry include:

- Efficient and reliable communication
- Integrated control room operations
- Port and maritime traffic management
- Unmanned Aerial Vehicles (UAVs)
- Underwater robotic systems
- High-speed patrol vessels
- 3D mapping
- 3D holographic visualisation



Innovative and cost-efficient solutions for the future

Saab has extensive experience of supporting governments, authorities and corporations with world-leading products, services and solutions, ranging from military defence to civil security.

For more than 80 years, Saab has been developing innovative, high-tech, robust and affordable systems. Our aim has always been to stay at the forefront of technology, which is made possible through investments in research and development and various collaborations.

We have been shaped by fierce competition and strict requirements on low product lifecycle costs, and we know what it takes to get there: the latest technology, the smartest solutions and the newest innovations.

We combine our history of supplying industry-leading products with a progressive insight into future-proof, state-of-the-art technologies. This forms the basis of an ideal partnership for any energy business seeking the best solutions for efficiency and safety.



Efficient and reliable communication

With TactiCall, multiple communication technologies are combined. All systems – one interface.

TactiCall ensures the safe and reliable operations of energy facilities, including onshore and offshore oil and gas platforms. In addition, TactiCall integrates all communication technologies into a single operator human-machine interface for enhanced situational awareness.

TactiCall Integrated Communication System

TactiCall is a fully IP-based communication system providing internal and external voice and data communication. Internal communication gives complete control of, and fast access to, all internal communication networks regardless of whether they are onshore or offshore. External communication incorporates everything from VHF to SATCOM technology by using a multitude of different frequency bands, networks and radio equipment.

TactiCall can be offered as a packaged software product, integrating already-existing systems and hardware, or be scaled to include everything from microphone to antenna.



TactiCall Dispatcher Suite

The TactiCall Dispatcher Suite is a communication and alarm handling platform which integrates multiple systems into one user interface. The solution provides open APIs, allowing integration of legacy radio telecommunication systems and future technologies.

The main objectives of the solution are to increase efficiency of the operators' communication and alarm handling capabilities, by bridging separate systems into one user interface.

The TactiCall Dispatcher Suite provides enhanced security, more effective operations and lower cost. Ultimately, the suite helps our customers address key challenges of improving public services and adapting to rapid technical evolution.

The TactiCall Dispatcher Suite can be utilised as a standalone solution, or fully integrated into existing C&C, CAD or similar systems. The distributed architecture scales from a single workstation to multi-centre nationwide deployment, and eliminates single points of failure.



Integrated control room operations

Multiple challenges are faced by control room operators, who have to make significant judgements under time pressures. Effective integration of control room activities enables operators to focus upon the issues at hand, instead of having to shift their attention to deal with different systems.

Saab provides solutions for integrated control room operations in the energy industry through OneView and SAFE.

SAFE

SAFE (Situational Awareness for Enhanced Security) improves workflows and creates more efficient processes, while increasing security and safety.

It is a modular, open-integration software platform enabling secure, robust and cost-efficient security and safety management solutions.

SAFE combines all the functions required of a modern control room into a single software application, including multi-channel communications, contact management, command and control, radio dispatch, mapping and resource management.

OneView

Saab's OneView is a smart, accurate security surveillance and facility management system that brings together security applications and devices into one single view.

OneView offers integration of a wide range of third-party sensors and customer-preferred subsystems including CCTV, access control, intercoms, perimeter detection, duress and intruder detection.

Each solution is tailored to meet specific customer processes and priorities, and provides effective insurance against evolving requirements and future technology changes.

Port and maritime traffic management

Safety and efficiency are two keywords for Saab's maritime traffic management business.

Saab's solutions are used on ships, in ports and around coasts throughout the world. Customers include marine pilots and dredging ship crews, oil pipeline inspectors and wreck surveyors.

Saab ensures secure, safe and efficient flows in maritime domains through its Maritime Traffic Management (MTM) solutions, which are present in over 250 ports and authorities, including 8 of the top 20 container ports. They are also implemented in over 70 Vessel Traffic Services (VTS) centres.

Saab's MTM products for the energy, oil and gas sector are MaritimeControl, CoastControl, QINSy (Quality Integrated Navigation System), Qimera and Automatic Identification System (AIS).



MaritimeControl

Manage your waters with ease

MaritimeControl protects installations at sea against vessel collisions. Continuously scanning the area surrounding a platform or group of platforms using radar and AIS, it provides timely warning against unauthorised ships on a hazardous course. The situation can be monitored from a central location for multiple installations, either at sea or from the shore.

Incorporating over 30 years of development, MaritimeControl is a field-proven, solid VTS system tailored to the needs of authorities responsible for waterways, ports and coastal regions. It is an essential tool to maximise the continuity of vessel traffic in all visibility and weather conditions.

The design allows mixing and matching modules as needed. The system supports the standardised services defined by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

CoastControl

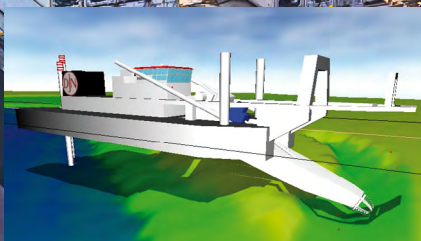
Act faster than situations develop

CoastControl enhances maritime safety, security and law enforcement at a time when navies and coastguard authorities are facing increasing challenges.

CoastControl comprises three integrated solutions: MaritimeControl surveillance network, SAFE incident management system and TactiCall communications system.

It improves security by supporting tasks such as researching and analysing maritime traffic, clearing out mines and explosives, and risk profiling. It can be used to protect offshore installations, underwater communication lines, transport pipelines and energy supplies.

With CoastControl, authorities can manage fleets of vessels and aircraft, and plan activities like patrols or inspections in advance. The solution also provides the status of every asset, allowing authorities to map positions and highlight any risks.



QINSy

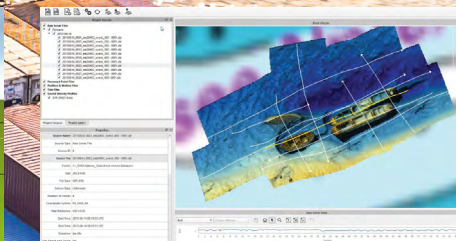
Survey and navigation.
Ping and done

QINSy is a hydrographic data acquisition, navigation and processing software package.

It has a fast-growing market share in the offshore oil and gas industry, dredging industry and port communities.

More than 5,000 QINSy licences have been issued to over 700 companies in 71 countries worldwide.

Offered in a number of versions, QINSy is as equally well suited to standard positioning applications as it is to highly complex, multi-vessel and subsea vehicle, offshore construction operations.



Qimera

Multibeam processing.
It's that easy

Qimera is an easy-to-use yet powerful sonar data processing application.

By guiding the user through data processing steps, it simplifies what has traditionally been a complicated process. Qimera's unique IO Balanced Multi-Core Engine is specifically designed to process bathymetry data as rapidly as possible. Qimera contains a number of advanced tools, including Sound Velocity Profiling (refraction), Calibration (Patch Test), and a Wobble Test for troubleshooting installation and data issues.



AIS transponders

Securing positions

AIS provides an automatic tracking system that gives ships and shore stations real-time information, such as unique identification, position, course and speed. It provides situational awareness that greatly contributes to handling hazardous situations, especially under poor visibility conditions.

AIS transponders are also used in Saab's unique tender tracking system for securely managing fleets.

Saab is at the forefront of AIS developments and is one of the first to make products available for the next generation of AIS, called VHF Data Exchange System (VDES), which will revolutionise safety and efficiency in shipping.

Unmanned Aerial Vehicles

In the energy, oil and gas sectors, UAVs are increasingly being used to undertake infrastructure inspections efficiently and cost-effectively. The aim is to replace humans in dangerous tasks, such as inspecting the condition of power plants, energy distribution networks, pipelines and rigs.

UMS Skeldar's V-200 is a highly flexible and versatile UAV, which is ideal for a wide range of applications, such as reconnaissance, identification, target acquisition and cargo transportation.

Alongside the platform, UMS Skeldar provides a total package of capabilities, including training solutions, managed services and finance options.

Find out more on www.umsskeldar.aero



Skeldar V-200

The Skeldar V-200 can fly for more than five hours at maximum payload capacity. Flexible and highly versatile, the V-200 is ideal for a wide range of applications, such as reconnaissance, identification and target acquisition. Commercial off-the-shelf high-resolution Electro-Optical/Infrared (EO/IR), Synthetic Aperture Radar (SAR) and Visual Detection and Ranging (ViDAR) sensors are available as options.

The Skeldar V-200 operates on Hirth's innovative two-stroke heavy fuel engine, providing unmatched time between overhauls, all of which are vital to maritime operations.

Developed with a low lifecycle cost in mind, the modular design of the Skeldar V-200 enables system customisation and functional development, with air maintenance carried out at unit level.



Underwater robotic systems

The modern offshore oil and gas industry demands smart, versatile and powerful robotics for every kind of underwater task.

Saab is the world leader in electric underwater robotic systems for the oil and gas industry, with a reputation for pioneering technology and world-class support. Our groundbreaking approach has resulted in the creation of robotic systems that are smaller, smarter, lighter, and more agile, capable and powerful.

Saab's electric systems are up to 50 percent more efficient than equivalent electro-hydraulic systems. They are environmentally friendly, and particularly well suited to the high temperatures of the Arabian Gulf region. This efficiency coupled with the inherent reliability of electric systems brings significant through-life economies, as well as a reduction in size and deployment costs.

Saab Seaeye ROV systems

Saab Seaeye manufactures Remotely Operated Vehicle (ROV) systems for a wide range of professional applications.

The range currently extends from the portable and versatile Seaeye Falcon to the revolutionary electric work-class vehicles Seaeye Leopard and Jaguar. Complementary robotic tooling is also manufactured to suit a wide range of subsea tasks.

With over 900 vehicles delivered to 67 countries worldwide and widely regarded as the leading supplier of electric ROVs to the offshore oil and gas industry, Saab Seaeye also supplies ROVs to a number of the world's leading navies and emergency services for security, salvage and diver support tasks. Offshore energy customers comprise 65 percent of Saab Seaeye's customers.

Seaeye Sabertooth

The Sabertooth has proven to be a rugged and highly capable system, which is ideal for the varied survey, inspection and maintenance tasks required by customers working in offshore energy.

Created by a merger of the Saab Double Eagle SAROV Autonomous ROV and Saab Seaeye ROV technologies, it is a hovering hybrid AUV/ROV with deep water capability, long excursion range and a six degrees of freedom control system.



High-speed patrol vessels

Superior speed and power are crucial when commanding a vessel in rough conditions. Up on the bridge, ease of operation and instant response are vital, as seconds and inches can make the difference between success and failure. You want to know you have the better boat.

The complete and committed Dockstavarvet design features all-aluminium patrol crafts with sound-insulated wheelhouses, offering excellent visibility around the horizon. The high-speed crafts (50 kn) provide maximum endurance during longer missions and the most powerful waterjet platforms for coastguard, police and security operations.

Find out more on www.dockstavarvet.se



Docksta IC 20 M Technical information:

Length, OA:	19.95 m	Cruising speed:	40 knots
Beam:	4.63 m	Sprint speed:	50+ knots
Draft:	1.2 m	Cruising range:	300 NM
Displacement:	36 tons		
Engines:	2x1100-1900 hp		

Docksta IC 16 M Technical information:

Length, OA:	17.2 m	Cruising speed:	38 knots
Beam:	3.8 m	Sprint speed:	50 knots
Draft:	1 m	Cruising range:	400 NM
Displacement:	20 tons		
Engines:	2x800-1200 hp		

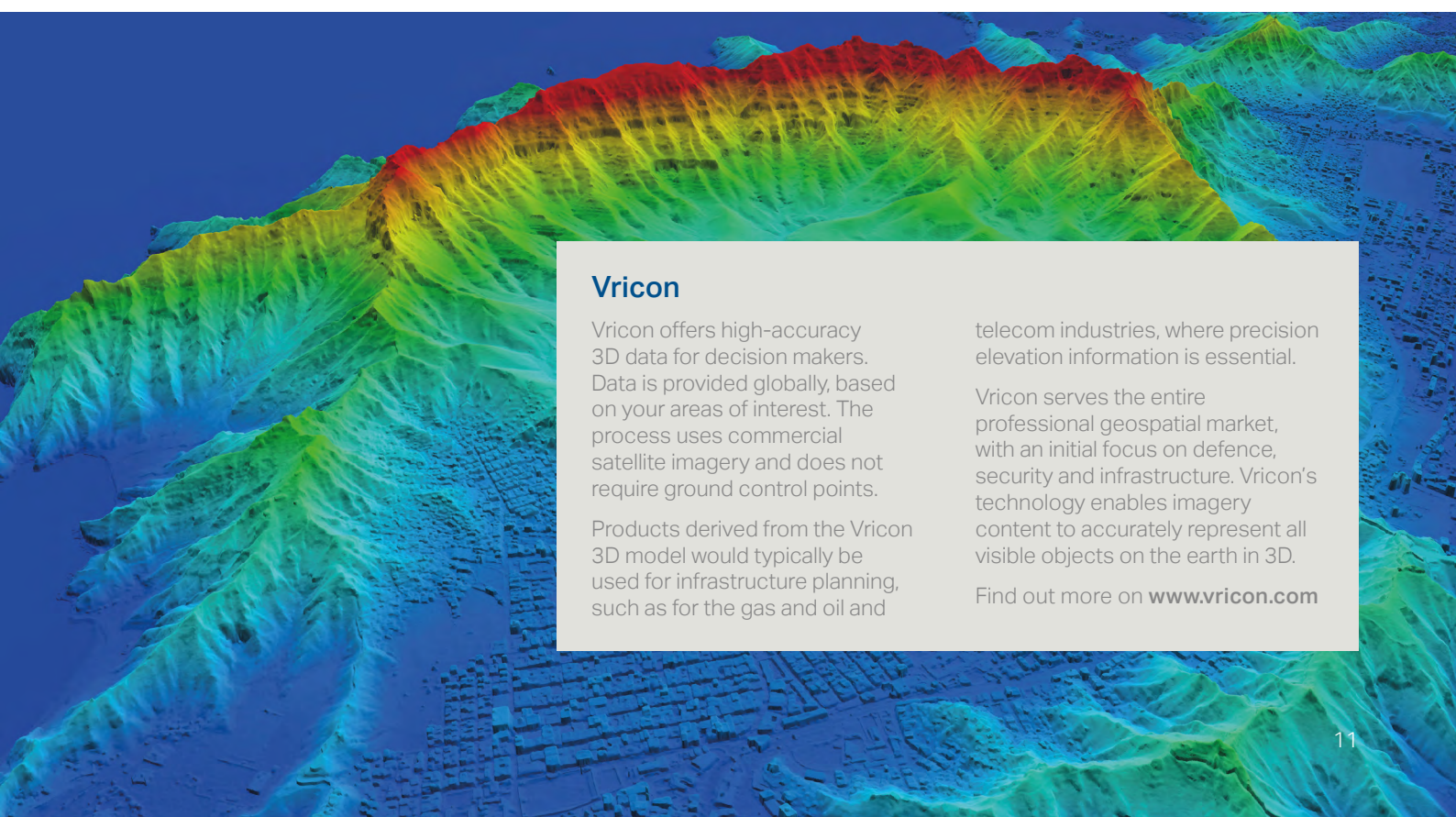
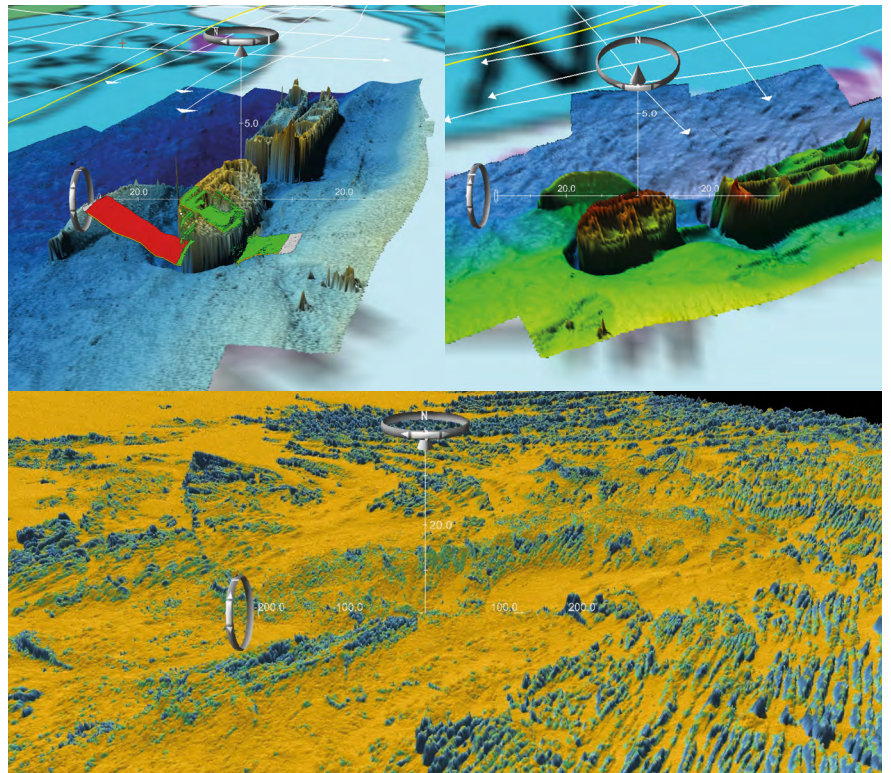


3D mapping

3D mapping ensures precise and accurate geospatial analytics and visualisation. In the energy, oil and gas industries, 3D mapping improves asset management and supports effective decision-making.

Such mapping has become an essential part of the lifecycle of oil and gas operations, including exploration, environmental planning and infrastructure management.

Saab's Vricon provides powerful 3D modelling and elevation data on a global scale. We build the globe in 3D using commercial imagery and our revolutionary 3D production process. The result is a visualisation platform offering unique 3D geodata with the world's highest quality commercial satellite imagery.



Vricon

Vricon offers high-accuracy 3D data for decision makers. Data is provided globally, based on your areas of interest. The process uses commercial satellite imagery and does not require ground control points.

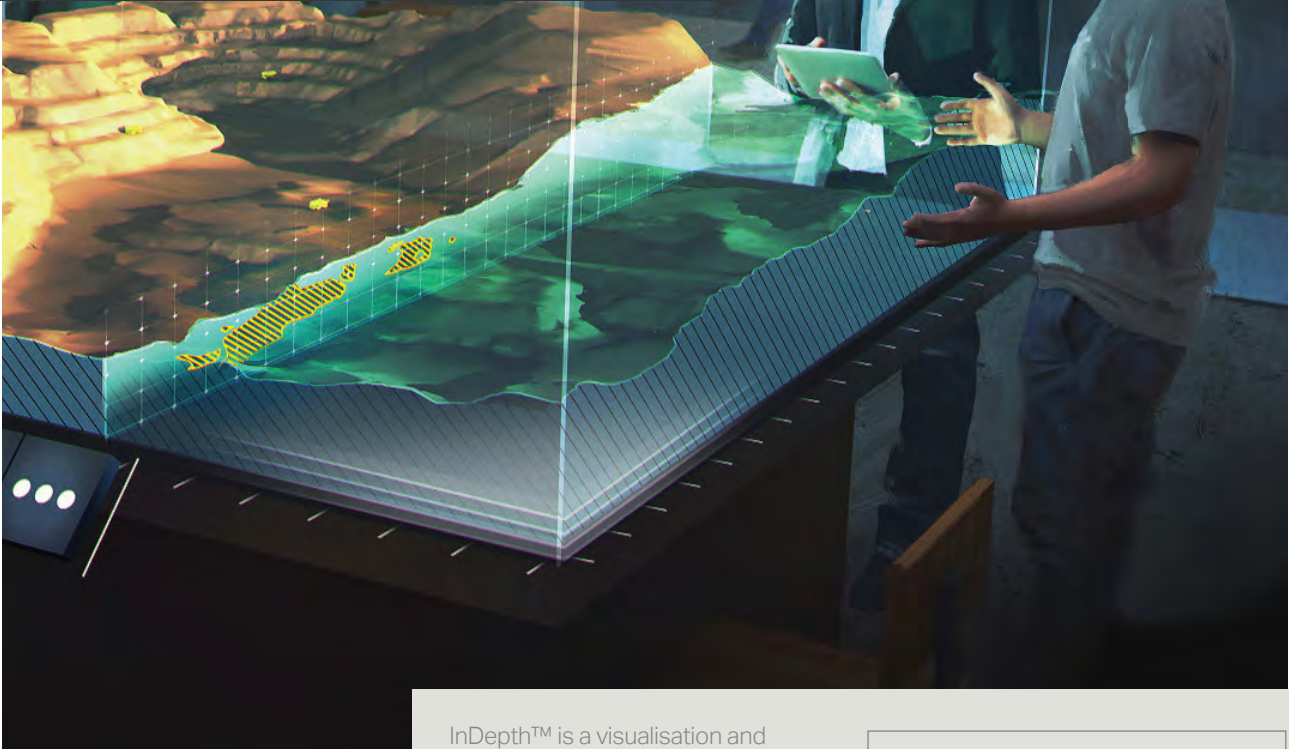
Products derived from the Vricon 3D model would typically be used for infrastructure planning, such as for the gas and oil and

telecom industries, where precision elevation information is essential.

Vricon serves the entire professional geospatial market, with an initial focus on defence, security and infrastructure. Vricon's technology enables imagery content to accurately represent all visible objects on the earth in 3D.

Find out more on www.vricon.com

3D holographic visualisation



InDepth™ is a visualisation and communication platform for teams to discuss, plan and gain a common understanding of site data. Creating a digital twin of your site(s) within a shared holographic workspace allows users to improve their spatial intelligence and visualise complex information in 3D.

- True holographic 3D representation
- Toggle between yearly plans, phases, geology or engineering viewpoints
- Real-time data overlays
- Table-top and immersive views
- Multiple concurrent users, local and remote
- Toolset for important 3D models, such as mobile equipment and vehicles

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