

Akkodis Nordics & the Defense industry

Transforming Defense Capabilities



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Mikkel Helweg

Business Development Director
at Data Respons Solutions

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Ivar A. Melhuus Sehm

CEO of Data Respons R&D Services

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Akkodis Nordics' Dual-Tech Strategy in a Digital Age

Recent conflicts, particularly the ongoing war in Ukraine, have cast a spotlight on the transformative impact of military technology on modern warfare. In a world where the pace of digital transformation rapidly accelerates, the defense sector is not left behind. Akkodis Group Nordics, a technology company with deep roots in both software and hardware development, has over 40 years of experience in adapting technologies to the needs of the defense sector and is uniquely positioned at the intersection of civilian innovation and military precision.



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Akkodis Nordics’ Dual-Tech Strategy in a Digital Age

Combining off the shelf hardware with tailored R&D development

“Commercial as long as possible, military when strictly necessary”. That is the philosophy of the Norwegian Armed Forces, when it comes to technology: The women and men in uniform want to utilize tech initially developed for civilian sectors like telecom or automotive. Why? Because these domains are at the forefront, due to big tech companies pushing innovation, driven by big markets and big development budgets.

However, commercial technologies must be adapted to the harsh environment of combat and to strict security regulations. Only then can they be used as part of the deterrence setup that is indispensable in these uncertain times.

The rapid integration and adaptation of technologies on the battlefield highlight the strategic advantage of Commercial Off-The-Shelf (COTS) hardware and software. These technologies, originally designed for civilian use, are cost-effective and can be quickly modified for military purposes. The use of Starlink for communication in Ukraine is a prime example, where commercial satellite technology provided a resilient solution against cyber threats and infrastructure attacks. This approach not only saves time and resources in development but also ensures that the military can leverage the rapid advancements occurring in consumer technology.

It provides a dual advantage: immediate access to advanced technology through COTS and the development of unique, mission-critical technologies through targeted R&D. This approach also helps in maintaining technological superiority without the prohibitive costs and time delays often associated with developing complex systems from scratch.

Now it is time to take a step further, according to Mikkel Helweg, Business Development Director at Data Respons Solutions, and Ivar A. Melhuus Sehm, CEO of Data Respons R&D Services. They both argue that the Nordic countries are not utilizing the regional tech industry to its full potential.

Integration of Emerging Technologies

Although the Akkodis Group Nordics is not a typical defense company, it is a significant actor in the Nordic defense ecosystem. And as the digitalization of defense is further increasing, and the demand for defense products is skyrocketing, Helweg and Sehm are ready to take on bigger projects.

“The armed forces in the Nordics must accelerate the integration of cutting-edge technologies such as artificial intelligence (AI), robotics, unmanned systems, and cybersecurity. These technologies can enhance capabilities in intelligence, surveillance, and reconnaissance (ISR), as well as in combat and defensive operations. The utilization of AI and machine learning can significantly speed up decision-making processes, while drones and autonomous systems can perform risky tasks without endangering human lives, says Ivar Sehm.

Across the Nordics tech specialists from Akkodis are now focusing on autonomy, sensors, data sharing, situation awareness and interoperability. And we are not alone in that. But we are working hard at combining and integrating the different products and services, adds Mikkel Helweg.

The “Commercial as long as possible, military when strictly necessary” paradigm is well suited for the Akkodis Nordics subsidiaries Data Respons R&D Services and Data Respons Solutions. For decades the sister companies have contributed significantly although discreetly to naval warships, land systems, soldier equipment and digital defense systems. Always standing in “the shadows”, as subcontractors to large defense companies, and always taking commercial technology and adapting it to the unique requirements in the defense sector.

Data Respons R&D Services specializes in the early phases of development, spanning from doing feasibility studies to building pre-certified, working, and approved prototypes. Data Respons Solutions on the other hand, is responsible for formal certification, industrialization, volume production and life cycle support. Thus, the combined capacities from both companies are a unique and high value-added product development as a service to our customers.

We are experts in the field of digital engineering, and the most significant trends in defense technology are based on digitalization, says Ivar Sehm.

And typically, the defense sector takes advancements from the commercial sector and fits them to defense requirements. We are experts in that too, having done so many times over the years.

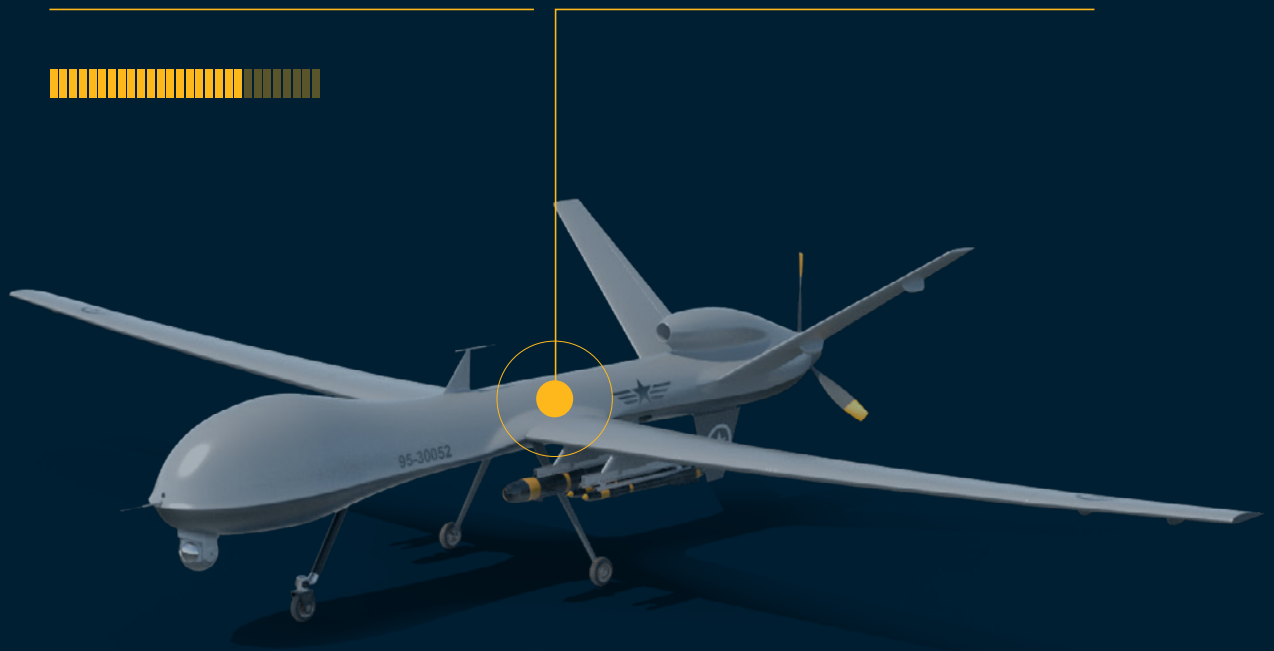
According to Ivar Sehm there is an emerging market for complex and outsourced R&D projects where the customer has full ownership of the product, including all IPRs and any patents.

Today we are offering a complete value chain from drawing up a concept to full industrialization and the delivery of ready to use products. From what I have seen more and more defense agencies are now opening up to more and less traditional suppliers and new ways of thinking. So far it has led to shorter delivery processes that are on budget, says Sehm and referring to how the US based company Anduril have disrupted the defense industry in the US.

Deployment of UAVs

As an example, Ivar Sehm points to unmanned aerial vehicles. He remembers participating in a NATO study at the turn of the millennium, analyzing the potential of UAVs. The study argued that civilian aviation had already to a large extent developed the key technologies required for autonomy, including autopilot, sensors, GPS and guidance systems. To step into a new phase of drones in defense, what remained was to tie it all together and add the necessary security and ruggedness. Fast forward two decades, and drones have become a key asset for the Ukrainian defenders. Zelenski have even declared an ambition to produce a million FPV drones in 2024.

The battlefield in Ukraine has seen a massive shift towards the integration of unmanned aerial systems (UAS) and artificial intelligence (AI). In Ukraine, drones have been utilized extensively, from sophisticated military-grade models to modified commercial drones



These machines serve a myriad of roles, from surveillance and reconnaissance to direct attack missions, effectively extending the eyes and ears of the forces while keeping human soldiers at safer distances. The AI enhances these capabilities, processing vast amounts of data to provide real-time analytics that support decision-making and targeting precision.

Two years ago, we worked on a de-icing system for civilian drones meant for use in Nordic winter conditions. Today I think that is crucial technology for the armed forces in the Nordics. When there is a drone war in arctic conditions de-icing suddenly becomes a challenge. But it's another example where the technology already exists. And if we go into the IoT dimension the examples of existing civilian tech is endless, says Sehm.

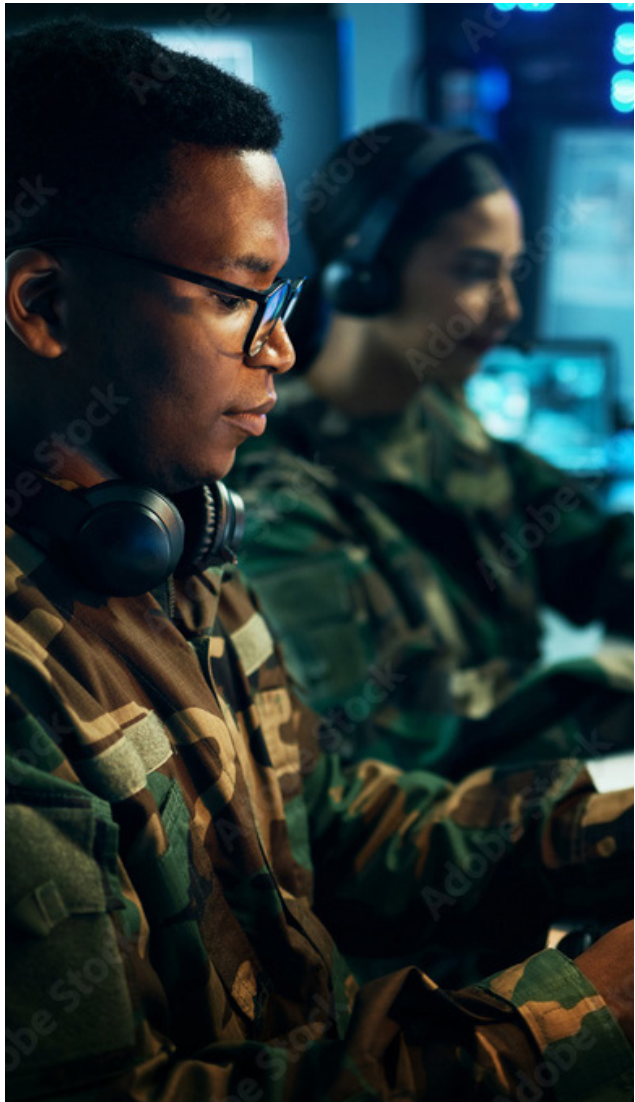
Internet of Military Things (IoMT)

IoMT integrates various military devices, enhancing automation and improving real-time decision-making capabilities. Pivotal in improving situational awareness and operational efficiency by connecting soldiers, vehicles, drones, and more.

Within the IoMT space sensors play a crucial role. The range of sensors deployed across a defense infrastructure spans from large devices such as radars, sonars and satellites to equipment for the individual soldier, such as thermal cameras, microphones, gas detectors, sensors measuring the physical condition of the soldier and more. And they are connected, making each of them a node in a vast sensor network feeding information into overlaying systems.

“Military operations often take place in harsh environments. The defense industry can add value by designing IoMT devices that are rugged and reliable, ensuring they operate effectively in extreme conditions, from underwater to desert environments or in high electromagnetic interference areas,” comments Helweg.

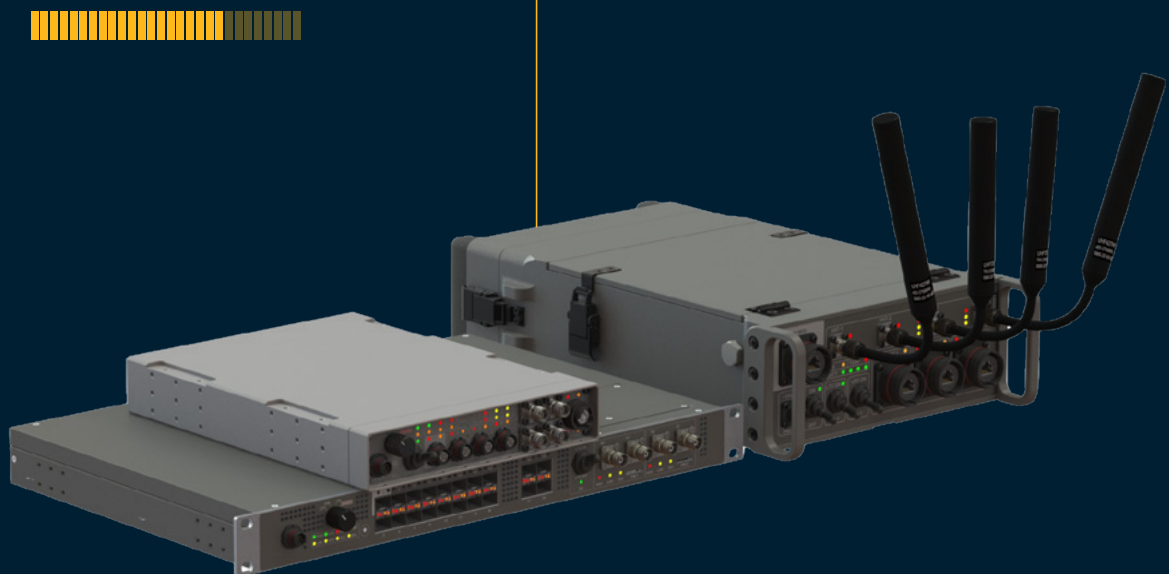
As warfare becomes increasingly networked, cybersecurity has emerged as a critical front. The adoption of satellite communication systems like Starlink after traditional networks were compromised illustrates a shift towards more resilient, decentralized communication methods. This adaptation ensures that even in the face of aggressive cyber warfare, military and civilian networks can maintain operational effectiveness.



According to Mikkel Helweg, Akkodis Nordics has a strong track record when it comes to taking communication technology and wrapping it into military applications.

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As an example, we have developed a range of tactical communication nodes that will be mounted in every combat vehicle in the Norwegian army. It enables tactical IP communication over a large area and is based on components from civilian 4G and 5G cellular networks. The devices are ruggedized and can interface crypto devices to fit it to military secret requirements.



Furthermore, networking and data sharing are essential to shortening the time between sensing and response. Data from a large number of sources across multi-domains are integrated into complex C4ISR systems (C4 stands for Command, Control, Communication, Computers, ISR stands for Intelligence, Surveillance, Reconnaissance). These systems deliver situational awareness to both the individual soldier and to the staff at military headquarters.

The Nordics defense forces are small, but highly professional and with access to a lot of high-tech equipment. However, to leverage those assets, we need to combine C4ISR systems with easy-to-use AI applications, says Sehm.

Unleashing defense potential

In addition to well-known defense capabilities, new threats and needs are emerging. Ivar Sehm points to a recent agreement between the Nordic countries, Great Britain, Germany and the Netherlands to increase the protection of subsea infrastructure.

Both gas and oil infrastructure and telecom and power cables are vulnerable and must be monitored and protected. Again, as Akkodis Nordics has a lot of experience in digitalization of the oil and gas sector. That makes us well suited to contribute to developing solutions including autonomous subsea sensors, unmanned surface vehicles and communication technology tying it all together.

Also, Ivar Sehm is seeing new opportunities arising from Sweden and Finland joining NATO. Now the Nordics can begin to coordinate defense capabilities and spending even more. With more structural similarities, collaboration becomes easier, and as a Nordic-based provider, Akkodis Group Nordics is ideally positioned to contribute to new cross-border defense initiatives.

“I think NATO and the Nordics could benefit from establishing innovation hubs or incubators that bring together military experts, scientists, and technologists from the Nordic countries, and other member countries. These hubs can focus on rapid prototyping and the development of innovative solutions to emerging security challenges. Such as artificial intelligence and unmanned systems, says Sehm.



Defense tech developed by Akkodis Nordics

Military router

Data Respons Solutions produces a range of rugged portable and vehicle mounted nodes for tactical communication. Which include the functionality of commercial routers, supporting fixed and mobile communications, including 4G/LTE/5G and mobile ad hoc networks (MANET). They meet the MIL-STD standard for durability and offer optional features such as WiFi and power supply to ensure reliable connectivity in different environments. Provision for mounting of 3rd party Crypto Modules is included.



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SOLUTIONS

Defense tech developed by Akkodis Nordics

Control & Display Unit

Data Respons R&D Services has been contracted for the complete design and development of the next generation Control and Display Unit (CDU), which is the operator station in the new observation and target acquisition system (OTAS) for the German and Dutch army Fennek II reconnaissance vehicles. The OTAS consists of a camera suite for different conditions and lasers for range measurement and target designation, all mounted on a telescopic mast. The CDU has been developed with sustainability in mind, and the new design reduces the environmental footprint, increases the reparability and lifetime significantly, and provides a new standard for soldier safety.



Engineering a Smarter Future Together.



Contact

Sebastian Eidem

VP Operations Akkodis Nordic

E: sei@akkodis.no