Changed Role

The Swedish Defence Materiel Administration (FMV) is tasked by the Swedish Government with overall responsibility for the provision of equipment and logistic support to the Swedish Armed Forces. This includes everything from development and procurement to decommissioning, with a major focus on operation and maintenance. This is a much more holistic approach than that of the past, when the focus was only on the procurement of new equipment. The goal is more effective defence logistics – and savings of 760 million Swedish Kronor, which will be redirected to Armed Forces units.

In order to achieve this, over 1400 former Armed Forces' employees, in storage, services and workshops, have joined FMV; around 500 employees in equipment and technical offices have also transferred to FMV.

As well as materiel projects that culminate in the procurement of equipment and services, FMV has a wide range of service and maintenance tasks. In this publication we describe some of the work we have carried out in 2013 and some of our now 3400 employees.

It’s all about defence logistics – when and where it is needed – FMV’s contribution to Sweden’s defence capability.
During development work on the Gripen E aircraft, FMV use a demonstration version of the new aircraft for various technical tests. The new Gripen E will have a more powerful engine, greater internal fuel capacity – which will give increased range and endurance – more weapon pylons, and the ability to carry a heavier payload. It will also have a new active electronically scanned array (AESA) radar system, upgraded cockpit displays and modern avionics, which will facilitate operational use of the aircraft.
New Task

FMV is changing in order to face its new task of responsibility for the entire defence logistics chain, including the procurement and maintenance of equipment. At the same time we are involved in a range of complex contracts, many in collaboration with other countries.

- On Thursday 14 February 2013, on behalf of FMV, Dan Andersson and I signed what is probably Sweden’s largest ever industrial contract. The contract concerns the development and modification of 60 Gripen E aircraft for the Swedish Armed Forces and the production of new Gripen E aircraft for Switzerland. The total value of the contract is in excess of 50 million Swedish Kronor.

- The agreement with SAAB in February was the culmination of lengthy work on requirements, delivery dates and payment schedules. It was also the starting point for cooperation in providing the Armed Forces with a capability boost for the Gripen combat aircraft system.

- The Swedish system is unique in that it is extremely cost-effective and will be in operational service beyond the year 2040. Ensuring that the supplier meets the intentions and obligations of this agreement is a very important task for FMV, as is meeting our own contract obligations.

- In December 2013 the Brazilians announced that they had also selected Gripen. Hungary has decided to extend its hire-lease contract and the Czech Republic is considering extension of its hire-lease agreement. We have also completed delivery to Thailand. An appreciation of the advantages of the Gripen system is not only confined to Sweden.

International cooperation

- The Armed Forces need highly sophisticated weapon systems at the leading edge of technology – sometimes even beyond it. The disadvantage of such technology is its cost. High costs make it difficult to finance equipment projects from limited European defence budgets. Therefore, international collaboration is most often a prerequisite when adding to the Swedish Armed Forces’ capabilities.

- There are many examples of equipment that have involved international partnerships, one of which is the Gripen project. Other examples include the Meteor long-range, radar-guided air-to-air missile, the Archer artillery system, NLAW (Next Generation Light Anti-tank Weapon – or Swedish RB 57), the NH 90 Helicopter (Swedish “Helikopter 14”) and the precision guided artillery shell, Excalibur. Certain projects have had problems from the start – and others have been very successful.

- All international cooperation has previously been audited by the National Audit Office and is continually under review by the media. Such scrutiny is important and helps to increase awareness of defence equipment issues. However, giving up international collaboration is not an alternative for FMV; instead – in cooperation with our partners – we need to make such collaboration more effective.

Change at FMV

- FMV is currently undergoing the biggest change in its role since the organisation was formed in 1968.

- Since April 2011, following a defence structure review, the Swedish Armed Forces and FMV have been cooperating closely to clarify the roles of each organisation.

- FMV has taken responsibility for the entire materiel chain, from procurement to in-service management, to maintenance and decommissioning. Savings of 760 million Swedish Kronor are to be made, and this money will be redirected into the Armed Forces’ operational activities.

- We are adapting our organisation for our new role and, as with any reorganisation, we run the risk of diverting energy from our core activities. People often perceive reorganisation as negative and disruptive.

- However, in our case at FMV, I have been struck by everyone’s determination and understanding that new tasks demand new methods. My thanks go to all FMV staff for their work during 2013, and for their understanding that 2014 will be a year during which not everything will be in place from the start. However, FMV’s direction is clear – we will provide effective defence logistic support, when and where it is required.

Lena Erixon, General Director FMV.

There will be a much more holistic approach rather than the previous focus on new procurement. We will be a completely new organisation where only the name will remain unchanged.

Lena Erixon, General Director FMV.
This involves a streamlining of roles. The Armed Forces will order equipment and materiel based on functional requirements and FMV will deliver the necessary equipment, materiel and services to meet those requirements – and they are to be in place when the Armed Forces require them. The aim is to make defence logistics more effective and produce savings of 760M Swedish Kronor. This money will be redirected into the Armed Forces operational activities.

‒ We have 760 million reasons to change the way we do things, says Leif Nylander, the Armed Forces’ Head of Materiel Production.

The changes will affect everyone in both organisations. Perhaps not in the early stages, because the changes will occur in several phases; however, ultimately, everyone will be affected to a greater or lesser degree.

FMV and the Armed Forces are cooperating closely in order to find the best solution for the defence logistics of the future.

The starting gun has been fired

Wednesday 30 October 2013 was an important milestone for the new FMV. That was the date a joint organisational project submitted its findings to the two organisations about how the management and procurement of defence logistics should be conducted.

The new model will be developed further both jointly and within each organisation. During 2014 both old and new methods will be used in parallel. The planning of defence logistics will be carried out in accordance with the new model, but current activities will be conducted as before.

‒ Of course, it is not optimal to work using the old model and plan in the new, but – given the situation we are in – it is the best way ahead, says Jan Salenstrand, the Armed Forces’ Chief of Staff.

‒ Much remains to be done. We will have to put up with imperfections in our tools and systems for a while and everyone must help. We will do it and things will go well, providing we ensure that we talk to each other when problems arise, says FMV’s Director General, Lena Erixon.

760 Million Reasons for Change

FMV is currently undergoing its biggest change since 1968. Personnel and responsibilities for defence logistics are being transferred to FMV from the Armed Forces – and FMV will assume responsibility for the entire materiel chain, from procurement to decommissioning, with a major focus on equipment operation and maintenance.

“FMV and the Armed Forces have established a basis for the future management and procurement of defence logistics. I want to emphasise that we are working on these changes together. We will be fine-tuning our methodology during 2014.”

Lena Erixon, Director General FMV.
The starting gun was fired in February 2013 when FMV signed a contract with SAAB for the development and modification of 60 JAS39 E aircrafts for the Swedish Armed Forces and the production of 22 new aircrafts for Switzerland.

Apart from being an important industrial project for Sweden, it is also an important project for the Armed Forces, in terms of the operational demands they face. The development of JAS39 E is a boost to the Gripen system and ensures its service beyond 2040. The project is a prerequisite for Gripen’s continuation as the backbone of the Swedish Air Force and Swedish defence, says Dan Averstad, Head of the Gripen Programme at FMV.

With a background as a company director, and a lead negotiator at FMV, he has the ideal background to lead such a large project.

FMV’s task is to ensure that the project is on schedule, within budget and meets performance requirements. Because JAS39 E will be in operation for over 20 years, we also need to focus on a cost effective solution to what we call the sustaining engineering management phase over the long period that the aircraft will be in use with the Armed Forces. We look at the costs during the whole life of the system, not just its development and procurement. Therefore, we aim to keep the overall costs as low as possible, says Dan Averstad.

There are many perspectives to be taken into consideration in a project of this scope. Defence industry priorities will differ, to some extent, from those of FMV; however, FMV needs to consider all aspects holistically, from a lifecycle perspective. One way of achieving this is to ensure that there are opportunities for competition at the sub-system level.

Throughout the project we will weigh up performance, price, lifecycle costs and development potential. The Gripen system will have a long life, so it is important that further, cost effective development is possible at a later stage.

After the Armed Forces have clarified their operational needs, requirements and timeframe, it is FMV’s task to convert them into a negotiable tender, so that industry can understand what has to be accomplished. By doing this we have been able to reduce costs without sacrificing the functional requirements.

The Gripen Programme at FMV is responsible for all versions of the aircraft. The first version, JAS39 A/B, will shortly be taken out of service. JAS39 C/D is the version in service with the Armed Forces today and it will continue to form the backbone of the Swedish Air Force until 2026, when the complete JAS39 E system will be delivered. Work on sustaining engineering management and upgrades of JAS C/D already ordered will be important elements of FMV’s activities within the Gripen Programme at FMV. The system will be in service for a further 15 years in Sweden and also other countries that use Gripen: Thailand, the Czech Republic, Hungary and South Africa.

The commitment to JAS39 E will lengthen the lifetime of the system beyond 2040. The starting gun was fired in February 2013 when FMV signed a contract with SAAB for the development and modification of 60 JAS39 E aircrafts for the Swedish Armed Forces and the production of 22 new aircrafts for Switzerland.

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Certified Project Managers

For a project intensive organisation like FMV, talented project managers are worth their weight in gold. Andreas Lörinc and Caroline Löfgren are two experienced project managers who completed their certification as project managers in 2013.

― It has been great fun doing the different courses and I can put this knowledge to good use when we are planning our activities, says Caroline Löfgren, project manager for the Helicopter 16 project at FMV.

FMV places great emphasis on developing expertise in the three core areas of project management, systems engineering and procurement. There is a four-stage development ladder with a number of courses at each level, e.g. risk management, negotiation techniques and leadership.

― The courses have been interspersed with the practical experience I get here at FMV. This has given me a more systematic approach, which helps me as a project manager, not least when we are preparing for future equipment modifications, says Caroline.

One part of the development ladder is Project Management Institute (PMI) certification, which involves a lot of project method theory and concludes with an examination. Over the last 10 years about 60 FMV employees have gained PMI certification.

Andreas Lörinc is a programme manager for underwater equipment. He says that, even though most of FMV’s work is done before the actual project begins – statements of requirement and the tender process – this is the way that FMV should run their projects.

― FMV has many different types of projects, but the larger projects involve lots of different parties with different roles. We need structured working methods to make sure we know which the governing documents are, and how changes can be made.

Once people in the defence industry start design, programming and manufacture, FMV take a step back and have fewer employees involved in monitoring and testing.

― It’s important for us to be able to check and give direction so that there are no slips in requirements. It’s all about making sure a project is well organised, says Andreas.

When asked if this is the way FMV works today, Andreas answers that much of this is incorporated into our internal management systems, but he thinks that there is room for improvement.

― Standardised structures should be used more widely. At present there are a lot of differences between the different departments. We also need to be better at stating requirements, so that whatever industry is required to deliver is crystal clear, says Andreas.

― There are project managers who are good with people, but not so good at administration and this can lead to a loss of control. On the other hand a misplaced faith in structure can lead to a lack of commitment and difficulties in keeping to schedule. Both sides are needed, says Andreas.

“Structured working methods provide a basis for running a project. Then there are other equally important factors, the so-called soft factors, such as how to build a team and conduct meetings. To be really successful, a project manager should be good in all these areas. Therefore, leadership is an important element in FMV’s programme for developing project managers.”

Andreas Lörinc, sub-surface programme manager, FMV.
Despite the uneven ground the vehicle moves quickly across the exercise area. The fact that it weighs about 25 tonnes is not a problem, as the vehicle sets off at high speed. A vehicle commander, driver, gunner and eight soldiers can move at speed, observing their surroundings without having to leave the vehicle.

– This vehicle is long-awaited and essential for the tasks we face in the future. It has the mobility, observation and the protection we need, at the same time offering a comfortable ride to the soldiers onboard, says Major Jonas Nilsson, project leader for the introduction of the vehicle at P7, the South Skåne Regiment, in Revingehed.

In spring 2013 FMV delivered the first Patria vehicles to the Armed Forces. These were used to train instructors, who will, in turn, train vehicle crews.

– In 2015 the Regiment’s 71st Battalion will be part of the EU’s rapid reaction force where this vehicle will have a real role to play, says Jonas Nilsson.

FMV had to repeat the initial tender process after an appeal first time round. This meant that the project was in difficulties from the beginning and resulted in time pressure, with expectations being that the delivery schedule would still be met.

This placed, and still places, considerable demands on FMV and the supplier, Patria, in the day-to-day work on the project, says FMV’s project manager, Ulf Öberg.

– We have three major challenges – the schedule, the Armed Forces’ expectations, and maintaining good relations with the supplier. Because of the agreements we have reached in the last year, we have a workable plan, but there certainly is a lot of work to do before we complete delivery.

The Patria vehicle will be supplied to the Armed Forces’ light mechanised battalions. Procurement of this vehicle system includes four variants: armoured personnel carrier, command vehicle, ambulance and repair vehicle. FMV’s contract with Patria is for the supply of 115 vehicles.

With its speed, high level of protection and good observation, the Patria armoured vehicle (Swedish: Pansarterrängbil 360) is a long-awaited and welcome addition to the Swedish Armed Forces. Despite time pressures and high expectations it looks like FMV will achieve its delivery targets.

Quick, Safe with Good Observation

“A really good vehicle with mobility that is almost as good as a tracked vehicle, and very comfortable for an infantry section. And it’s fun to drive.”

Bodil Böös, Captain, South Skåne Regiment and Patria instructor.

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Explosive Work at the Missile Workshop

The bunker is locked, and the area is cordoned off and guarded when booster rockets, warheads and pyrotechnics are dismantled. The next job is the final testing of a missile.

A short bike ride into a Muskö hillside takes you into the missile hall. A missile, connected to computers and measurement equipment, hangs from the ceiling. Before the missile arrived here all explosive substances had been removed. Nearby, but separated from all other activities, is the workshop.

– This is where we remove all the explosives, wings, fins, and casings before missiles are taken to the missile hall for maintenance, says Lennart Larsson, Head of the Missile Section at FMV’s Muskö naval workshop.

A maximum of eight people are allowed in the workshop when the explosives are being removed – the workshop is locked and the area is cordoned off. Because the area also needs to be guarded, to prevent unauthorised people from being injured in the event of a mishap, work is carried out in so-called “campaigns”.

– For example, we might take apart 10 missiles in one week. Then we’ll do the work that doesn’t require any guards. Then we’ll reassemble all the missiles with the guard force back in place. This way we are able to reduce our guarding costs.

Flight simulation

In the missile hall in the hillside, missile technician, Christer Hultberg sits at a large desk with several computers. A missile hangs in a test rig nearby. Christer’s computers are connected to the missile and he simulates the missile’s flight when locked-on to a target.

– One of the tests involves checking the operation of fins by testing the target guidance magnetron. The magnetron transmits microwaves to allow radar guidance. Microwaves are transmitted to the target via an antenna and then reflected back to the missile.

During the half-hour test he checks that everything works the way it should and that no components need to be replaced.

Greater demand

In addition to maintenance of the actual missile, the workshop is also responsible for maintenance of the tubes in which the missiles are housed on board ship and in ammunition depots. In older corvettes missiles are housed in tubes on the ship’s deck. However, on the Visby corvettes missiles are housed in tubes below deck. This places greater demands on the tube and has necessitated a number of modifications, including changes to the tube itself, the tube’s hatch system and the exhaust system – and even the location of individual seals.

– We have been working on the integration of the missile system into the Visby corvettes since 2006. It’s been a complex task and we have faced a number of challenges. However, we are now on the right track, says Lennart Larsson.
The Armed Forces Dog Unit in Märsta trains dogs for a variety of specialised roles, including ammunition, narcotics or search dogs and patrol dogs. With the Armed Forces’ focus on international operations, there is a requirement to employ dogs on various specialised tasks.

When dogs deploy on a mission with their handlers there are many requirements, some of which are covered by animal welfare legislation. FMV’s task was to develop kennels that fulfilled all these requirements.

The kennels should also be mobile so that they can be transported to different locations, both within Sweden and abroad. Kristina Almqvist was the project manager responsible for developing the mobile kennel. She explains that FMV previously developed a prototype, which is in use in Afghanistan. A further four kennels are now ready for use by the Armed Forces.

“We got a lot of good feedback from those who have used the prototype in Afghanistan, both about what was missing and things that could be improved – and these have been incorporated in the new kennels.”

Kristina Almqvist, project manager FMV.

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The kennel is basically a converted container. All the equipment needed for the dogs can be found in the container, including a special table for medical examinations.

“We have had very good cooperation with the Armed Forces, especially their senior vet, says Kristina. There are a lot of rules and regulations about working with animals and we have taken these into account when designing this equipment. Each container has room for four dogs. They have plenty of space with individual kennels, individual covered rest areas and a separate exercise area. The container has running water and air conditioning so they can be used in both hot and cold climates.

“When I have been out on visits and seen the dogs at the Armed Forces’ Dog Unit, it’s been great fun. The dogs are incredibly well trained and very clever. It feels really good to be able to develop such a practical and comfortable solution for these lovely dogs.”

Dante, a German Shepherd, specialises in searching for people. On missions in various places around the world, he needs a pleasant environment between tasks – and he gets this with the mobile kennels developed by FMV.

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One year after the combat boot tests began, 8000 pairs of boots arrived at the central store in Arboga, ready for distribution. “This really is a boost for the Swedish soldier. The new boot is very comfortable for someone carrying heavy loads and walking long distances,” says Marja Appelblom, a project manager at FMV.

Comfort was decisive

Comfort was the deciding factor between the two suppliers who were left at the end of the evaluation process. The soldiers from the Land Warfare Centre, who took part in the tests, gave the German boots high marks for how well they fitted – and footwear is important for soldiers; it can have a direct effect on their performance.

“I see this isn’t just a boot,” says Eddie Isaksson, FMV’s footwear expert. “It’s a flexible system that can be adapted to various weather conditions. By mixing and matching one boot insert, different soles and socks, a soldier can have a comfortable boot in temperatures between -20°C and +40°C, in wet and dry weather.

The boot, from the German company Meindl, is manufactured in Slovenia and is made up of 500 different parts. It’s a very high quality boot, says Eddie Isaksson. Despite this, the FMV team that completed the procurement was able to keep the price down.

“We broadened the specification of requirements, which resulted in five bids. Two of these went to the final evaluation, says Eva-Lena Öhnis, a purchaser at FMV.

Competition kept the price down

The broader requirement specification attracted more bids. A larger volume of boots and increased competition allowed FMV to negotiate a price for the second batch of boots 35% lower than the price agreed during the first negotiations.

The Swedish company, Moxter, emerged as the winner of the contract and will supply the Swedish Armed Forces with a boot from the German company, Meindl.

Combat Boot 08 is being introduced into the Armed Forces in parallel with Combat Boot 90, which is a more basic boot. Soldiers, whose duties involve carrying a lot of weight, will be issued with the newer boot.
When Nils Dalborg steps from the quay to board HMS Carlshrona it is not for the first time. He was FMV’s project manager for equipment preparation before the Swedish operation in the Gulf of Aden. For four months the ship and her crew monitored maritime traffic and escorted aid supplies as part of the EU’s Operation Atalanta.

‒ What we actually did was the first stage in transforming Carlshrona into a support ship that can provide warships with spare parts and supplies at sea, says Nils Dalborg. The changes we made were also beneficial in connection with the operation last year. We are now in the middle of the second stage.

Transformation

The first concrete steps in this transformation began in November 2012. We converted the old mine deck into a large deck for the loading and offloading of supplies. A flexible storage system was also installed to keep track of spare parts and other equipment. A number of modifications were also made to command and control, and communication systems.

The ship was provided with a new rigid inflatable boat (RIB), powered by aviation fuel, for the ship’s boarding team. A number of other facilities were added in order to allow a helicopter to be based onboard for extended periods. Previously it was only possible for helicopters to land and take off and stay onboard for short periods.

The medical facilities were enhanced with the addition of a casualty lift. This allows injured personnel to be transferred, in one uninterrupted move, from the helicopter directly to the sick bay below deck.

Tight timetable

‒ At the same time as all these modifications were being carried out, the Armed Forces completed their annual inspection of the ship and – from the beginning of January 2013 – the crew alternated between training for operations and our work. Despite the tight timetable, everything worked out really well, thanks to excellent cooperation between everyone involved, explains Nils Dalborg.

The ship set sail from Sweden on 13 March 2013 and took part in Operation Atalanta from the beginning of April until August. After the operation FMV started the second stage, to complete the transformation of Carlshrona into a support ship. The aim is to have all work completed by the beginning of 2014.

Modified for Operations

The ability to base a helicopter onboard, a new boat for the boarding team and a new casualty lift to move injured personnel directly from a helicopter to the sick bay – these are some of the modifications FMV completed on the ocean patrol vessel, HMS Carlshrona, before she commenced operations off the Horn of Africa in the Gulf of Aden in 2013.

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Custom-built Containers – More Effective Logistics

From the outside they look exactly the same, but on the inside they are completely different – and the transformation takes place in a storage building on a gravel yard next to the railway line at FMV’s Skövde workshop.

The Armed Forces sleep in them, they shower, do laundry, prepare food, command operations and take care of the wounded in them; they even transport and store equipment in them. In the last 15 years a lot of Armed Forces activities have moved into containers. The reason for this move is the complete compatibility with civilian commercial transport systems, which is particularly useful for international operations.

The latest addition to the range of custom-made containers is a catering container for the Amphibious Regiment’s logistic support boat. The system is made up of two containers – one kitchen container and tented dish-washing facilities, which are on the boat, and a storage container, which is ashore.

At an early stage FMV’s Storage, Service and Workshop Division (FSV), and the Land Workshop in Skövde contacted the Development Unit of the Logistics Regiment, and cooks from the Amphibious Regiment, to help in the design of the kitchen.

“– It’s important to get the user involved at an early stage so that we can build according to their wishes, and take into account any rules and regulations, and costs. This has allowed us to get things right from the start, rather than having to make expensive modifications later on. By working this way we have been able to keep the costs of the project down, says Claes Binnberg, the Container Workshop Supervisor.

Successful two into one modification

The Container Workshop in Skövde is about to complete a major modification project. The project involves the Armed Forces’ water tanks, which previously came as two separate units – a tank and a pumping unit – which had to be demanded separately, and each unit had its own instruction book.

– The pumping unit came in a wooden crate, which was transported on top of the tank; this presented certain ergonomic problems in that the pump had to be lifted up and down in order to be used. And, of course, people sometimes just ordered a tank and forgot the pump. This made things difficult when they wanted to get water out of the tank, says Claes Binnberg.

By building a cabinet at the front of the tank, to house the pump and other equipment, the tank unit is now one complete system. So now, when users demand a tank, it comes complete with a pump and simple instructions.

“Close cooperation with users allows us to maximise the ergonomics and functionality of the containers. We get things right from the start – avoiding the need for expensive modifications later on.”

Claes Binnberg, Container Workshop Supervisor, who – with Ove Larsson – leads the container modification work at FMV’s workshop in Skövde.
Greater Mine Protection

FMV Test and Evaluation at Karlsborg detonate an explosive charge under a vehicle that is manned with crash test dummies and stuffed full of sensors, high speed cameras and other measurement equipment. The test results will help to reduce the risk of injury to soldiers using the vehicle.

As well as 50 employees at their testing site at Karlsborg, FMV have one of their own and a number of hired crash test dummies. They are used to measure the biomechanical loading on the human body in different situations. This usually involves testing how soldiers in a vehicle might be affected by the detonation of a mine underneath or beside the vehicle.

The dummies weigh 78 kg - an international standard. They are equipped with complex measurement systems and a variety of sensors, which measure such things as spine compression, force in the lower leg, torque and force in the neck, and effects on internal organs.

By combining the measurement data from the dummies, the forces measured by the sensors and film from the high speed cameras, FMV’s test engineers in Karlsborg calculate how a person in a vehicle would be affected if the vehicle was subjected to the detonation of a mine.

– We compare our data against a NATO standard, which – to put it simply – says whether or not you’d be able to stand up and walk after an explosion, says Torben Gustavsson, who works with metrology photography at the testing site in Karlsborg.

An analysis of the results is then sent to the client in a report with a record of all measurements and films. One use for the films is motivating soldiers to use the foot supports in the vehicle instead of putting their feet on the floor.

– If you’ve seen for yourself what happens to legs when you have your feet on the floor, it makes you very careful about using the foot supports. The same applies to stowing away loose items in a vehicle. If you get hit, anything – such as a soda can – becomes a deadly projectile, says Torben Gustavsson.

The protection tests are primarily carried out to help minimise the risk of injury to soldiers in the vehicle, but we also look at the vehicle’s functions and capabilities.

– It sounds like a cliché, but we do often talk about why we do this. Personally, I find it very satisfying to work with protection technology, says Torben Gustavsson.
shortly afterwards the appeal was withdrawn. However, the outcome was that the Swedish Competition Authority is now investigating whether or not it was correct to allow the tender process to be conducted in accordance with Norwegian regulations.

‒ In this case it was our judgement that there were strong defence and security policy grounds, within the framework of our cooperation with Norway, to conduct the tender process jointly with Norway. We believe that this gives us exemption from the Public Procurement Act and allows us to apply Norwegian regulations, says Anders Carell, but we will see what the Competition Authority says. In the worst case we will have to repeat the tender process.

In joint procurement projects with other nations, it has long been international practice that one country takes the role of lead nation. The tender process is then conducted in accordance with the rules and regulations of the country that has commercial responsibility for the process. It is assumed that this country will conduct the tender process in the best possible manner, in accordance with its own rules and regulations.

The rules are not crystal clear. Anders Carell is calling for clearer rules about what applies when two or more nations collaborate on joint procurement projects.

‒ We would welcome increased clarity, because joint development and procurement projects are essential at a time of shrinking defence budgets and increasingly costly new systems.

International Collaboration

The aim of international collaboration in equipment procurement is to share risks and costs. In the longer term, it is also advantageous to have common systems during exercises and operations. These are the driving forces when FMV seeks partner nations for the development and procurement of materiel.

The Excalibur artillery shell and the IRIS-T air-to-air missile are examples of collaboration with other nations where this aim has been achieved. However, anyone who has been involved in projects that cross national and cultural boundaries will know that things are more difficult when there are more parties involved. Nevertheless, the advantages outweigh the disadvantages, says Anders Carell, Head of FMV’s Land Equipment Department.

‒ International collaboration certainly means that there is a risk of friction and delays, but ultimately there is more to gain from cooperation than there is to lose.

In 2013 two of FMV’s international projects ran into problems. One was the Archer artillery system, the other involved the procurement of heavy trucks – both are joint projects with Norway.

The Archer development project, like many complex projects at the leading edge of technology, has suffered delays. However, FMV was still able to handover the first systems to the Swedish Armed Forces in the autumn of 2013. Shortly afterwards the Norwegian Ministry of Defence announced that they wished to withdraw from the project.

With the disappearance of the 24 Norwegian systems from the order, there is a risk that the long-term costs will increase for the Swedish Armed Forces. At present, during the spring of 2014, FMV is negotiating with representatives from Norway with the aim of finding a solution that is acceptable to all parties involved.

Best capability for the best price

The procurement of heavy trucks will give the Norwegian and Swedish Armed Forces trucks with the best capability for the best price. When both countries buy the same vehicle, there are economies of scale effects on the price, and it allows for cost-effective operation because many of the maintenance functions are shared.

The tender process was almost complete when one of the potential suppliers, who was not awarded the contract, appealed; shortly afterwards the appeal was withdrawn. However, the outcome was that the Swedish Competition Authority is now investigating whether or not it was correct to allow the tender process to be conducted in accordance with Norwegian regulations.

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‒ We would welcome increased clarity, because joint development and procurement projects are essential at a time of shrinking defence budgets and increasingly costly new systems.
In October 2013, three Gripen aircraft took off from FMV’s facilities at Malmen, near Linköping, destined for Thailand. This marked the final phase of FMV’s delivery of materiel to the Royal Thai Air Force.

12 combat aircraft with ancillary equipment, one transport aircraft, two airborne early warning systems, one command and control system and one missile system are now in place as a result of agreements reached between Sweden and Thailand in 2007 and 2010.

Gunnar Lindberg from FMV’s Test and Evaluation Division coordinated all deliveries.

―I had a long action list, which we quickly worked through. Test flights, technical issues and diplomatic contacts are but a few of the points on the list.

There are a lot of agencies involved in a project of this nature. The Swedish Defence and Security Export Agency, who gave FMV the task, the Armed Forces and industry are important players – and in the middle sits FMV and the project leader, Per Nilsson.

He says that the customer, the Royal Thai Air Force, has been full of praise for the delivery of both the actual equipment and the services linked to the agreements.

― We have had very positive feedback and praise from the customer because we have delivered all the equipment and services when we said we would, says Per Nilsson.

Cultural differences

When the Thai project began, FMV already had experience of Gripen export projects to Hungary and the Czech Republic. However, Thailand is not in Europe.

― We weren’t really prepared for the cultural differences. One obvious example was our use of delegated personal responsibility. In Thailand there is more focus on collective responsibility and committee work, says Per Nilsson. And the best advice is: be patient and try to understand.

There are three elements to the Swedish undertaking: the 12 Gripen aircraft and associated equipment, the training of pilots and technicians, and an element involving technology transfer.

Sweden is transferring the latest technology in several areas to Thailand, e.g. composite technology, logistics management and geo-data.

We are contributing to the development of aerospace and defence expertise in Thailand and this will enable the Royal Thai Air Force to reach its goal of becoming one of the best air forces amongst the ASEAN nations, says Per Nilsson.

Delivery of a Complete Air Force

Sweden has supplied Thailand with a small scale air force – a complex project involving cultural differences and long distances. In spite of all this, we can safely say that the project has been a success. So says Per Nilsson, who led the Thailand project at FMV.

“Thanks to our experienced staff and excellent cooperation with everyone involved, we have succeeded in delivering all this equipment on time.”

Gunnar Lindberg, project manager FMV Test and Evaluation – responsible for coordination of deliveries to Thailand.
“Having such incredibly flexible communications has long been a dream. It’s only now that the technology has made such an achievement possible at a reasonable cost.”

Roland Thorsson, project manager, FMV.

Communications Hub

“This is like a dream come true, says Roland Thorsson, a project manager at FMV. We started looking at this as early as the 70s and 80s. The advent of computers gave us the tools to do it, but now is the first time we have been able to turn it into reality, at a reasonable cost.

At the heart of KomNod is a router that directs all the traffic. With the help of advanced software, specially adapted for each platform, users have no need to think about how their message should be sent.

“The user only needs one tool to deal with any number of situations. You can be connected to several networks and listen to a lot of other stations simultaneously, says Roland Thorsson.

Task flexibility

Everyone can communicate internally with the help of a central unit and a number of operator panels, into which their helmet headphones are plugged. Radio stations, external telephone connections and other sound sources can also be connected. All operators have their own panel and can be given varying authority to use the different functions.

When the armoured vehicle has connections to other nodes in the core network, either via cable or radio, all operators are able to hold a voice conversation with anybody else in the network.

If the inbuilt router has contact with the core network’s data network, users can plug in a computer, communicate with the outside world and get access to the services and information available from the Armed Forces’ command and information systems, such as SLB and Sweccis.

Operators are also able to easily adapt KomNod to various situations, and those with administrator rights can configure it for different types of missions, says Roland.

KomNod to be fitted to a range of platforms

FMV carried out an in-depth study and produced technical specifications as the basis for a competitive tender process. The Thales Group won the contract and in summer 2013 they delivered version 1.0 of KomNod. This delivery also included 170 systems for fitting in the Patria armoured vehicle (Pglg 360) and the Br 410 amphibious armoured vehicle.

“In the next phase we will be procuring KomNod for other platforms, including Sweden’s Leopard tanks (Strv 122), the CV 90 infantry fighting vehicle and the Amphibious Battalion’s vessels, explains Roland.”
It’s very easy to handle this equipment – we assemble the air vehicle itself, set up the ground station and check the system, then we’re off, says Peter Düberg Banke, a section commander at P7, the South Skåne Regiment, who is on a 12-week course about the UAV system.

The complete new mini UAV system fits into a few bags. From the moment these bags are unloaded from their transport, it takes 5-10 minutes to get an air vehicle up in the air and on its way to the area to be monitored.

Pictures in all conditions

One system includes three electrically powered air vehicles – two smaller and one larger. Using a common ground station, operators can fly the vehicles and receive surveillance pictures. The smaller vehicles have a flying time of 45 minutes and the larger can be airborne for two hours. Whilst they are airborne they can send near real time video to operators on the ground, both in daylight and, with the help of an IR camera, in reduced light conditions.

Stefan T enor is the project manager at FMV and he has been with the project from the very beginning, from requirement definition to competitive tendering, through evaluation and negotiations to contract. The contract also includes spare parts, training, documentation, and support for certification and continuous airworthiness.

‒ Certification in accordance with the regulations for military aviation was completed at the beginning of 2013 and, despite the fact that they are small air vehicles, we went through the whole process in order to guarantee safety.

Video games are an advantage

An American company, AeroVironment Inc, is supplying the new mini UAV system, which will replace the ‘Falken’ system being used by the Armed Forces in Afghanistan.

FMV will deliver 12 complete systems; however, unlike ‘Falken’ – which is only used by Special Forces – ‘Svalan’ and ‘Korpen’ will be more widely distributed in Army units. After his UAV course, Peter Düberg Banke will be employed as an instructor with P7 in Revinge.

‒ These air vehicles are quite easy to fly; the difficulty is in flying them so that the picture quality is good. If you’ve played a lot of video games, you do have an advantage – it’s all about interpreting pictures on a screen and reacting accordingly.
FMV in Figures

Results for 2013

FMV’s results for 2013 show a deficit of 122 million Swedish Kronor, which is in line with the budgeted deficit of 120 million Swedish Kronor. The reasons for this deficit were development and restructuring costs, and costs related to the transition to a new IT service provider. Other causes were the charging of slightly low hourly rates and reduced income from billing because of vacancies in the organisation. With a total budget of 21.4 billion Swedish Kronor, the deficit is about 0.6%, which is close to the goal of breaking even.

The new Storage, Service and Workshop Division (FSV) had a deficit of only seven million Swedish Kronor, despite restructuring costs of 40 million Swedish Kronor. This was achieved because of successful efforts to keep costs down and create new revenue.

One outstanding issue is the development of comparable methods for measurement and follow-up within the new division. FSV services were delivered according to schedule in 2013 and the scope of services was the same as those delivered the previous year. The delivery capability of FMV, excluding FSV, backed off slightly to 88%. One reason for this was the preparation of offers linked to the Gripen E project, which demanded considerable resources and resulted in the need to reprioritise other deliveries.

Supplier quality problems have also contributed to delivery delays. Changes in legal regulations to increase competitive bidding, and FMV’s drive to combine smaller procurement projects into larger single units have led to contracts becoming more complex. This has resulted in more legal proceedings, which in turn has meant that deliveries have been postponed.

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
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<td>Income, SEK Bn</td>
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<td>18.6</td>
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<td>Invoicing, SEK Bnr</td>
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<td>Billing Rate, %</td>
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<td>73.8</td>
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<td>Organisational Cost, SEK/Billable Hour</td>
<td>817</td>
<td>846</td>
<td>776</td>
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</table>

This table refers to FMV as a whole, i.e. FMV and FSV. Source: FMV’s production management system.

2013 was a year of change for FMV. Managers and employees continued with their usual work whilst simultaneously implementing one of the largest organisational changes ever carried out in the Swedish public sector; this included the transfer of over 1400 employees – in storage, service and workshops – from the Armed Forces. In terms of overall results and indicators, FMV has succeeded in achieving high standards, in line with the year’s budget and targets.

Swedish Armed Forces

Distribution of order stock 2013 deliveries 2014-2027

85 %

Swedish Armed Forces

Others
Purchaser Maria in Boden, aircraft mechanic Jonas in Luleå, test pilot Jussi in Linköping, project manager Karl-Gustav in Stockholm, systems engineer Veronica in Stockholm, combat vehicle mechanic David in Skövde and test conductor, Annika in Vidsel. All of them work for the new FMV, which from 2013, has 40 locations across the country, from Revinge in the south to Boden in the north. Together, they - and over 3000 of their colleagues – ensure that the Swedish Armed Forces get the equipment they need, when they need it.

If you want FMV’s complete Annual Report for 2013, please e-mail info@fmv.se.
CHAIRMAN OF THE BOARD:
SVEN-CHRISTER NILSSON
BORN IN 1944

B.Sc. in Mathematics and Theoretical Physics at the University of Lund.
CEO of Ripasso AB and previously MD and CEO of telecommunications
company Ericsson. Occupied various managing positions in the Group
between 1982 and 1997 and was CEO for the Group 1998-1999.

Board member of Assa Abloy AB, Sprint Nextel Corporation and CEVA,
Inc. Up to December 31, 2011 chairman of the Board for the Management
Foundation of the public service companies Sveriges Radio AB, Sveriges
Television AB and Sveriges Utbildningsradio AB.

Member of the Royal Swedish Academy of Engineering Sciences and the
Royal Swedish Academy of War Sciences.
Extensive experience from leading large high-tech and global industrial
companies. Has been especially committed to corporate management and
similar issues within the official administration.

FMV is led by a board whose members are
appointed by the Swedish Government. Lena
Erixon was appointed as Director General of
the Swedish Defence Materiel Administration
by the Swedish Government. She leads
the Authority in accordance with the directives
and guidelines set out by the Board. She
also makes decisions on matters outside the
Board’s domain. The Director General is the
Authority’s highest operational executive.
Kerstin Paulsson  
Born in 1962  
Civil Engineer in Electro-Technology at the Faculty of Engineering, University of Lund.  
Since 1999, CEO and partner of Netsoft Lund AB, which develops and markets control and monitoring solutions for telecom networks in the international market. Is also Board member of Elanders AB and the Swedish Agency for Economic and Regional Growth. Previous board missions include Getinge AB, Lifco AB, KK-stiftelsen and NUTEK.

Johan Adolfsson  
Born in 1960  
Academic degree in business administration and economics with doctorate studies. The research project treats the exchange rate’s effect on share prices and the predictability of the quality measurements regarding the development of share prices. Has published a range of scientific articles and written two books in business administration. Partner of BDO AB.  
Works as authorized accountant with audits of companies listed on stock markets and as consultant specializing in procurement of risk equity, valuation of companies and restructuring of large companies.  
Has also worked with similar subjects internationally for UNDP, SIDA and OECD. Teacher at the University of Stockholm within accounting and financing since 1982. Is also a reserve officer and served for example for the UN in Sudan in 2005 as administrative officer for the Joint Military Commission.

Susanne Ås Sivborg  
Born in 1959  
MSc in Civil Engineering, Royal Institute of Technology, Stockholm  
Appointed as Director General, Swedish Patent and Registration Office (PRV) 2008. Started her career as a patent examiner at PRV and then worked as a patent examiner at the European Patent Organisation (EPO) in Munich. Has held executive posts at group level in the private sector, including Electrolux and AstraZeneca, worked in London as Vice President, Global Intellectual Property at AstraZeneca. A constant theme in her professional life has been intellectual property matters at various levels.  
Member of the University Board at the Royal Institute of Technology, Stockholm.

Lena Erixon  
Born in 1960  
Holds a degree in Management (concentration in economics) from the University of Stockholm, and also pursued further studies in economics and management at the University of Stockholm and at the Gothenburg School of Economics.  
Has been CFO and Director General of the Swedish Road Administration. After the formation of the Swedish Transport Administration, she became head of the business area: Society, and Deputy Director General of the Swedish Transport Administration. Has also been CFO of the municipality of Södertälje, and worked at the Swedish Ministry of Finance.  
Chair of the Swedish Public Employment Service, the Öresund Bridge Consortium and Swedab.

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Ola Jacobsen: Cover picture, inside cover picture, and page 11, 24, 25, 26, 27, 39 (3 and 4 at the top left).

Saab: page 4, 10.

BAE: page 28 (Archer).

OHMY: page 39 (1 on the left, 1-3 on the right).


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