

# Future acquisitions for the Norwegian Defence Sector 2017–2025

April 2017



FORSVARSDEPARTEMENTET

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## 1. Introduction

The long term planning process outlines the continuous development of the Norwegian Defence Sector with respect to organisation, infrastructure (garrisons and bases), personnel (numbers, composition and qualifications) and materiel (existing equipment and new acquisitions). This process is carried out under the direction of the Royal Norwegian Ministry of Defence (MoD). The Long Term Plan – Materiel forms the basis for all materiel procurements in the short term (4 years), the medium term (8 years) and the long-term perspectives (20 years). The plan is updated annually to reflect updates based on changing requirements, available resources and progress in on-going acquisitions.

The Government recognises the vital role the defence industry plays in support of the Armed Forces' capabilities. This role ranges from the provision and maintenance of military equipment to the delivery of a wide range of support services. The Government's national strategy for the defence industry was recently revised, and presented as a new White Paper to Parliament (*Meld. St. 9 (2015–2016) Nasjonal forsvarsindustriell strategi*) and covers the relationship between the Defence Sector and the defence industry. The main reasons for presenting an updated White Paper are the developments in the security sphere over recent years, changes in the defence market both nationally and internationally, changes in terms and conditions, the introduction of the EU's defence and security procurement directive, in addition to an increased focus on preparedness and security of supply.

The new White Paper focuses on national security interests and security of supply as basis for the new policy and strategy. The policy will continue to maintain and develop an internationally competitive Norwegian defence industry in areas of relevance for the Norwegian Defence Sector.

Norwegian defence industry contributes substantially to our national economic growth, technological and industrial development, export related income and high-tech related employment. The aim of the strategy is to secure good cooperation between the defence sector and the defence industry based on our sector's need for cost-efficient deliveries of defence equipment and services. The strategy implies that Norway increasingly should cooperate with other nations on defence procurement. The strategy will also contribute to necessary predictability for Norwegian export companies. The Government upholds the governmental support programme for marketing and industrial cooperation.

A central feature in the annual updating of the Long Term Plan – Materiel is the preparation and publication of an unclassified overview of long-term materiel requirements. This publication does not examine each planned project in detail but creates opportunities for in-depth discussions between the Defence Sector and industry. Hence, industry can get an early insight into potential materiel investments.

The aim is to maintain highly skilled companies that individually or in cooperation with others, are able to support the needs of the Defence Sector. Having a proven and highly skilled industry is also fundamental for being able to compete in the international defence market, a market that in many ways remains closed.

The materiel investment projects are subject to decisions and approval by the MoD and the Parliament.

The projects listed in this publication are not approved for implementation. It is necessary to emphasise that any project not yet formally approved may subsequently be terminated or changed without any further explanation or liability.

Details relating to a small number of classified and sensitive projects are being withheld.

Approved projects are not addressed in the current publication but are included in the charts presented in para 3. Information about major projects in this category can be found, among other places, on the home page of the Norwegian Defence Materiel Agency (NDMA).

The current publication is available as an electronic document on the Defence Sector's section of the website <http://www.regjeringen.no>, and will not be published in paper format. An English version is published due to the statutory objectives and principles of procurement regulations, regarding competition and equal treatment.

## 2. Investments in the Norwegian Defence Sector

The Norwegian Defence Sector consisting of the Royal Norwegian Ministry of Defence and its subordinate bodies; the Norwegian Armed Forces, the Norwegian National Security Authority, the Norwegian Defence Estates Agency, the Norwegian Defence Materiel Agency and the Norwegian Defence Research Establishment. All materiel investments in the Defence Sector are approved by the MoD, and subordinate bodies execute the planning and procurements according to existing procedures. An important tool is the PRINSIX project model that describes phases, decision points and roles/responsibilities. This project model ensures a uniform execution of materiel procurements. The MoD has established several investment programmes to oversee and provide guidance through all the phases of materiel procurements.

Projects are typically conceived in two ways. One is the top-down approach which to a large extent deals with the major weapon systems resulting from strategic planning processes. The second way is the bottom-up approach which to a large extent deals with smaller requirements typically initiated by the services and users. At an early stage, the proposal is known as Project Idea (PI), which is assessed by the relevant investment programme. If the investment programme finds the PI to have merit, it is subsequently recommended to the MoD for approval and eventually further pursued and developed into a tentative project. This is the first formal decision point. Depending on the scope of the project, a conceptual study may be launched at this stage. However, smaller projects usually move directly to the next phase as described below.

In a conceptual study, alternative concepts are assessed with respect to how capability requirements can be resolved in conceptually different ways. The outcome of a conceptual study is submitted in a document referred to as a Conceptual Solution. This document forms the basis for the decisions that will be made at the end of this phase. External quality control of the conceptual study is done in accordance with guidelines from the Royal Norwegian Ministry of Finance for projects exceeding 750 million NOK.

Once the Conceptual Solution is approved, the project moves into the next phase which is the detailed planning process leading up to the approval of the acquisition of the materiel in question. During this phase, the project is referred to as a Planned Project. Important outcomes of this planning phase are scope, procurement strategy, timelines and contractual provisions.

Major materiel acquisitions with a scope exceeding 500 million NOK require approval from the Parliament. Projects with a lower scope are approved by the MoD.

Once a project has been approved, the MoD sends out an implementation order, usually to the Norwegian Defence Materiel Agency. A project in this phase is referred to as an Approved Project.

### 3. Main focus areas

#### 3.1 Materiel acquisitions during the period 2017–2025 incl. the F-35 Programme

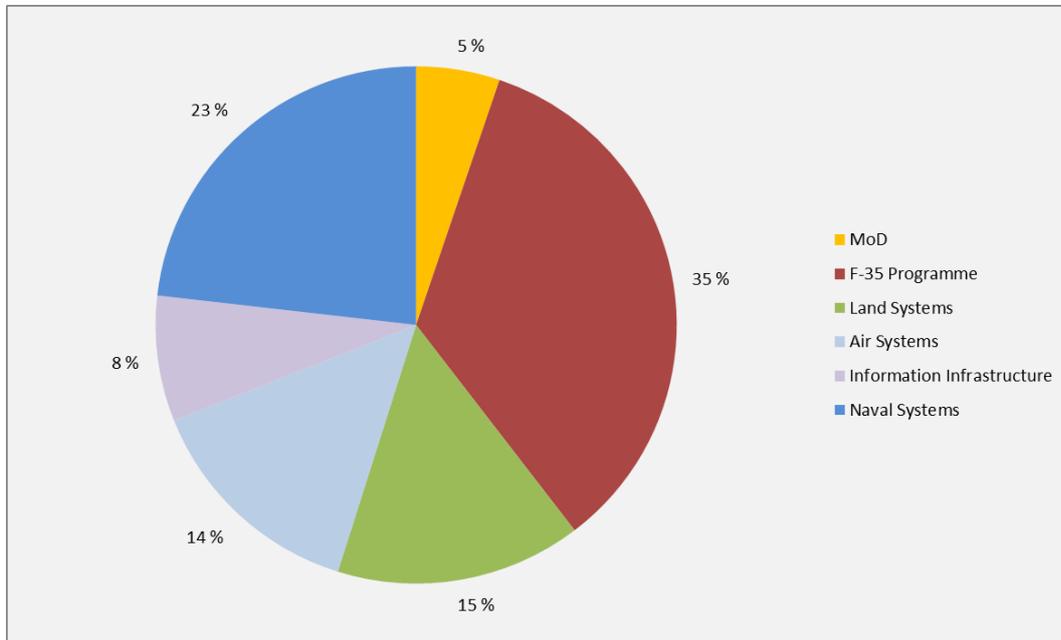


Figure 1- Acquisitions (% share) broken down by programme during the period 2017–2025. The MoD allocates funds for preliminary project work, R&D and other supporting activities.

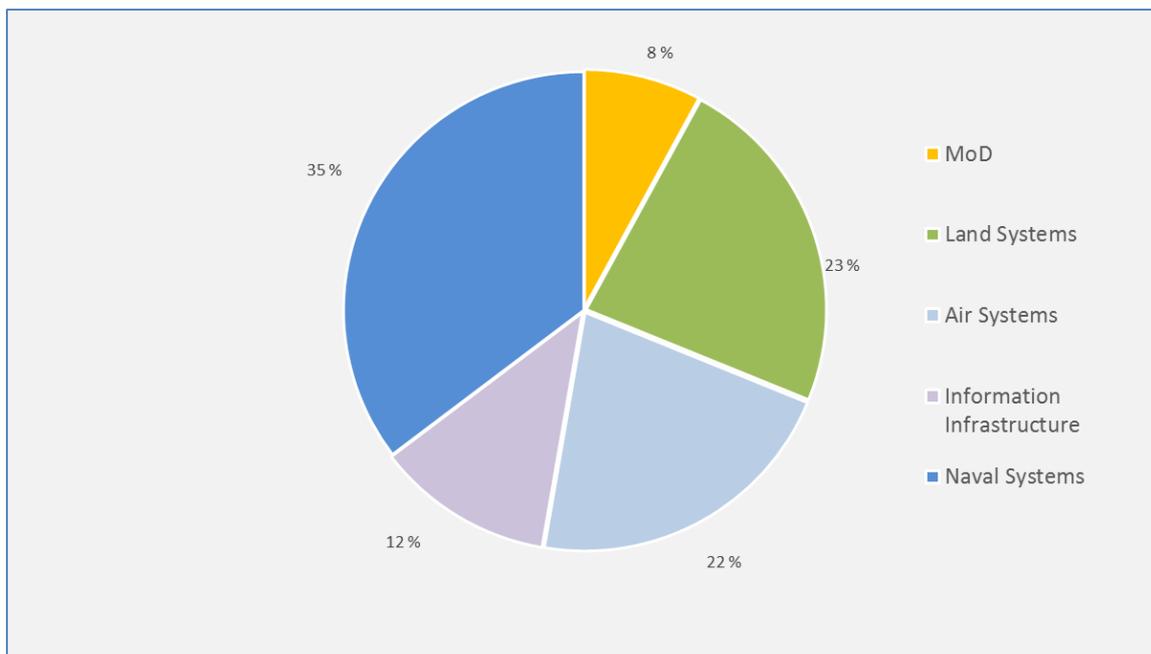


Figure 2- Acquisitions (% share) broken down by programme during the period 2017–2025, without F-35 Programme. The MoD allocates funds for preliminary project work, R&D and other supporting activities.

The Investment Plan for the Defence Sector is focusing on ongoing projects in order to improve availability and endurance. The purpose is to make sure that the capabilities we already have are operational. Thereafter, investments in vital and strategic capabilities in order to maintain and increase situational awareness and control are prioritized. The procurement of new F-35 fighter aircraft, submarines and Maritime Patrol Aircraft (MPA) have priority. Reductions in some selected areas give possibilities to invest in new, modern and vital systems.

The Investment Plan also cover significant investments in intelligence, surveillance, survivability and combat power to strengthen Norway's and NATO's ability to prevent and deter use of force, and maintain situational awareness in the North Atlantic and the High North.

## LAND SYSTEMS

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Photo 1 Torgeir Haugaard / Norwegian Armed Forces



### 3.2 Land Systems

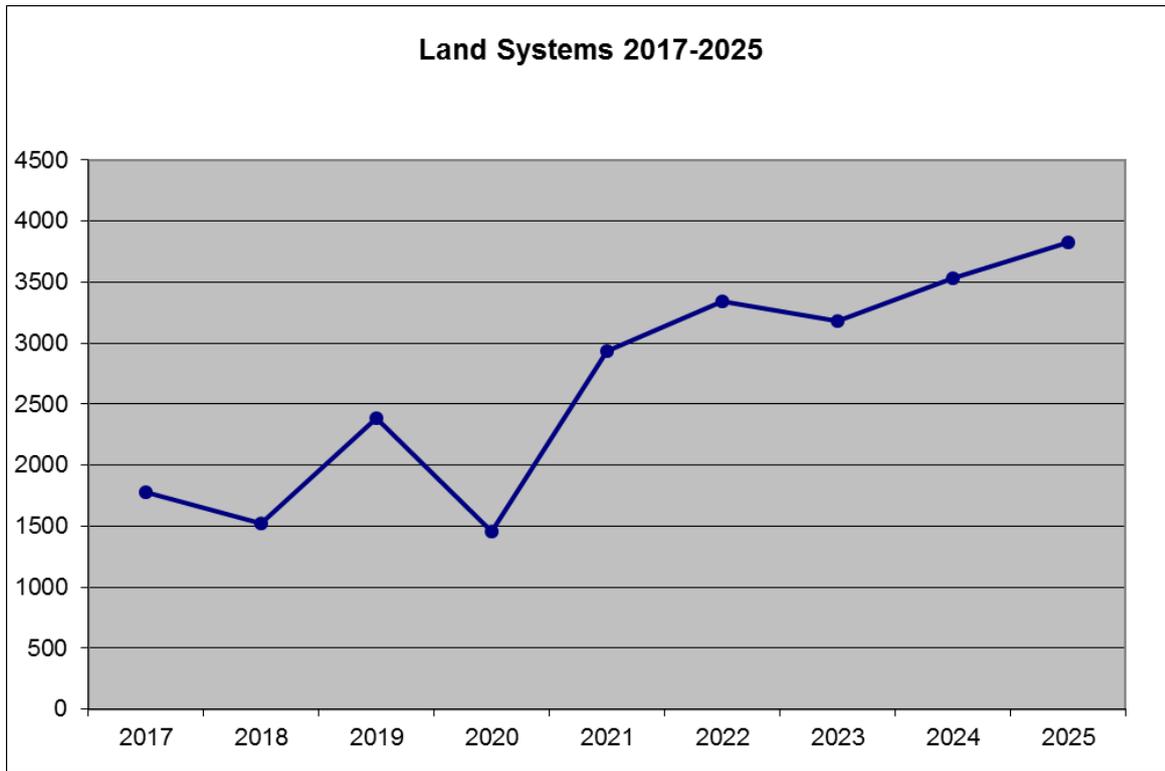


Figure 3- Annual allocation of funds (NOK mill.)

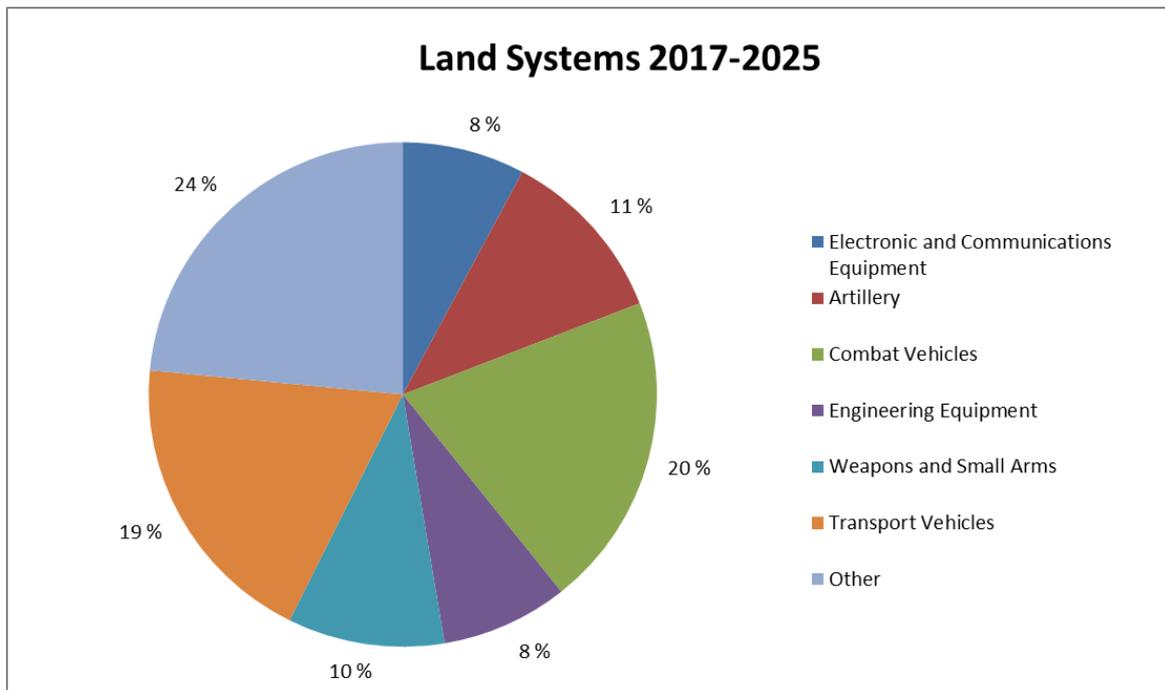


Figure 4- Allocation of funds per main category.



The bulk of the investments within the Land Systems Programme are:

- Combat vehicles (medium-weight, standard armored vehicles CV90, armored reconnaissance systems (CV90)) and artillery.
- Life extension program on the Main Battle Tank Leopard 2A4 and new Combat Service vehicles on Leopard 2 chassis (Recovery, Bridge layers and Engineer vehicles).
- Upgrade of M-113 and SISU armored vehicles. A number of smaller investments in military logistics within five main subject areas:
  - CBRN-protection (Chemical / Biological / Radiological / Nuclear).
  - Engineering.
  - Logistics.
  - Medical Service.
  - Military Geography (maps and geographical information).
- Acquisitions of equipment for the dismounted soldier. This includes personal equipment in protection, clothing, mobility and endurance. Furthermore, the soldier's C2I-systems need modernisation. Projects for a continuing modernisation of the soldier equipment are planned within the core functions lethality, protection, mobility, sustainability, C2I and logistics.
- Acquisitions for the Special Forces, due to sensitivity reasons they are not described in full range in this document.

The Government has initiated the Land Power Study and its recommendations may influence the content of the Land Systems Programme.



Possible and planned projects

Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
1514	SOF Land mobility 2	The project is intended to buy or update the Norwegian SOF capacity within land mobility.	To be defined.	PP											
1531	SOF Equipment	The project intends to replace or upgrade equipment needed for the Norwegian SOF.	To be defined.	PP											
2541	MLU ROLE medical equipment	Technical upgrade of medical equipment previously procured.	Upgrade ROLE 1- and ROLE 2- equipment.	MP	100-200 mill. NOK										
2559	Land based transportation capacity	Procure a land based transportation capacity to ensure that combat units are supported with supplies and transportation. The number of different chassis should be limited in order to simplify logistics and training.	Procure approximately 300 vehicles. A number of approx. 500 vehicles of the existing inventory will continue to be used in the future.	PP	1000-1400 mill. NOK										
2583	EOD robot systems	Acquire Explosive Ordnance Disposal (EOD) materiel in order to maintain and strengthen the EOD-capacity of the Norwegian Armed Forces.	Replace existing EOD robot systems with new robot systems with an improved capacity.	PP	100-300 mill. NOK										
4016	Less lethal weapons for military use	Increasing military operational flexibility to meet situations where traditional military force is unsuitable.	To be defined.	PP	75-150 mil. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution								
						2017	2018	2019	2020	2021	2022	2023	2024	2025
4018	Small Arms	The project intends to conduct a mid-life update of small arms in the Armed Forces. The need for updates will be based on experiences with small arms already in use. The technical development or new need of this kind of equipment makes it necessary to look into replacing the capabilities previously acquired. The project covers all small arms ranging from pistols to light and heavy machine guns, and includes sights and accessories.	The procurement shall cover the requirements of all services.	PP	300-500 mill. NOK									
4032	Biological and chemical masks	The project intends to ensure that soldiers have personal masks and filters that provide adequate protection against chemical, biological and radioactive treat substances.	The procurement shall cover the requirements of all services.	PP	250-400 mill. NOK									
4038	Soldier Equipment – Personal Clothing and Protection 2	The project intends to replace the individual body armour and ballistic helmets for the Armed Forces. This type of equipment is always asked for in conflicts, both domestically and internationally, and it will be used both in training and during operations.	The procurement shall cover the requirements of all services.	PP	300-500 mill. NOK									
4039	Endurance 2	The project intends to buy equipment that will increase the resilience of the soldier and the departments under relevant training and operations	To be defined.	MP	150-250 mill. NOK									
4041	Less lethal weapons for military use	Increase the Armed Forces' operational flexibility in order to better handle situations where traditional military force is inexpedient or unfit.	To be defined.	MP	75-150 mill. NOK									



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
4042	New Types of Ammunition	The project is to keep abreast of the technological developments and evaluate new types of ammunition for use by the Armed Forces.	The scope of the project covers calibres up to 12.7 mm. However, other types of calibres like the M-72 Anti-tank Weapon may be included.	MP	100-300 mill. NOK										
4043	Night vision equipment 2	The project is meant to increase the individual soldier's ability to operate in environment of darkness or very little light.	To be defined.	MP	100-200 mill. NOK										
4045	Updated avalanche rescue equipment	Modern avalanche rescue equipment in order to increase safety and survivability if taken by avalanche.	To be defined.	MP	25-75 mill. NOK										
5007	Series Acquisition of Artillery Locating Radar	A prototype of an upgraded artillery location radar is ongoing in a separate project. Following a successful evaluation of the prototype, a series acquisition is planned.	The scope of the project is a limited number of radars according to the future artillery structure.	PP	200-350 mill. NOK										
5020	Armoured vehicles M113 for battlefield management functions	Upgrade of existing M113 armored vehicle for various battlefield management functions.	Maximum 16 vehicles.	PP	100-300 mill. NOK										
5045	Armoured bridge layers Leopard 2	The purpose of this project is to replace the existing Leopard 1 vehicles with new vehicles based on the Leopard 2 chassis.	Maximum eight vehicles.	PP	400-550 mill. NOK										
5049	Armoured engineer vehicles Leopard 2	The purpose of this project is to replace the existing Leopard 1 vehicles with new vehicles based on the Leopard 2 chassis.	Maximum eight vehicles.	PP	400-600 mill. NOK										
5240	Ammunition 81mm mortar	The project will procure new 81 mm ammunition and/or fuses for existing mortar units and/or revision of existing ammunition.	A number of explosive-, smoke- and illumination grenades.	PP	75-150 mill. NOK										
5475	Electronic countermeasures	Service life extension program for the existing ECM system, or procurement of a new system.	The number of existing systems is not changed.	PP	300-500 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
5447	Artillery System 155 mm	Procurement of a new 155 mm artillery system for the Army including logistics and a limited number of grenades.	Maximum 24 new artillery pieces.	PP	1500-3000 mill. NOK										
5096	Sensor systems for surveillance	Sensor systems for use by units operating behind enemy lines.	To be defined.	MP	400-600 mill. NOK										
5066	Training and simulation materiel	Training and simulation materiel for drivers of armored vehicles. Equipment must have an open standard enabling new vehicle types to be implemented in the simulator.	Replacement of existing trainers.	MP	150-250 mill. NOK										
5093	Light armored patrol vehicles	Procurement of light armored vehicles for the Army, for improved protection and good mobility.	To be defined.	MP	750-1000 mill. NOK										
5094	Light all-terrain vehicles summer/winter III	Replace existing light all-terrain vehicles summer/winter.	A larger number of vehicles for the Armed Forces.	MP	75-150 mill. NOK										
5095	Replacement of Javelin	Maintain the capacity to fight against heavy armored vehicles. There is a need for anti-tank systems that can penetrate APS-systems.	Minimum 100 systems.	MP	200-350 mill. NOK										
5092	Replacement of Mercedes Benz 240 GD all-terrain vehicle	Replace ageing Mercedes-Benz 240GD all-terrain vehicles procured during the 1980'ies.	Non-armored vehicles with trailers for the Armed Forces. Number to be defined.	MP	1000-1500 mill. NOK										
5091	Air defence systems for the garrison at Varanger.	Strengthen the air defence capacity of Light Infantry Units in Finnmark.	To be defined.	MP	75-150 mill. NOK										
5098	Modernisation of Hydrema mine clearing equipment and procurement of a new MICLIC system.	Modernisation of Hydrema mechanical mine clearing equipment. Procurement of a new MICLIC system.	To be defined.	MP	75-150 mill. NOK										
5099	NANO UAV II	Procurement of future NANO UAS capacity. The procurement will seek off the shelf technology products.	Due to the rapid development of new technology it is assumed that several suppliers will be available at the market on the time of procurement.	MP	150-300 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
5065	Area control	Procurement of a modern, state of the art deployable system for area control. The system must be based on NATO's concept Area Access Control (AAC).	To be defined.	MP	400-600 mill. NOK										
5068	Camouflage equipment	Procurement of different camouflage equipment for enhanced protection and survival.	To be defined.	MP	100-200 mill. NOK										
2590	CBRN - equipment for the Armed Forces.	Improve the capability to detect hazardous substances.	Replace existing equipment in CBRN- and og EOD-units.	MP	75-150 mill. NOK										
2591	Command post equipment	Command post equipment is in use in all branches of the Armed Forces. The program should ensure enhanced operational use, improved command and control, higher mobility etc.	Tactical mobile command post units, power supply, containers, tents, etc.	MP	300-500 mill. NOK										
2592	Armored recovery vehicles Class I	Procurement of armored recovery vehicles Class I.	A number of vehicles, preferably based on the M113 vehicle.	MP	100-250 mill. NOK										
2593	Improved capability on Light Portable Excon	Upgrade and improve the capability of the Light Portable Excon (LPE) of the Tactical Training Centre at Camp Rena. An upgraded LPE will enable effective training also outside Camp Rena.	Antenna systems for Data Acquisition Network (DAN), facilities for LPE including infrastructure, power supply, communication network, etc.	MP	25-75 mill. NOK										
5090	Anti-tank missile systems	Maintain a capacity to fight armored vehicles with anti-tank missile systems.	Approx. 100 systems.	MP	600-1000 mill. NOK										



## NAVAL SYSTEMS

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Photo 2 Torbjørn Kjosvold / Norwegian Armed Forces



### 3.3 Naval Systems

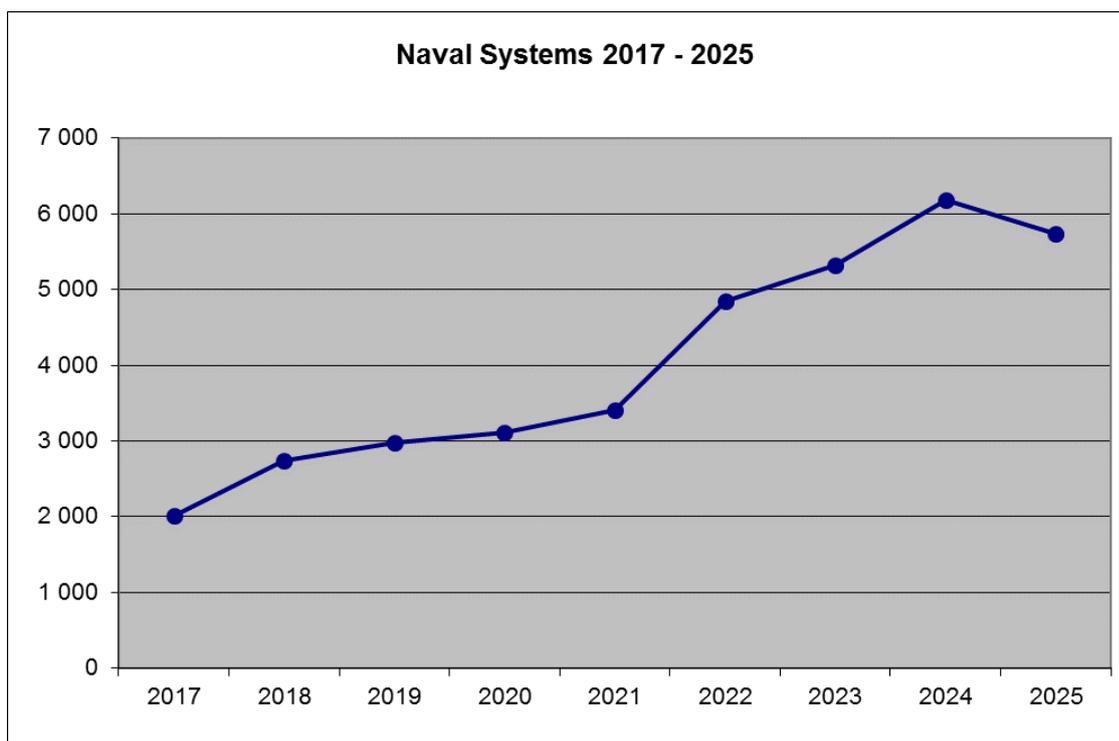


Figure 5 - Annual allocation of funds (NOK mill.)

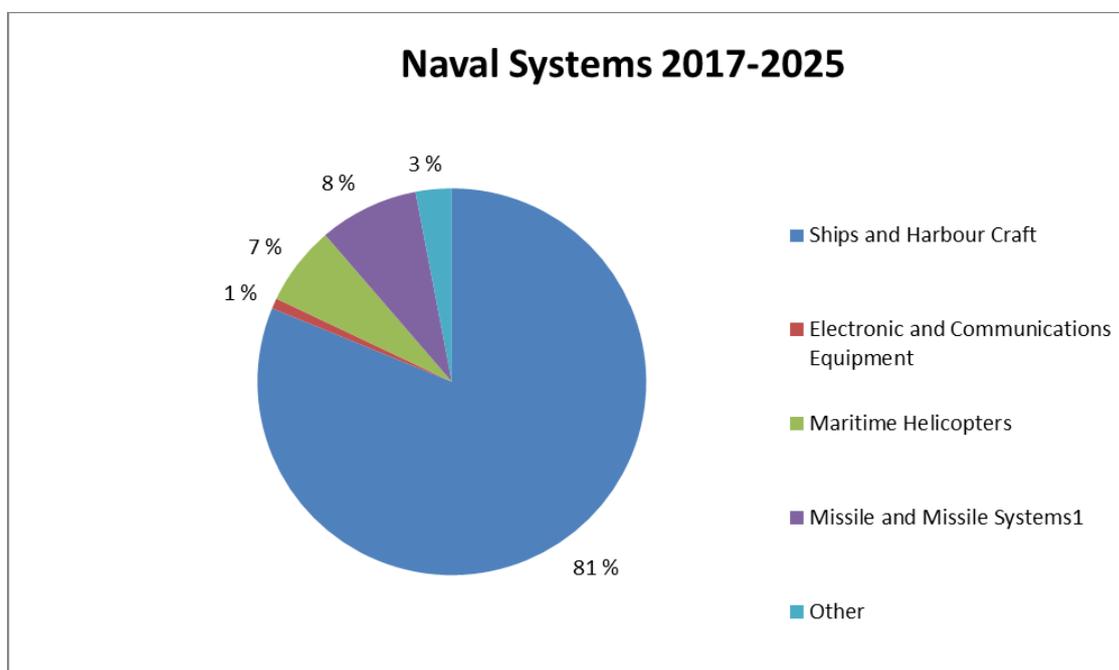


Figure 6- Allocation of funds per main category.

In the Naval Systems Programme most of the investments in the period are related to military vessels and associated weapons system. Some of the major project activities in the upcoming period are:

#### Naval Strike Missile (NSM)

New anti-ship missile is produced by Kongsberg Defence & Aerospace represents the Navy's main against surface weapon. A future update and upgrade of the anti-ship missiles will be covered by project P6025 NSM MLU. This project is planned to be executed as a bilateral project arrangement with Germany as partner. Germany intends to acquire an upgraded version of the missile as a part of the cooperation.

#### Maritime helicopter NH90

Procurement of the NH90 maritime helicopters and their implementation as an operational capacity on-board the Navy and Coast Guards main vessels have been significantly delayed. Acquisition and adaptation of the vessels to NH90 is covered by three projects, P7660 NH90 helicopters P3047 Helicopter Customization Outer Coast Guard vessels and as part of P6068 AEGIS COTS Baseline update.

#### Submarines

The Norwegian submarines are considered as a strategic capacity in the defence. Norway plans to replace today's ULA-class in a project partnership with Germany is organized in national project P6346 New submarines. The Ula class will be operational until the new submarines are ready to be put into service. To uphold the operational capability, the ULA-class submarines will be upgraded through projects P6345 Updating Ula class and P6370 Interim Solution Ula class.

#### New helicopters coastguard vessels

The Nordkapp-class operates as ocean-going coastguard patrol vessels that perform the Coast Guard missions in the ocean in north. The vessels are planned to be replaced, after 40 years of service, with a new class of offshore patrol vessels with reinforced hull and designed to operate NH90 organic helicopters. The procurement will be arranged in project P6615 New Offshore patrol vessel for the Coast Guard and the contract will be awarded to a Norwegian shipyard.

#### Fridtjof Nansen class frigates

Norway is one of 12 member states in the NATO Sea Sparrow Project (NSPO), organizing the Sea Sparrow surface to air missile system project on board the Fridtjof Nansen class frigate. The system is planned to undergo an upgrade to ensure the missile system to possess the necessary technical and operational capacity to meet future threats. This work will be organized in the national project P6192 Upgrade of surface to air missile system Fridtjof Nansen class frigate.

Towards the end of period the Fridtjof Nansen class frigates will undergo a technical update to ensure continuation of the vessels' operational capability. This work includes a large number of systems on board and will be organized in project P6096 MLU frigate.



Possible and planned projects

Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
6004	IFF for Naval Surface Ships	Safe integration into a joint and contested airspace rests on the ability identify friend from foe. To do this, the latest generation IFF equipment is needed. Since a new generation IFF is being introduced, the Naval Surface vessels of the RNoN must be upgraded to ensure continuing their operational capability.	The scope of the project is to procure, integrate and install latest generation IFF in frigates (5) and corvettes (6) in the RNoN force structure.	PP	50-100 mill.NOK										
6025	Mid-life update (MLU) Naval Strike Missile (NSM)	The Naval Strike missile system is at the core of Norwegian naval capability and it is therefore essential to keep the missile system capability up to date with regards to threats as they evolve over time. The objective of the project is to identify and carry out necessary upgrades to ensure that the operational capability remains relevant.	The scope of the project is not yet detailed, but will include replacement of subsystems due to technical end life or maintenance issues and upgrades necessary to upkeep operational capability as operational requirements evolves.	PP	500-750 mill. NOK										
6096	Mid-life update (MLU) Nansen-class frigates	Nansen-class frigates represent a vital part of the Norwegian naval capability. The vessels are approaching a need of mid-life update. The objective of the project is to identify and carry out necessary upgrades to ensure that the operational capability remains relevant.	The scope of the project is not yet detailed, but will include replacement of subsystems due to technical end life or sourcing issues (availability of spare parts, etc.) and upgrades necessary to upkeep operational capability as operational requirements evolves.	MP	4000-6000 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
6346	New Norwegian Submarine capability	An advanced and capable conventional submarine capability is at the core of the Norwegian Armed Forces. Current capability (Ula class) is fast approaching technical end life and the capability that the Ula class represents must be replaced in a timely manner. The new capability must meet an updated set of key operational requirements and be constructed in order to sustain this throughout the lifetime.	The scope of the project is to procure and field four advanced and capable conventional submarines for the RNoN. Further, the project will also include all necessary infrastructure and support equipment in order to sustain the new submarine capability in technical lifetime.	PP	> 15000 mill. NOK										
6359	Future Naval Mine Countermeasures system (NMCM)	Naval Mine Countermeasures (NMCM) is an essential part of a naval capability. RNoN current NMCM inventory is approaching technical end of life. The objective of this project is to develop and field an advanced NMCM capability in a timely manner and with capability meeting key future operational requirements as they develop.	The scope of the project is to develop, procure and field a next generation NMCM system with capabilities in line with key operational requirement. While a specific solution is not chosen, it is expected that the next generation Norwegian NMCM capability to an extent will be based on and utilize unmanned and autonomous systems. Further, the project will also include necessary infrastructure and support equipment in order to sustain the new capability in technical lifetime.	PP	1500-3000 mill. NOK										
6360	Upgrade Soft kill capability	Soft kill is a vital part of the self-defence capability of the Skjold class corvettes. Due to technical issues this capability is fast approaching a need of upgrade. The objective of this project is therefore to ensure Skjold class self-defence capability is in accordance with operational requirements	The scope of the project is not yet detailed, but will include replacement of subsystems due to technical end life or sourcing issues (availability of spare parts, etc.) and upgrades necessary to upkeep operational capability as operational requirements evolves.	MP	10-100 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution								
						2017	2018	2019	2020	2021	2022	2023	2024	2025
6608	Mid-life Update (MLU) NoCGV Svalbard	NoCGV Svalbard represents an important asset in the Norwegian Coast Guard. The vessel needs a mid-life update. The objective of the project is to identify and carry out necessary upgrades to ensure that the operational capability remains relevant.	The scope of the project is not yet detailed, but will include replacement of subsystems due to technical end life or sourcing issues (availability of spare parts, etc.) and upgrades necessary to upkeep operational capability as operational requirements evolves.	MP	100-300 mill. NOK									
6615	New vessels for Norwegian Coast Guard	Current Nordkapp class is the mainstay of the Norwegian Coast Guard. The vessels are old and fast approaching their technical end life. The objective is therefore to procure a new class of vessels in order to sustain Norwegian Coast Guard capability as the vessels of the Nordkapp class decommissions.	The scope of the project is to procure three advanced oceangoing vessels to the Norwegian Coast Guard. The vessels will be designed with capabilities for helicopter operations and to exercise all CG missions in the ocean part of the Norwegian maritime area of interest. Further, the project will also include necessary support equipment in order to sustain new vessels in technical lifetime.	GP	5000-7000 mill NOK									
6618	Mid-life update (MLU) NoCGV Harstad	NoGCV Harstad represents an important asset in the Norwegian Coast Guard. The vessel is in need of a mid-life update. The objective of the project is to identify and carry out necessary upgrades to ensure that the operational capability remains relevant.	The scope of the project is not yet detailed, but will include replacement of subsystems due to technical end life or sourcing issues (availability of spare parts, etc.) and upgrades necessary to upkeep operational capability as operational requirements evolves.	MP	100-200 mill. NOK									



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
6619	Replacement Coast Guard Patrol Crafts	The five vessels of the Nornen class is an important part of the Norwegian Coast Guard capability. Nornen class is constructed with an integrated small patrol craft capability in order to increase operational tempo and increase reach. These patrol crafts are reaching their technical end life and must be replaced in order to sustain Nornen class operational capability.	The scope of the project is to procure at least five Coast Guard Patrol Crafts meeting requirements to effectively operate as part of Nornen class CG vessels. The project will also include all necessary support equipment in order to sustain new crafts in technical lifetime.	MP	25-75 mill. NOK										
6380	CRCDO Equipment upgrade 1	The purpose of this project is to upgrade the CRCDO equipment portfolio to ensure unit operational capability and to enable further development.	The scope of the project is to procure a limited number of advanced handheld and small unit operated sensors, CIS equipment and material need for VBSS operations.	MP	200-500 mill. NOK										
6381	CRCDO Fires	The purpose of this project is to replace CRCDO current Norwegian Shore Defence Hellfire System (NSDHS).	The scope of the project is to procure a necessary number of missiles, launcher and fire control equipment to equip at least 4-6 missile groups within the CRCDO.	MP	200-500 mill. NOK										
6367	Decommissioning and disposal of ULA class submarines	RNoN is currently operating 6 submarines of the Ula-class. These boats will reach technical end life during the next decade and will be decommissioned and disposed coordinated with the introduction of a new submarine capability. Safe and efficient disposal of specialized systems like the Ula-class requires a well-planned approach and sufficient resources.	The scope of the project is to ensure safe disposal of the six submarines of the Ula-class as these decommission during the next decade. The scope also includes disposal of other class specific equipment such as weapons, simulators and spare parts. The project will need to address both security, safety and environmental issues.	MP	750-1500 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
6691	Diving equipment	An inherent part of Norwegian naval capability is to diving operations. Advanced diving operations is conducted by the Norwegian mine clearance divers (MCD) and their main diving equipment needs replacement.	The scope of the project is to procure modern and advanced diving equipment meeting MCD requirements. The project also include all necessary support equipment in order to sustain new vessels in technical lifetime.	PP	50-100 mill. NOK										
6693	IFF for NH90 maritime helicopters	Ability to safely use the NH90 helicopters in a joint and contested airspace rests on the ability identify friend from foe. To do this latest generation IFF equipment is needed. Since a new generation IFF is being introduced the NH90 helicopters must be upgraded to ensure continuing their operational rational. Furthermore, NH90 is not currently equipped with the Automatic Information System (AIS), a very important sensor for maritime Situational Awareness.	The scope of the project is to procure, integrate and install latest generation IFF and AIS on all 14 maritime NH90 helicopters in RNoAF inventory.	MP	100-200 mill. NOK										
6692	Small craft integration Nansen-class frigates	Capability to conduct Maritime Interdiction Operations (MIO) is an inherent part of Nansen class capability. A key requirement is to carry and utilize small craft in an efficient and safe manner. The Nansen class needs upgrading davits and cranes to provide this capability at a sufficient level.	The scope of the project is to provide an updated, safe and efficient small craft capability on all five frigates of the Nansen class. This includes procurement and installation of new davit and crane systems including necessary hull modifications.	PP	75-150 mill. NOK										



# AIR SYSTEMS

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Photo 3 Lars Magne Hovtun / Norwegian Armed Forces



### 3.4 Air Systems

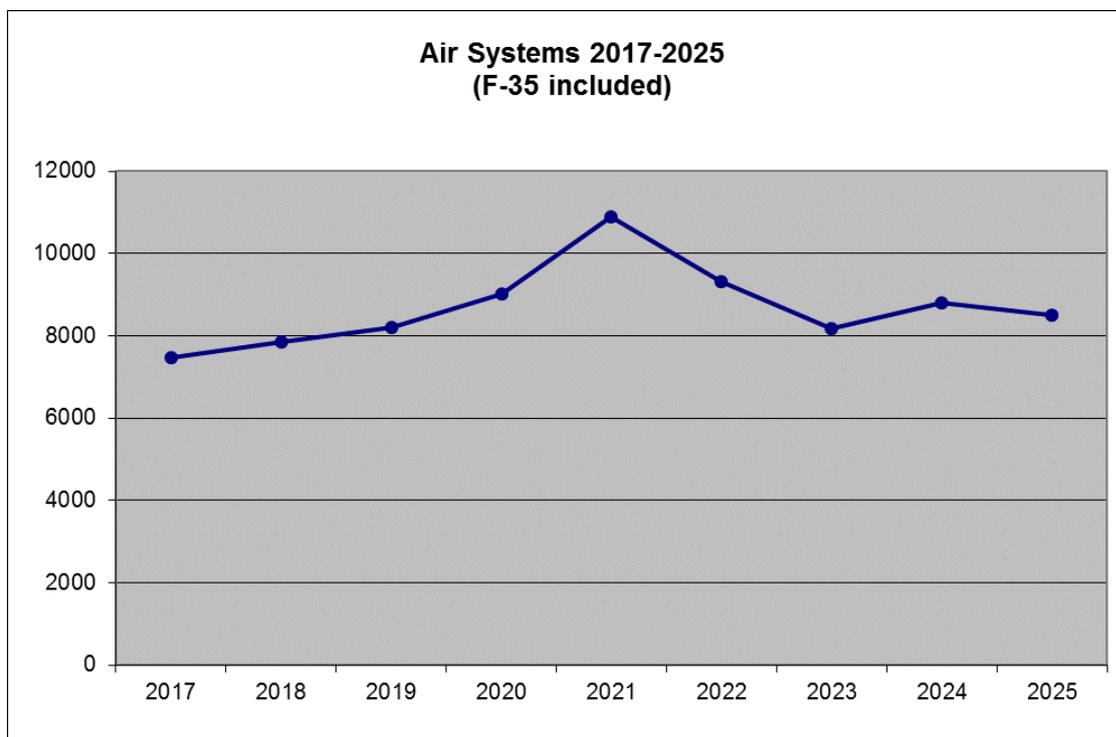


Figure 7 - Annual allocation of funds (NOK mill.)

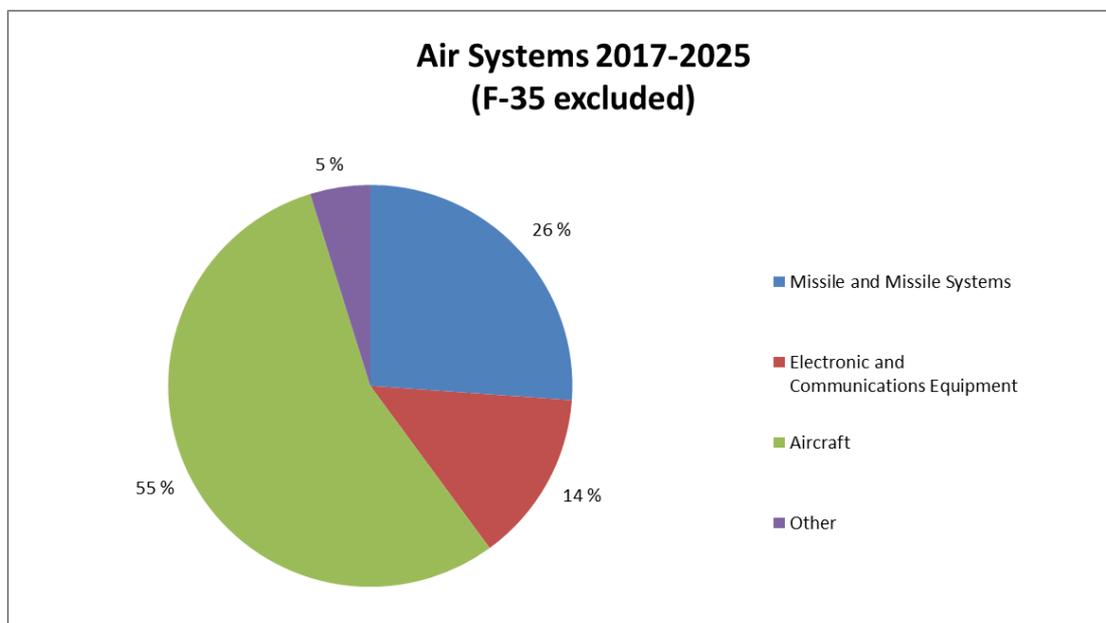


Figure 8- Allocation of funds per main category.



The investments within the Air Systems Programme are:

- Maintaining the F-16 as a first line combat aircraft until it is phased out towards the end of the decade. In order to ensure that the capabilities are maintained, there are a number of projects related to upgrades of the aircraft systems, capability improvements and airframe upgrades. Preparation for the acquisition of the F-35 combat aircraft is in progress. Due to the current plan, an initial delivery of training aircraft occurred in 2015. This will be followed up by the main deliveries during the period 2017-2024.
- Replacement of air surveillance radars and required contributions to NATO Airborne Early Warning and Control Force (NAEW&C Force).
- Mid Life Update of C-130J.
- Replacement of MSAM-missile.
- F-35 Upgrade.
- Replacement of a selection and educational system for pilots.
- Life extension of Bell 412.



Possible and planned projects

Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
2078	Air Surveillance Radars	The aim of the project is to acquire air surveillance sensors in order to maintain early warning and air command and control capabilities. The new radar system will gradually replace existing radars as they become obsolete.	The scope of the project is a gradual replacement of air surveillance radars. It is intended to maintain or improve current coverage.	PP	2500-4000 mill. NOK										
2588	Air safety simulator	The project intends to replace existing material reaching fatigue life. New equipment will within air safety support the pilots' skill through simulator training to foresee sensory delusions.	Purchase of new simulator to replace the existing one at the Institute of Aviation Medicine. The delivery will include international/national and civil/military co-operation and the possibility to rent this type of service.	PP	25-75 mill. NOK										
7820	MLU C-130J	The purpose of the project is to update and upgrade C-130J in order to maintain the operational capability and relevance in line with the operational and technological development.	Upgrade the capacity of the platform in line with the technological development.	MP	1500-2500 mill. NOK										
7821	Replacement MSAM	The purpose of the project is to increase the operational capability of the to protect vital assets and installations against modern air threats.	To procure a number of missiles with the right capability as a replacement for the current.	MP	2000-3500 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution								
						2017	2018	2019	2020	2021	2022	2023	2024	2025
7720	F-35 Upgrade	The purpose of the project is to increase the operational capability of the Armed Forces to perform offensive and defensive air operations. In order to achieve this goal upgrade of the F-35 Combat Fighter is needed.	Update/upgrade the F-35 Combat Fighter according to the vendors upgrade programme adjusted to national/NATO ambition level.	MP	7000-9000 mill. NOK									
7630	Battle Anti Aircraft Upgrade	The purpose of the project is to upgrade the operational capability to protect vital assets and installations against modern air threats.	To upgrade of a number of missiles with the right capability.	MP	100-200 mill. NOK									
7400	New Training Aircraft (Safari)	The purpose of the project is to replace the existing training airplane supporting the selection process of pilots.	To procure replacement of the current training airplane (Safari).	MP	100-200 mill. NOK									
7626	Customize of Bell 412	The Bell 412 will be customized in order to support the Special Forces operations.	Scope is to customize minimum 12 Bell 412.	MP	450-700 mill. NOK									
7167	Sindre II Life Extension	The purpose of the project is to perform life extension of the equipment in order to maintain the operational capability and continue the airspace monitoring and surveillance.	To procure Sindre II equipment in order to maintain capacity.	MP	750-1300 mill. NOK									
7571	Surveillance Systems for the Base defence	The aim of the project is to acquire surveillance systems for the Base defence in order to improve the existing capacity.	To procure modern surveillance systems equipment.	MP	15-30 mill. NOK									
7627	Long-range Air Defence/Area Air Defence	The purpose of the project is to improve the Long-range Air Defence ability against modern weapon threats from the air.	To procure sensors and missiles.	MP	3000-5000 mill. NOK									



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution								
						2017	2018	2019	2020	2021	2022	2023	2024	2025
7621	Upgrade NASAMS	The purpose of the project is to upgrade NASAMS in order to improve the ability for protection against modern weapon threats from the air.	Upgrade NASAMS in order to be able to integrate long-range sensors for air surveillance and be able to adopt new missiles.	MP	450-650 mill. NOK									
7623	Procure IFF for NASAMS	The aim of the project is to acquire IFF systems for GBAD according to current and future NATO IFF requirements.	The scope of the project is to acquire necessary software and hardware to upgrade or replace IFF systems on GBAD.	PP	250-400 mill. NOK									



## INFORMATION INFRASTRUCTURE SYSTEMS

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Photo 4 Cyber Defence



### 3.5 Information Infrastructure Systems

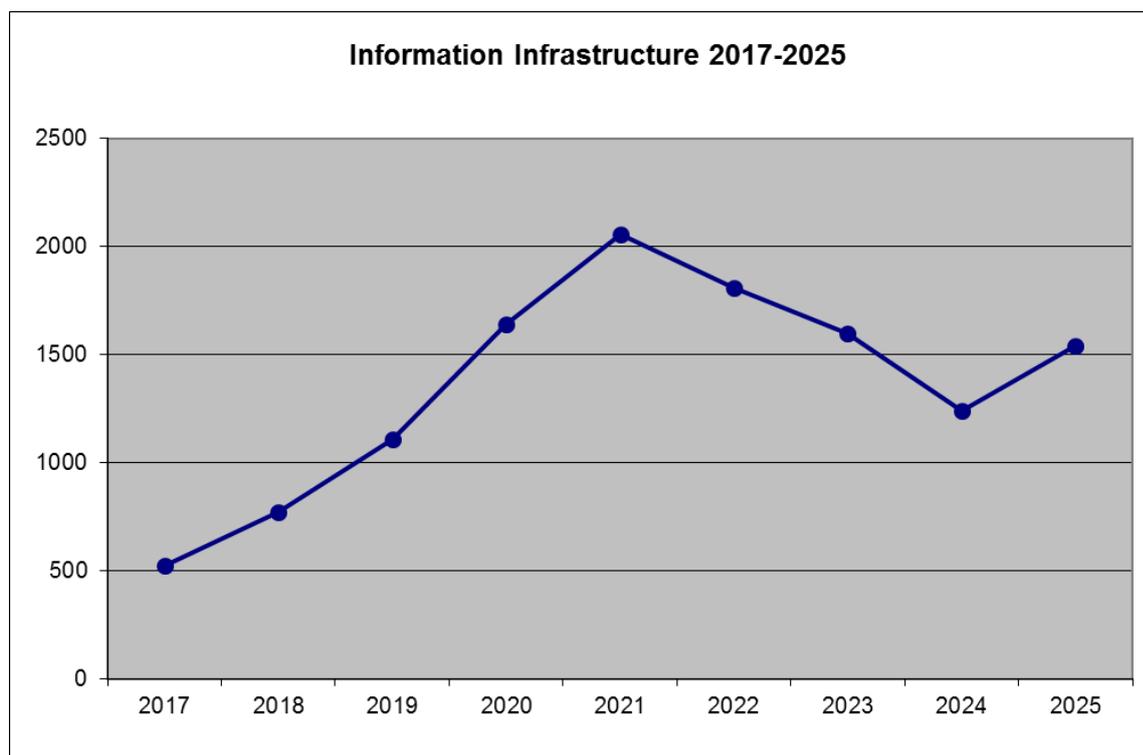


Figure 9 - Annual allocation of funds (NOK mill.)

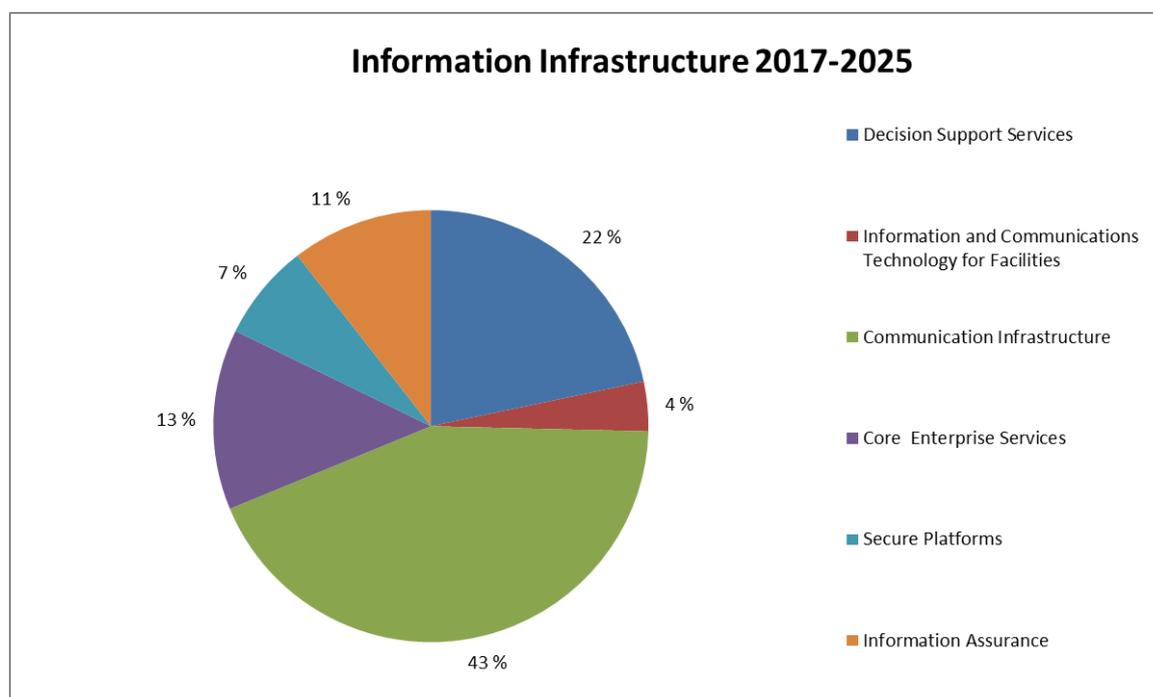


Figure 10- Allocation of funds per main category.

The Information Infrastructure Programme is by nature a very complex programme and is divided into six main parts:

- Decision Support Services.
- Core Enterprise Services.
- Secure Platforms.
- Communication Infrastructure.
- Information Assurance.
- Information and Communications Technology for Facilities.

The most significant acquisitions are related to:

- Optimization of stationary communications infrastructure.
- Tactical command and control system for the land domain.
- Transportable ICT-modules.
- Tactical secure platform.
- Modernization of core enterprise services.
- Systems for Information Security and Computer Network Defence.
- Collection and integration of sensor information.



Possible and planned projects

Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
1516	SOF C4ISR 2	The project intends to further develop the capabilities of the C2I equipment for the special forces. Operational experiences and technological development will determine the contents of the project.	The procurement shall cover the requirements for the special forces.	MP											
1534	SOF C4ISR 3	The project intends to procure a variety of equipment necessary to maintain and further develop existing capabilities. The rapid technical development and the relatively short lifespan of this kind of equipment, makes it necessary to look into replacing the capabilities previously acquired.	The procurement shall cover the requirements for the special forces.	MP											
4003	Digitalization 2	The project is part of the concept of P8043 C2IS for the Land Domain. The intension is to further develop the capabilities of the C2I equipment for the soldier. Operational experiences and technological development will determine the contents of the project.	The procurement shall cover the requirements of all services.	PP	150-300 mill. NOK										
4023	Digitalization 3	The project is part of the concept of P8043 C2IS for the Land Domain. The project is a follow up on P4003. The rapid technical development and the relatively short lifespan of this kind of equipment, makes it necessary to look into replacing the capabilities previously acquired. The acquired equipment shall be	The acquisition shall cover the requirements of all services.	MP	150-300 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
		integrated into the Armed Forces' C2IS.													
4390	Modernization of Military Geo Capabilities	The project intends to enhance the existing capabilities with respect to geographical information support of operations and the management of the geographical information held by the Armed Forces.	Undergoing evaluation.	PP	75-150 mill. NOK										
8155	National use of NATO Functional Area Services	The overall objective is to reuse and implement NATO Functional Area Services for national use.	Primarily software.	PP	50-150 mill. NOK										
8176	Decision Support Systems for operational C2	The project intends to reuse and procure solutions and functionality to support integrated decision support process both national and in relation to NATO/allies. Reuse of NATO FAS when possible. Dependencies to logistic and INTEL/JISR processes. Part of the project is related to the concept for tactical C2IS in the Land domain.	Undergoing evaluation.	MP	50-150 mill. NOK										
8177	Decision Support Systems for Operational Logistics Support	The project intends to reuse and procure solutions and functionality to support logistical support in operations on different levels, both national and in relation to NATO/allies. Dependencies and requirements for sharing of information to/from national logistic- and administrative systems as well as with actors in the commercial market.	Undergoing evaluation.	MP	25-75 mill. NOK										
8178	Automated Data Analysis for Operations	The project intends to procure solutions to support automatic analyze of big data and give operators on different levels context based information in support of missions.	Primarily software.	MP	75-150 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
8179	Consolidation of CIS Support and Monitoring Centres	The project intends to increase efficiency and consolidate CIS operations and streamline how cyber network defence and CIS can be aggregated and presented as a recognized cyber picture (RCP).	Undergoing evaluation.	MP	350-550 mill. NOK										
8070	Further Development of the Decision Support Systems - Management	Further development of decision support. The project will expand from deliverances in FIF 3.0 and project 2818.	Defence sector, details to be disclosed.	MP	75-150 mill. NOK										
2818	Future development of FIF	The project continues the development of FIF 3.0 from the Logistics project and will revisit and implement relevant outstanding functionality not provided by previous projects within the FIF portfolio.	The entire Defence Sector is target, but details are yet to be developed/decided.	PP	50-100 mill. NOK										
8170	Digitalization of the Security Clearance Process	Digitalization of the clearing process for personnel joining compulsory military service. Improve interaction between clearing authority and conscript personnel.	All users of VPV solutions.	PP	10-20 mill. NOK										
8174	Decision Support Systems for the Medic Services	The project will support the need for decision support services for medic branch, including collaboration with civil sector.	Defence organization (medic).	MP	50-150 mill. NOK										
8029	C2IS Air	The project intends to ensure a consistent information system for Command and Control (C2) and support of national C2 air processes as well with NATOs future air command and control structure. The investment will further replace existing systems if needed.	Undergoing evaluation.	MP	200-400 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
2573	Labelling of Attractive Weapons and Ammunition (AVA)	The project shall procure a system for unique labelling of attractive weapons and firearms which can be electronically scanned. The main purpose of the project is to improve the control with all hand weapons, unit weapons and special weapons during transactions in and out of Norwegian Armed Forces armories.	All hand weapons, unit weapons and special weapons in the Norwegian Armed Forces.	PP	0-100 mill. NOK										
2574	Securing and Tracking of Weapons and Ammunition during Transport	The project shall improve the system for securing and tracking of weapons and ammunition during transport.	All weapons- and ammunition transports within the Norwegian Armed Forces.	PP	10-100 mill. NOK										
8041	Renewal of Stationary Maritime Radio Systems	The project is to modernize and renew the national core HF radio structure.	Under consideration.	PP	100-200 mill. NOK										
8043	Tactical C2IS for the Land Domain	<p>The purpose of investments in the tactical C2IS for the Land Domain is to ensure that the Norwegian Armed Forces maintain, modernize and improve the ability to efficient lead and exploit available force structures on the tactical level in the land domain.</p> <p>Investments in the future Tactical C2IS for the Land Domain focus on information and communication technology (ICT), where software and hardware components form a tactical information infrastructure of mobile and deployable networked force elements that enable efficient command and control.</p> <p>The project develops a concept for the future Tactical C2IS for the Land Domain. The concept is the foundation for all ICT-acquisitions to forces operating in the Land Domain.</p>	Investments in the future tactical C2IS for the Land Domain will cover the operational needs from the individual soldier level to tactical staffs for all force resources operating in the land domain.	MP	1500-3500 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
8051	Upgrade of VLF-station NOVIK	VLF-station Novik is based on old technology which is approaching end of life. The overall objective in the project is to ensure a modern and reliable VLF capability beyond year 2020 to support submarine communications.	Under consideration.	PP	100-300 mill. NOK										
8152	Mobile SATCOM Terminals	The project shall acquire the systems components necessary to adapt and modernize existing and planned communications infrastructures to provide broadband SATCOM capability for the Norwegian Armed Forces.	The project is to procure a number of SATCOM terminals and adapt the communications infrastructure.	PP	100-200 mill. NOK										
8162	Upgrade of the Armed Forces' Satellite Ground Station	The aim of the project is to upgrade the Norwegian Armed Forces Satellite ground station at Egemoen (FSAT) to provide robust and secure anchoring of military and civilian communications satellites used by the Norwegian Armed Forces.	Under consideration.	PP	75-150 mill. NOK										
8166	NEXTGEN Secure Mobile Comms	Next generation secure mobile communication for low-grade information ensuring secure and effective communication. The procurement shall increase the ability for joint collaboration, with increased information sharing and improved flow of information.	Will substitute the TOPSec solution.	PP	5-15 mill. NOK										
9278	Redesign of the Stationary Military Comms Infrastructure	The investment will modernize and increase resistance in the information communications infrastructure against cyber attacks. In addition establish need based functionality for access to the communication infrastructure from external units.	Under consideration.	MP	350-500 mill. NOK										



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution											
						2017	2018	2019	2020	2021	2022	2023	2024	2025			
9279	National training and exercise network	The purpose of the project is to reduce cost and increase the effects of simulations, exercises and training, by acquisition of a common infrastructure for connecting simulators, operational systems and weapon platforms in the Norwegian Armed Forces. Parts of the investment relates to realization of the concept for Tactical C2IS for the Land Domain.	Establish a common national network for training and exercises, that in addition can be connect to the Combined Federated Battle Laboratories Network (CFBLNet) for experimentation and development purposes.	MP	100-200 mill. NOK												
9280	FSAT, Contingent satellite communications anchoring	Norwegian Defence Satellite Ground Station (FSAT) is currently situated in one single location at Eggemoen. Increased use of SATCOM services and partnership in multinational satellite programs demands the establishment of alternative anchoring capabilities for increased robustness and contingency.	Under consideration.	MP	100-200 mill. NOK												
8168	Replacement of Radio for use within the Home Guard Area-Structure	The National Guard must be able to execute command and control. In order to solve do this there must be necessary communication abilities. This will ensure the National Guard being available in short notice with units having local knowledge.	National Home Guard.	PP	175-300 mill. NOK												
8172	MIDS LINK16 MLU	The project will upgrade and increase interoperability in the MIDS Link 16 system and enhance integration and range to different platforms including F-35 with Link 16.	Defence organization (air, land, sea).	MP	100-200 mill. NOK												



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
8175	Digitalization of the land forces	The investment will acquire and replace material, that has reached its end-of-life, and contribute to the further digitalization of the land forces. Acquired material enables participation in a number of digital processes, like Joint Fires, Joint Intelligence, Surveillance and Reconnaissance (JISR) and Joint Targeting.	The Army and the National Home Guard.	MP	150-300 mill. NOK										
8100	Comms for Warfighting Platforms	The project will contribute to increase the operational capabilities to existing and future platforms (air, land, sea) that operates in the northern territories, including sea north of Norway. The project will include upgrade and extensions of communication solutions, link infrastructure and extended use of satellite communication. Part of the project is related to the concept for tactical C2IS in the Land Domain.	Defence organization (air, land, sea).	MP	1000-2000 mill. NOK										
8021	Modernization of Voice Services	Secure collaboration services on high classification information environments, ensuring increased utilization of operational processes.	Defence sector, details to be disclosed.	MP	100-300 mill. NOK										
8031	Optimization of Video and Voice Comms Services	Secure unclassified and low classified video- and voice services with sufficient functionality, availability and quality.	Defence organization (air, land, sea).	PP	200-350 mill. NOK										
8154	Flexible Solutions for Secure Information Exchange	The overall objective is to implement flexible solutions for secure information exchange, including solutions for information exchange across different secure domains.	Between different domains, CIS platforms and information systems in the Armed Forces.	PP	200-350 mill. NOK										

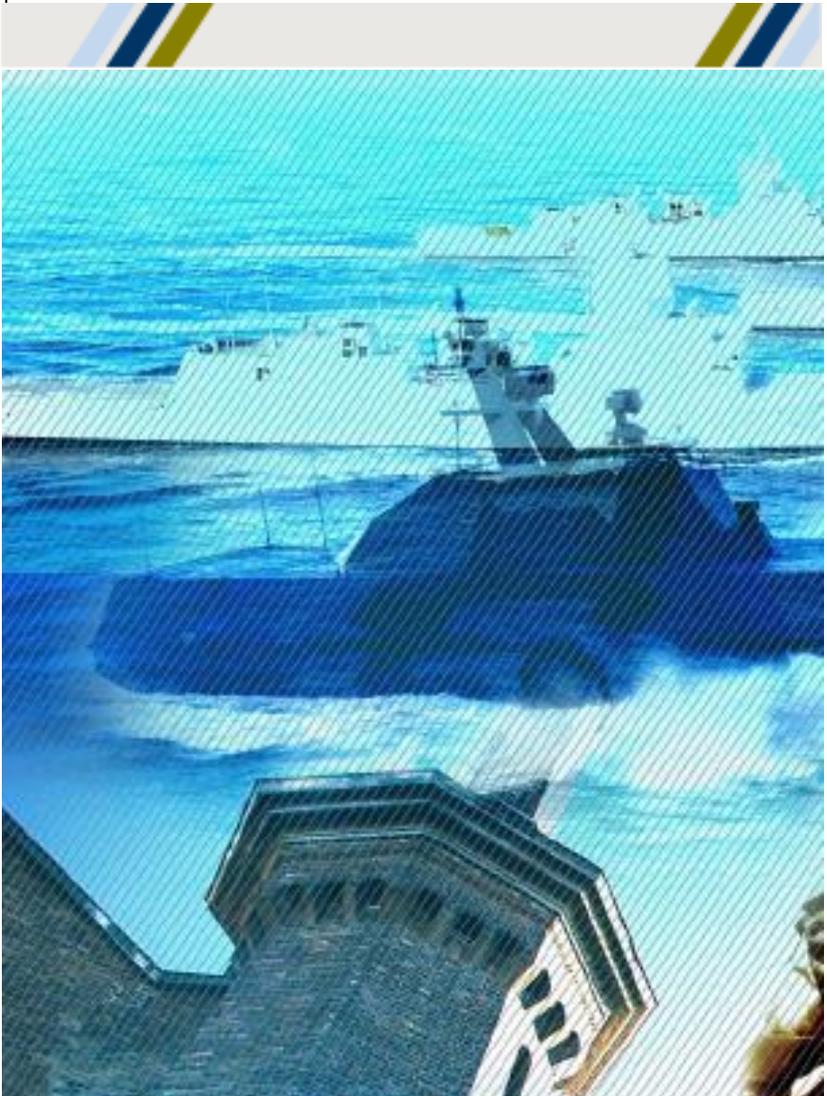


Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution								
						2017	2018	2019	2020	2021	2022	2023	2024	2025
8156	Network Enabling of JISR-information	The overall objective for the project is to make information and sensor data in JISR processes available to operational decision makers. Sensors are traditionally providing data only to the system they are part of and the data is normally not easily distributed to other user/systems. Information exchange will be based on the principles of a Service Oriented Architecture (SOA).	Defence organization (air, land, sea).	PP	250-400 mill. NOK									
8180	Infrastructure for Secure Information Sharing - Level 2	The project is a follow up on the project 8154 Flexible solutions for secure information exchange and includes further development and extended use of automated sharing of information between information domains.	Defence organization (air, land, sea).	MP	150-300 mill. NOK									
8182	Secure and efficient management of Defence Information	Procure and implement a solution for secure and effective management and handling of defence information during the lifecycle of information including handling of law regulations.	Defence.	MP	75-150 mill. NOK									
8183	Military Message Service - Effects realization	The project will integrate and make available the Military Message System to a larger public of users of the Norwegian Armed Forces Secure CIS platforms (FSP) and reap the effects from the deliveries from the MMS project P8002.	Under consideration.	MP	25-75 mill. NOK									
8052	Data Centre North	Secure services on the defence IT Production Platforms by establishing redundancy and securing the possibility for recovery services.	Defence Sector.	PP	75-150 mill. NOK									
8053	Data Centre South/East	Secure services on the defence IT Production Platforms by establishing redundancy and securing the possibility for recovery services.	Defence Sector.	PP	50-100 mill. NOK									



Project Number	Project Name	Background and Overall Objective	Scope	Project Status	Cost Estimate	Scheduled execution									
						2017	2018	2019	2020	2021	2022	2023	2024	2025	
8171	NEXTGEN Norwegian Armed Forces Secure CIS Platforms	The project will continue consolidation and modernizing of existing CIS platforms to be more efficient in supporting the defence organization on different security levels. New CIS platforms will focus on interoperability and standardization. NATO solutions have priority	Defence sector, details to be disclosed.	MP	250-400 mill. NOK										
2950	Cyber defence sensor system	The investment will increase the ability to protect the defence sectors CIS infrastructure against cyber threat and operations in the cyber domain.	Defence sector, details to be disclosed.	PP	200-350 mill. NOK										
8164	Modernization of Crypto Solutions	The investment will modernize and procure new solutions to support information exchange between stationary, mobile and deployable units on different security levels up to Secret/NATO Secret.	Defence sector, details to be disclosed.	PP	350-500 mill. NOK										
8184	Encryption and Availability of Storage Media	The project will reduce risk securing availability of classified information on mobile units with minimized risk of loss. The investment will procure crypto solutions to different hardware platforms.	Defence sector, details to be disclosed.	MP	100-250 mill. NOK										
2920	CIS Infrastructure for Air Field Evenes	The project will provide CIS solutions needed to support Evenes airbase for fighter aircrafts (F-35) and future maritime patrolling aircrafts (MPA).	Defence organization (air)	MP	75-150 mill. NOK										
2921	CIS Infrastructure fort New Base Structure	The projects aim is to provide mandatory and needed CIS infrastructure to the decided base structure in order to operate the base efficient. The project will also remove old infrastructure in a cost-effective way.	Defence organization (air, land, sea).	MP	100-250 mill. NOK										





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