



MINISTÈRE
DE LA DÉFENSE
ET DES
ANCIENS COMBATTANTS

2010 ACTIVITY REPORT



DIRECTION GÉNÉRALE DE L'ARMEMENT



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Chief Executive of the DGA

**DGA is
celebrating
its 50th
anniversary
in 2011!**



EDITORIAL

Following 2009, a year highlighted by the economic stimulus package and an exceptional number of contracts, 2010 has been a year of transition.

Transition on the financial side involved shifting the Ministry of Defence to the use of Chorus financial management software, which proved trickier than anticipated, while efforts to control State debt had an impact on the three-year budget programme for 2011-2013.

Transition also involved modernising the Ministry of Defence, with the introduction of the Ministerial Investment Committee chaired by the Minister, and the fine-tuning of texts setting up the new governance body.

The main programme milestones reached in 2010 illustrate DGA's contribution to modernising defence capabilities and DGA's role as the day-to-day partner of the armed forces. In terms of deterrence, the new generation nuclear-powered ballistic missile submarine *Le Terrible* was commissioned, whilst the M51 strategic missile and the ASMPA missile system entered operational service.

As for conventional defence, the MUSIS optical space component, scheduled to take over from Helios 2 in December 2016, was ordered, as was the first upgrade of a new generation nuclear-powered ballistic missile submarine to deploy the M51. Negotiations on the amendment to the A400M contract in conjunction with the participating States, OCCAR and Airbus Military were concluded successfully. This amendment should be added to the contract early in 2011. The Navy took delivery of the first NH90 helicopters. Lastly, I would emphasise that, as planned, we met the acceptance date in early December for 1,009 FELIN systems, to equip the 13th Chasseurs Alpins Battalion.

As an informed Defence investor, DGA is also deeply involved in analysing projects likely to benefit from the future investment programme, and also focuses on strengthening the industrial and technological defence base. Similarly, DGA pays constant attention to the development of cutting edge SMEs, through the RAPID scheme, competitiveness clusters, the SME Pact, the SME export plan, partnerships with chambers of commerce and the Aquitaine region.

In terms of cooperation, 2010 of course stands out for the major cooperation agreement signed between France and United Kingdom on November 2nd. This encompasses a defence and security cooperation treaty, a specific treaty on joint nuclear facilities and a road map for coordinating particular cooperation initiatives.

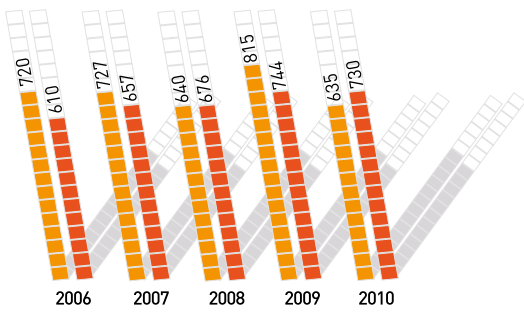
On a smaller scale, the signing of a letter of intent with Germany to encourage rationalisation in testing, the launch of systematic cooperation reviews with Italy and Germany and the entry into service of operational exchanges between the Helios 2 and Cosmo-Skymed space observation systems and between Helios 2 and Sar-Lupe are all examples illustrating pragmatic European construction! I would also like to underline DGA's full participation in preparing the NATO reform, along with the increased presence of our teams in NATO bodies. The appointment of Patrick Auroy, former DGA Deputy Director General to the post of "NATO Assistant Secretary General for Defence Investment" clearly illustrates this participation.

We recognise that 2010 export orders amounting to 4.2 billion euros, fell short of our expectations. The effects of the 2008-2009 crisis and the end of the 2009 stimulus packages are partly responsible. In this context, unlike last year, so far none of the major projects currently in negotiations has been finalised by a contract that has taken effect. Nevertheless, going beyond current difficulties, some of the negotiations now under way could be concluded by the end of 2011.

DGA has also continued to reinforce its technical expertise whilst adopting the streamlined format meeting the objectives of the general reform of public policies (RGPP). In this area, we are fully in line with the ambitious objectives set before us.

I would like to conclude by emphasising two points about 2011. First and foremost, this year will pave the way to accomplishing major goals. Specifically, in conjunction with the armed forces, we will prepare to make decisions affecting the future via the revision of the White Paper, and preparations for the 2013-2018 Military Programming Law.

The final point is something we can be very proud of. DGA is celebrating its 50th anniversary in 2011! This means fifty years of innovations, technological breakthroughs and advances, fifty years of preparing for the future, carrying out major programmes, while developing deterrence, and cooperation, serving both French and European defence, to make it strong, independent, sovereign, recognised and respected! We shall discuss this again in the very near future!



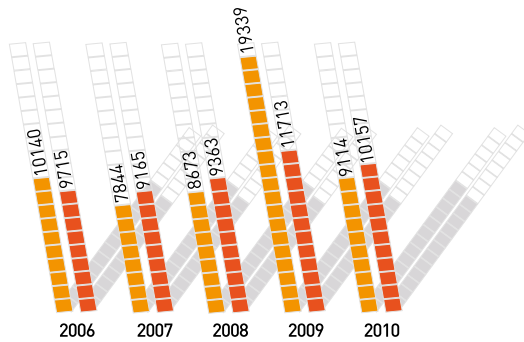
PREPARING FOR THE FUTURE

(€M : euros million)

Commitments

Payments

R&T studies



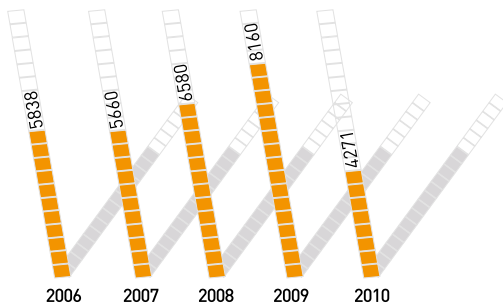
EQUIPPING THE ARMED FORCES

(€M : euros million)

Commitments

Payments

DGA share of LOLF programmes P146, 152 and 178



PROMOTING EXPORTS

(€M : euros million)

Orders

KEY FIGURES

2010

€M : euros million

€ **635** M

PREPARING FOR THE FUTURE

€ **9,114** M

EQUIPPING THE ARMED FORCES

€ **4,271** M

PROMOTING EXPORTS

SUMMARY



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INVESTOR

INFORMED DEFENCE INVESTOR



Industrial Policy

DGA involved in the future investment programme

In partnership with the General Civil Aviation Authority (DGAC), DGA is deeply involved in analysing projects from the future national investment program established in 2010. The aeronautic projects run by Eurocopter, Airbus, Dassault Aviation, Safran and Thales represent major challenges for innovation and competitiveness. They are of interest for defence applications, since a large number of technologies developed within these projects represent dual military/civil potential.



The DGA has also supported the General Investment Commissariat (*Commissariat général à l'investissement*) in analysing projects submitted under the programme's "Space" aspect, which includes a specific section on launchers (Ariane 6 preparation study) and another on satellites (satellite development programmes with major application stakes).

It is anticipated that these programmes will be launched in 2011 and will benefit the entire French aerospace industry.

Strengthening the industrial and technological defence base

DGA is involved in a project to consolidate the French solid propulsion sector, aimed at maintaining the national skills required for the propulsion of ballistic missiles and space launchers. Work took place in 2010 under an agreement of principle between SNPE and Safran on bringing their solid propulsion activities closer together and regrouping them within Safran. This agreement should be finalised in early 2011, thereby boosting a key sector of the national industrial base, which is critical to the deterrent force and to maintaining access to space.



During the Franco-British summit on 2 November, France and the United Kingdom established a joint ten-year vision of their missile industries, with the establishment of a French-British missile industry based on a single industrial prime contractor and on an optimised French-British supply chain. The objectives are to optimize mutual dependencies and to improve their positions in the worldwide export market. This will be achieved by strengthening governance, with savings targets of up to 30%. This is a bilateral approach between the two countries; nevertheless, the ability to carry out programs with Germany and Italy must be maintained.

Foreign investment in French industry

With respect to foreign shareholdings within the French industry, DGA contributes to the national interest when investments are related to defence. One of the latest examples is the Alcan machined products division (Alcan EP), a world leader in aluminium products designed in particular for the aeronautics industry.

PROMINENT FACTS

January →

- Launch of the BSAH (support and offshore assistance vessel) programme design studies
- Launch of the SIA (armed forces information system) programme design studies
- Operational commissioning of the theatre biological warning system (SABT)
- Keel laying of the third projection and command vessel (BPC) *Dixmude*
- Delivery of the first four Aravis high-protection armoured vehicles to the Army
- General release of the film *Oceans* by Jacques Perrin: Jonas the "fish" (fitted with a camera to film marine life) was designed and assessed by the DGA
- 4th test firing of the M51 strategic missile carried out, as usual without a nuclear warhead, from the submarine *Le Terrible*



February →

- Contract signed by France to build Athena-Fidus, a very high-speed French-Italian telecommunications satellite (civilian-military)
- Induction day for new DGA doctoral students
- Contract signed by DGA and its British counterpart DE&S (Defence Equipment and Support) with the joint venture CTA International (Nexter systems and BAE systems) for the joint qualification of the 40 mm telescopic gun and munitions
- Memorandum of Understanding signed between the DGA and its British counterpart DE&S to meet urgent operational requirements
- Launch of the Scorpion programme development stage

DGA supports SME growth

DGA has continued the actions initiated in 2007 to encourage development of SMEs and their access to defence contracts.



2010 was the first full year of operation for the RAPID scheme.

This assistance programme, set up in 2009 in partnership with the Ministry of Industry (DGCIS), supports innovative technological projects led by an SME and having both defence and civilian applications. Sixty projects involving ninety SMEs were selected in 2010 from among the 160 applications submitted. This represents a total aid package of 30 million euros. Considering the relevance of the RAPID scheme to strengthen the Defence Technological and Industrial Base (DTIB), especially the identification of new innovative SMEs, the budget dedicated to RAPID has been increased to 40 million euros in 2011.

DGA has continued its involvement in the competitiveness cluster policy, mainly through its participation in selecting projects submitted to the FUI inter-ministerial fund. Some forty innovative SMEs, monitored by DGA, participated as partners in one of the 148 R&D projects financed by the FUI and regional authorities.

The DGA has signed the new SME Pact, aimed at reinforcing relations between major accounts and innovative SMEs to accelerate their growth. A DGA initiative has led to establishment of a defence commission, bringing together prime contractors and SMEs. The purpose of this commission is to jointly define best practices applicable to defence contracts.

DGA has entered into a partnership with the Paris and Versailles Chambers of Commerce to launch a collective action covering nearly 150 SMEs in the Ile-de-France (Paris) region. After a visit to each individual company, the SMEs will be offered a series of informational meetings and individualised assistance on various themes, such as access to export markets or economic intelligence.



Partnership with the Aquitaine Region

DGA's Chief Executive and the President of the Aquitaine Regional Council have concluded a partnership to develop dual research and manufacturing activities. The partnership, for a duration of three years, sets out coordinated actions between the Aquitaine Region and DGA, and facilitates jointly-financed projects. A joint collective action will thus be launched in 2011 to identify and support SMEs in Aquitaine, which demonstrate dual defence/civil potential. This agreement is the first partnership forged with a regional authority and complements the DGA tools to maintain close relations with SMEs.

Basic Research Policy



• New edition of the Basic Research Policy document (POS 2010) which is the reference document for DGA activities and orientations in the field of scientific research, emerging technologies and innovation.

• Significant increase in the number of these, particularly co-financed theses (up 126%) and extensive diversification of partners.

• Organisation of the "DGA - Research and Scientific Innovation" networking day, during which Michele Mock and Dominique Vidal were awarded the "Science and Defence" prize for their work on anthrax.



• General cooperation agreement signed with the National Research Agency (ANR).

• Launch of the "Astrid" program (specific support for Defence research and innovation work) dedicated to supporting dual research projects. The program is managed by ANR according to DGA criteria, and replaces the exploratory research and innovation projects system (REI).

• Creation of the "Defence research academic partners think tank" aimed at uniting higher education institutions seeking to include topics of Defence interest in their research and training policy.

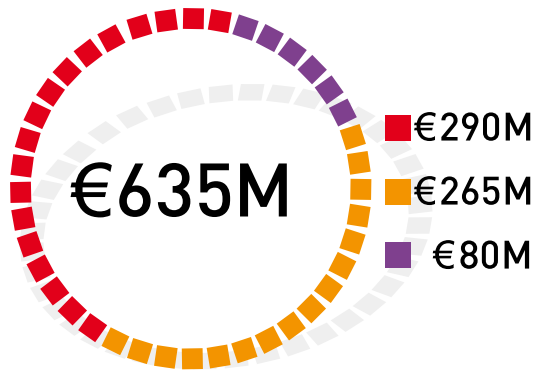


→ The results of R&T studies include for example, completion of the space demonstrator of follow-up experiments and data acquisition via (ESSAIM) microsatellites, foreshadowing the future CERES operational electro-magnetic-origin intelligence collection system.

Research and technology

The renovation of the R&T studies process initiated in 2009 continued with the objective of ensuring a better connection between investment in R&T and the manufacturing capacities to be supported. This led to the introduction in 2010 of a reading grid of indicators used to update the R&T studies guideline document.

Over 17% of R&T work was carried out this year in the context of European cooperation. An English version of the R&T Strategic Plan was published in 2010 and widely distributed. It gives our partners guidance on the research areas open to cooperation.



€635 millions were committed in 2010 for R&T studies, broken down as follows:

- €290M for technological demonstrators
- €265M for technological studies
- €80M for basic studies and research

16
REI projects

(exploratory research and innovation) approved, including one run by a single SME; the other SME projects took advantage of the expansion of the RAPID scheme. Overall, 258 projects have been approved since launch of the scheme in 2004, including 96 run by SMEs.



→ Thesis awards presented by Patrick Auroy, DGA Deputy Director General

161
new theses
en 2010

over one hundred of which were co-financed (64%). The main partners are CNRS (25), CEA (14), ONERA (8), CNES (5), INRIA (3), Regional Councils (11), businesses (13) and for the first time, universities and graduate schools (15), INSERM (2) along with the Institut Pasteur (2), for a global portfolio of nearly four hundred on-going theses.

PROMINENT FACTS

March→

- Agreement signed by five European countries (France, Germany, Italy, Lithuania and Belgium) on uniting pulsed power laboratories, at the initiative of the Saint Louis French-German Research Institute
- Negotiations finalised between the seven nations participating in the A400M programme and EADS
- An American delegation from the Industrial College of the Armed Forces was welcomed to study the DGA's procurement methods
- 1st firing of the MM40 block 3 version of the Exocet anti-ship missile from a combat vessel
- Delivery to the Army of the last of three new-generation SDTI UAV (interim tactical UAV system) ordered in August 2009
- Eight Casa CN 235 light cargo aircraft ordered
- "PP30 (30-year prospective plan)-Partners" seminar organised with the Armed Forces Defence Staff

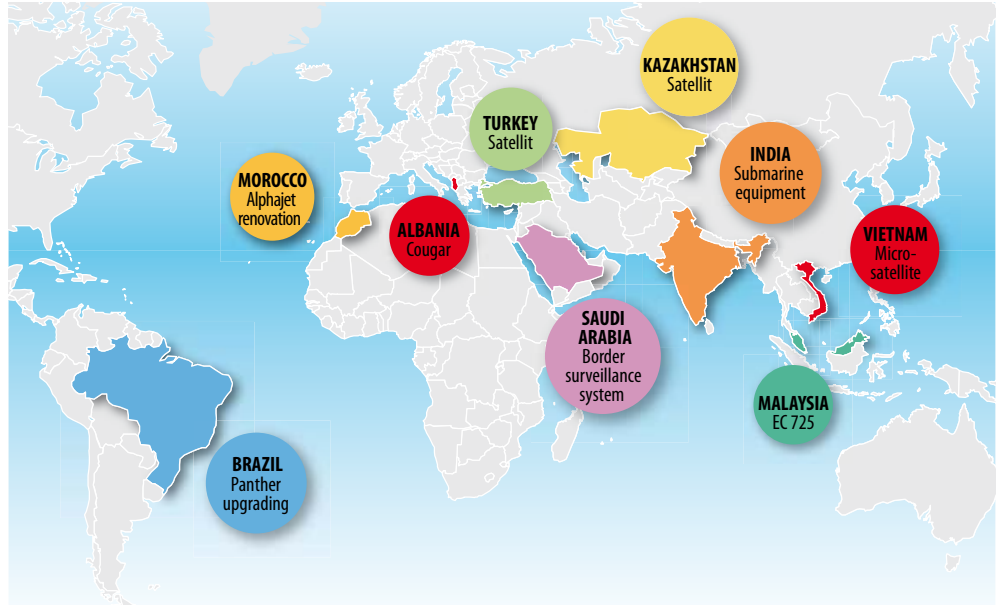
April→

- Commissioning of the Helios 2B observation satellite
- 4th meeting of the Franco-Brazilian naval sub-commission, created under the strategic partnership signed by the two nations during the bilateral Rio summit in 2008
- 1st test flight of the naval cruise missile
- 1st test flight of the second A400M
- World first for this type of vehicle: the EEC test bench (evaluation of constituent parts of an electric chain) functions for the first time, propelled by an electrical fuel cell



- Delivery of the first EC 225 (SECMAR) maritime rescue helicopter to the Navy
- Delivery of two inshore intervention boats (VIR) to the fire brigade
- Acceptance of the first NH90 helicopter in NFH version for the Navy

Main French export contracts in 2010



New orders in 2010 totalled 4.2 billion euros.

France clearly felt the impact of the 2008-2009 crisis. In addition, the end of the 2009 stimulus plans and the failure to deliver on large-scale prospects, such as Rafale, also played a role. Nonetheless, major deals could come through in 2011, despite the current uncertainty in a key export region, due to the "Arab revolt".



Providing the best possible support to exporters

Supporting defence equipment exporters is one of DGA's core tasks. The State firmly supports the defence industry, a key economic sector, accounting for nearly 100,000 direct and indirect jobs in France. DGA is a top investor in key technologies. With a yearly average of 5 billion euros in exports, the French defence sector also represents a valuable source of jobs in times of economic slowdown.

Within DGA, the International Development Directorate (DI) coordinates government support to exporters. DI is in charge of organising support and providing specific backing to the hundreds of defence SMEs seeking to penetrate foreign markets.

While DI has been credited with cutting the average processing time for Defence Ministry export licenses (AEMG) in half, the business community insists this trend should continue. Addressing these concerns was a key driver in the recent creation of a State-industry cooperation committee.

Eurosatory 2010

- 1,327 exhibitors from 54 countries, 70% international exhibitors
- 126 official delegations from 74 countries
- 53,566 professional visitors from 130 countries (7,740 from armed forces)

Euronaval 2010

- 405 exhibitors from 37 countries
- 76 official delegations from 52 countries
- 34,000 professional visitors

PARTNER

DAY-TO-DAY

PARTNER OF THE ARMED FORCES



Renewal of two nuclear deterrent strategic components: collective expertise serving France

2010 was a crucial year for two components of the nuclear deterrent which had major goals to be met in terms of commissioning equipment. All of the goals were achieved.

Ocean-based component

In 2010, the Strategic Oceanic Force completed its transition to a standard fleet of four nuclear-powered ballistic missile submarines (SNLE) of the *Le Triomphant* class.

The sea tests of the 4th SNLE, *Le Terrible*, begun in January 2009, were completed in September 2010. The DGA accepted the submarine on 20 September, followed by commissioning shortly after.

The Minister of Defence announced commissioning of the new M51 ballistic missile at the same time. These commissionings mark the end of a complex certification process under the coordination of the comprehensive Coelacanth programme: M51 firing on 27 January, salvo of Dauphin mock-ups on 7 March, M51 acceptance firing, again from *Le Terrible* on 10 July, and nuclear qualification of the weapons system.

Two major projects remain open for the ocean-based component in the next decade.

On the one hand, the first three SNLEs in the *Le Triomphant* class will be adapted to accommodate the M51. DGA ordered the first adaptation for the *Le Vigilant*, on 19 July 2010 and work is in progress.

Secondly, development of the second version of the M51 missile, the M51.2, was launched in July 2010 with a view to entry into service in 2015. This missile will be equipped with a new sea-launched TNO nuclear warhead being developed by CEA.

Airborne component

The airborne component reached a major milestone in October 2009 with commissioning of the new ASMPA missile equipping the Mirage 2000 N K3 at the Istres base. The ASMPA is fitted with the new airborne TNA nuclear warhead, the first ever designed without nuclear testing and fully guaranteed through simulation.

Transition between the two generations of weapon systems continued in 2010 with commissioning of the ASMPA aboard the Rafale:



- within the Air Force's Strategic Air Command at the Saint-Dizier base in July 2010;
- at the same time on the naval Rafale aboard the aircraft carrier *Charles-de-Gaulle*.

Nuclear transmissions

The comprehensive Hermes programme also made significant progress in 2010, including the system design review of the Transoum programme in September and preparations for the Ramses IV detailed design review later this year.



MUSIS construction phase launched



Following in-flight trials and acceptance of the Helios 2B military optical observation satellite, successfully concluded on 31 March 2010, two next-generation (CSO) satellites were ordered on 30 November 2010 under the MUSIS programme (MULTinational Space-based Imaging System). The first CSO satellite is scheduled to be placed in orbit in December 2016.

21st century helicopters become reality

An important step in the NH90 programme was completed in 2010 with DGA's acceptance of the first NFH version (NATO Frigate Helicopter) anti-submarine warfare and anti-surface unit warfare helicopter, on 23 April 2010. The Navy took delivery on 5 May 2010 after signing the support contract for this aircraft. Feedback on the use of this equipment has been very positive since delivery. Two other units were delivered in 2010.

2010 also marks two other important steps in the helicopter programmes. Two new helicopters intended for the Army's light aircraft units and later for service aboard the Navy's projection and command vessels, have just made their first flights: on 15 December, the first flight of the French tactical transport version of the NH90, designated TTH, took place. It will ultimately replace the Puma utility helicopters and ensure the tactical transport of 14-20 commandos or a light all-terrain vehicle in air-land battle zones in any weather.

CSO is the optical space component of the MUSIS satellite imaging system, to be built in conjunction with Germany, Belgium, Spain, Greece, Italy and Poland. MUSIS will include Italian and German radar components and a Spanish wide-angle optical component, as well as the CSO developed by France.

DGA has delegated contracting ownership for the CSO satellites to CNES, which has signed a contract with EADS Astrium, which will act as prime contractor, while its principal sub-contractor, Thales Alenia Space, will manufacture the optical instruments. The CSO satellites will be even more efficient than the Helios II system. Their higher resolution will make it possible to identify smaller targets. More images will be provided, particularly in crisis zones, and less time will be needed to make images available to decision-makers and the Armed Forces.

The contract includes the option of a third satellite. The decision to order it is subject to cooperation with other European countries to share the financing.

Secondly, the first pre-series French HAD Tiger support and attack version of the new European combat helicopter, also made its first flight on 16 December, two years after the development contract was signed. The achievement of this major step in the programme confirms the mastery of the Tiger programme already illustrated by the successful French deployment of the first helicopters in Afghanistan in 2009.



PROMINENT FACTS

April→

- Participation in the first test campaign in the new NATO "Distributed Network Battle Labs" (DNBL)
- Qualification of the FELIN infantry combat suite authorising the launch of mass production

May→

- Unveiling of the frigate *Aquitaine*, first vessel of the European multi-mission frigate programme (FREMM), in the presence of the French President and the Minister of Defence
- 187 light armoured protected vehicles (PVP) ordered
- Seminar to exchange views with industry on the French Battle Lab (LTO)
- Presentation of quality awards by the DGA: BPC3 (best quick-response operation), VBCL (best armament programme operation), TDA Armements SAS (best equipment manufacturer), Dassault Aviation (best industrial prime contractor)
- 4th DGA scientific day, annual meeting with the research and scientific innovation community



- Launch of the first campaign to raise DGA's visibility in the media: "Let's build tomorrow's Defence together"

- Framework agreement between DGA and the French National Geographic Institute (IGN), establishing the conditions whereby the Ministry of Defence will entrust IGN with new responsibilities for military geographic data
- 1st developmental firing in the "naval cruise missile" programme

June→

- Reception by DGA of a delegation of sixteen French Senators, members of the Foreign Affairs, Defence and Armed Forces Commission
- Eurosatory exhibition

PROMINENT FACTS

June→

- Delivery of the first ninety FELIN infantry combat suites
- Delivery of the 200th armoured infantry combat vehicle (VBCI) to the Army



- 1st firing of the laser version of air-to-ground modular weapons demonstrator (AASM)
- 1st real lifesaving exercise of a submarine crew in distress in the Mediterranean with the NSRS (NATO Submarine Rescue System), a cooperation programme between France, Norway and the United Kingdom
- Series of successful firings for the three partners (France, Italy and Great Britain) in the PAAMS programme (Principal Anti-Air Missile System)

July→

- Start of qualification tests for the ground station of the new-generation Syracuse III satcom system
- Commissioning by France of ground segments of the Italian Cosmo Sky-Med and German SAR-Lupe observation satellites in the military satellite observation centre (CMOS) installed at the Creil base
- Organisation of the first Carotte challenge (robot mapping of a territory) with the National Research Agency
- Validation firing (as usual, without a nuclear warhead) to test the M51 launch capability of the *Le Terrible's* under operational conditions
- 4th annual meeting between DGA and the National Research Agency
- Reception of the 200th MU90 torpedo for the Navy
- Delivery of the second EC225 maritime rescue helicopter
- Acquisition of Javelin missiles

Delivery of the 1st SAMP-T system and acquisition of ATBM capability

On 28 July 2010, DGA delivered the first in the series of surface-to-air medium-range missile platforms (SAMP/T) for the Luxeuil surface-to-air defence squadron. This new capability will replace the Aspide and Crotales systems and forms part of the surface-to-air defence reorganisation.

The Franco-Italian SAMP/T programme, the land component of the FSAF programme (family of future surface-to-air systems) is the first European system with the capability to intercept theatre ballistic missiles such as SCUDs. DGA carried out initial qualification firing of the surface-to-air medium-range missile platform (SAMP-T) against a "theatre ballistic missile" threat on 18 October at DGA Missiles Testing centre in Biscarrosse, Landes (southwest France).

The SAMP-T system recognized as a highly-deterrent system with its Aster missiles, will be deployed very soon in its maiden operational mission, illustrating the confidence it has already generated.

FELIN: for the modern infantryman of the 1st RI

The FELIN system (integrated equipment and communications soldier system), a truly modular combat suite, reached a major milestone in 2010, making DGA efforts since the launch of the programme reality: FELIN is now the world's first integrated system of this type, to be delivered and operational. The 1st RI received and deployed its equipment during the fourth quarter of 2010, much to the satisfaction of initial users. Delivery involved eighteen semi-trailers and 520 pallets, for a total of 65,000 articles. FELIN offers radical technological and design innovations, including sighting around corners, ballistic protection, and integrated communications.



FELIN is the result of comprehensive discussions on upgrading the combat soldier's equipment. As part of this logic focusing on individual needs, the revolutionary concept of a "global system" serving foot soldiers is thus boosted by the increase in modern types of warfare.

With equipment at the cutting edge of French and global expertise, the 1st RI should benefit from the full capabilities recently acquired during its deployment in Afghanistan scheduled for 2011.



DRIVING FORCE

IN THE REALISTIC CONSTRUCTION OF EUROPE



France-Great Britain: a major cooperation agreement

During the Franco-British summit on 2 November, the two countries signed a defence and security cooperation agreement which provides for a series of cooperative actions in various areas and sets out a joint security approach on issues such as NATO, EU, Afghanistan and Pakistan



→ French President, Nicolas Sarkozy, and British Prime Minister, David Cameron, at the signing of an unprecedented cooperation agreement in London, 2 November 2010.

- Medium-altitude long-endurance surveillance UAV (Unmanned Aerial Vehicle): 2011 launch of a joint assessment phase for the acquisition of a sustainable capability by 2020;
- Combat UAV: developing a joint technological and industrial road map for the next generation of combat UAV;
- Equipment for joint development of submarine technologies and equipment;
- Naval mine warfare: preparation of a joint project on mine clearance UUV (Unmanned Underwater Vehicle) systems;
- A400M: signing a joint support contract before the end of 2011;
- Satellite communications (SATCOM): conclusion of a joint concept study for the next generation of satellites;
- R&T: maintaining the annual financial outlay of 50 million euros per country and concentrating efforts on ten priority areas;
- The search for new industrial cooperation.

This cooperation agreement is made up of several texts including a defence and security cooperation treaty, a specific treaty on joint nuclear facilities and a road map for coordinating concrete cooperation initiatives.

The defence and security treaty restates in particular the central role of the High Level Working Group (HLWG), chaired jointly by the Chief Executive of the DGA and his counterpart, the British Secretary of State. The Group will focus on technological and industrial cooperation.

The major joint initiatives announced at the summit are a result of the important work carried out since the summer of 2010 by DGA, EMA and their British counterparts.

They cover:

- More advanced integration of the French-British missile industry around a single prime contractor: this integration is to be based on a strategic ten-year vision and on key joint projects (development of the light anti-ship missile, improvement of Scalp/Storm Shadow cruise missiles);

2011 will reflect French-British cooperation more than ever: it will be the year when major decisions made at the 2010 Summit will be implemented and should fuel cooperation momentum in 2012 and beyond.



The Lisbon summit and NATO reforms

The NATO summit in Lisbon in November 2010 initiated a major reform of the Alliance. DGA played a major role in its preparation:

- Approving the new strategic concept that will structure NATO for the next decade;
- Defining eleven top-priority capabilities;
- Developing the capability to protect populations of NATO countries from a ballistic missile attack;
- Reducing the number of agencies from 14 to 3 by 2011.

These reforms will continue in 2011 with a study on streamlining the capability-acquisition process.

The decisions taken during this summit are a major turning point and will guide DGA activities in the years to come.

At the same time, DGA is gradually increasing its participation in NATO bodies (Supreme Allied Transformation Command or headquarters). In that respect it is important to underline the appointment of Patrick Auroy, former DGA Deputy Director General as NATO Assistant Secretary General for Defence Investment.

Highlights of European and transatlantic cooperation

- Work with the EDA on the programme's initial stages, including maritime mine clearance which will lead to a French-British cooperation program;
- Implement systematic reviews of all cooperative actions with Italy and Germany;
- Reach agreement with the USA on managing the frequency spectrum, information gathering and joint intelligence;
- Set-up seminars with the United Kingdom and the United States on biological and chemical risks and medical counter-measures;
- Hydrodynamic testing with the United Kingdom;
- Signing a letter of intent with Germany to rationalise tests and assessments;



- Signing of the Sicral II contract by Italy in conjunction with France;
- First test flight of the HAD Tiger in Spain;
- Set-up of operational exchanges between the Helios 2 and Cosmo-SkyMed space observation systems and between Helios 2 and Sar-Lupe.

PROMINENT FACTS

August→

- 1,000 hours flying time achieved by the Tiger in Afghanistan
- 1st flights for the fourth Harfang UVA

September→

- 2nd firing for the laser version of air-to-ground modular weapons demonstrator (AASM)
- Signing of two space and naval telecommunications agreements during the 21st Franco-Italian armament committee meeting
- Acceptance of *Le Terrible*, fourth and final new generation nuclear-powered ballistic missile submarine (SNLE-NG)

October→

- Inauguration of the 1st new generation Simulnav NG navigation and manoeuvring simulator for skipper training
- Assessment campaign for the RGL68 air-to-ground laser-guided rocket
- Specification of individual protection systems, designed to equip non-specialist operators (doctors, firemen, police, civil defence personnel, etc.), for the General Secretariat for Defence and National Security (SGDSN)
- Completion of experiments for a microsatellite information monitoring and acquisition system (ESSAIM demonstrator)
- Laying of the first stone for the future engineering college "ENSTA ParisTech" on the Saclay plateau
- Euronaval exhibition
- Joint experiments by the DGA and its German counterpart BWB to assess new ways of using simulation for training and decision-making
- Acceptance of the 1000th Mica air-air missiles (interception, combat and self-defence missile)
- 1st qualification firing of the SAMP-T land-based medium range surface-to-air system against a "short range ballistic missile" type threat
- Renovation ordered of four Cougar helicopters



103
international
agreements

negotiated and signed,
including 44 concerning R&T.

EXPERT

**KEY EXPERT
WITH A SMALLER STRUCTURE**



DGA and Ministry reform

Modernisation milestones have been met

DGA is redeploying its operations facilities and streamlining its support activities in order to strengthen its management skills and expertise (technical, purchasing, finance), within a preset framework of approximately 10,000 people by 2014, compared to 13,000 in 2008. Manpower is forecast to grow over the period by about 4% in technical expertise jobs versus an average reduction of 17% in testing and 40% in support activities.

Evaluation capacities and technical resources are gradually being concentrated in nine centres (as opposed to fifteen in 2008) located at fifteen main sites (rather than 22). Construction has started: 65 million euros have been invested so far. Operations transfers began in 2009 and continued throughout 2010, with teams mainly from the Vernon site being installed in Bruz, and teams from Angers being relocated in Bourges. The Gramat studies centre was transferred to CEA (French Atomic Energy Agency) on 1 January 2010. The Quality Department locations, currently numbering 35, are gradually being grouped on 25 sites, compared to 49 in 2008. The department will include five production centres instead of the current nine. The department's management team will move to Bordeaux in 2011.

Relying on ministerial support organisations

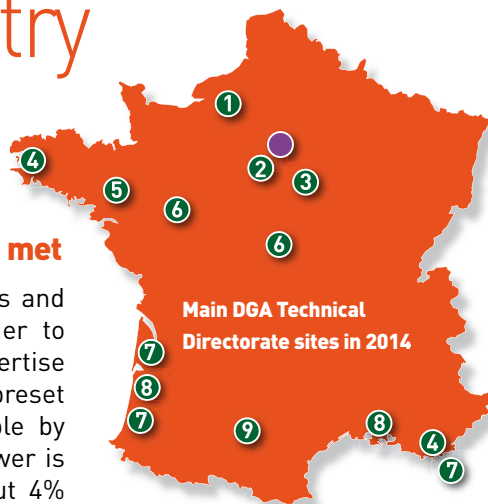
Support is being pooled at the DGA level, or when possible at the ministerial level. DGA's ISO 9001 certified comprehensive quality management system provides the necessary guidelines.

For example, support to Paris sites has been provided by a ministerial support department since 2009, while new ministerial centres have been carrying out human resources management tasks for civilian employees since early 2010.

Detailed provisions have been established in order to transfer DGA's infrastructure support to the Ministry's Defence Infrastructure Service. Transfers will be effective by 2012. Conditions for the handover of purchasing tasks to the Armed Forces Commissariat Service have also been defined, and contracts have begun to be transferred. Finally, each of DGA's establishment directors, in conjunction with the local "defence base" is examining how the required support services will be provided. The Bruz centre is already supported by the Rennes defence base.

Social aspects

These changes at DGA are being carried out while taking into account the impact on individual situations. Each one has been carefully and suitably handled, mainly thanks to the on-going presence of career counsellors, and to the provisions of a ministerial restructuring support plan, with a DGA specific mobility support plan.



● DGA head office and DGA Engineering and Integration (Bagneux)

- 1/DGA Hydrodynamics (Val de Reuil)
- 2/DGA Aero-engine Testing (Saclay)
- 3/DGA CBRN Defence (Vert le Petit)
- 4/DGA Naval Systems (Toulon and Brest)
- 5/DGA Information Superiority (Rennes-Bruz)
- 6/DGA Land Systems (Bourges and Angers)
- 7/DGA Missiles Testing (Biscarrosse, Saint Médard and Toulon + Île du Levant)
- 8/DGA Flight Testing (Istres and Cazaux)
- 9/DGA Aeronautical Systems (Toulouse)

Nota : DGA also maintains the Armament Documentation Centre at Angoulême and the Cherbourg Inspection Facility. Its Quality Department has sites throughout France distributed according to defence industrial activities.

PROMINENT FACTS

November →

- Franco-British Defence and Security Agreement
- The DGA and German BWB signed a letter of intent to encourage increased cooperation in testing
- Negotiations finalised on the amendments to the A400 M contract between the seven A400M customer, States, and Airbus Military



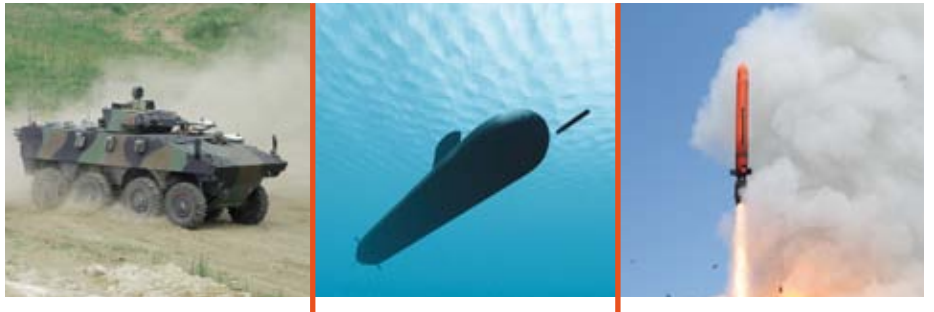
- 1st parachute jumps from the A400M
- General cooperation agreement signed between the DGA and the National Research Agency (ANR)
- Delivery of the first new-generation SR PC 50 tank-carrier semi-trailers
- Notification of the Scorpion programme architecture contract

December →

- 100th approval for in-flight testing issued by the DGA to an aircraft manufacturer or operator
- Construction launched of the optical space component (CSO) of the future MUSIS programme (*MUltinational Space-based Imaging System for surveillance, reconnaissance and observation*), intended to replace the current Helios 2 military satellites
- Contract signed between the DGA and the Armed Forces Health Service (SSA) in the field of defence biomedical research
- Launch of development studies for the future CONTACT inter-armed forces tactical radio-communications system (tactical and theatre digitised communications)
- 1st flight of the French tactical transport version of the NH90 (NH90-TTH)
- Delivery of 1st Exocet MM40 block 3 anti-ship missiles
- 200 Meteor long-range air-to-air missiles ordered

Technical evaluation

In 2010 evaluation and testing were merged within the DGA Technical Directorate (DT): all facilities and human resources for DGA technical missions, including investments and international cooperation, have been pooled.



DT's main mission consists in balancing technical capabilities and armament programme needs by introducing multidisciplinary technical teams (technical specialists and experts) and performing necessary tests and expert assessments. DT is able to design and manage complex technical testing, as demonstrated in 2010 by the Aster and M51 firings. Testing (for the naval cruise missile, the Barracuda, the A400M, the FELIN system), expert assessments (safety analysis of information systems, stealth technologies dedicated to submarines, etc.) and activities devo-

ted to operational urgencies constitute the highlights of the past year.

In addition to this, more efficient operating procedures were introduced to improve synergy, skills management and optimise resources between the centres. Structuring actions were undertaken, such as skill reinforcement in systems engineering or consolidation of documentation and legal bases backing up the technical authority function.

DT centres also promote their activities by providing services to external customers, from the French or foreign private or public sector. With a turnover of 41 million euros in 2010, sale of services supplements the centres' workload and is a source of extra-budgetary income. It helps maintain essential technical capacities and know-how at the highest le-

vel of excellence, whilst meeting customer requirements and facing up to domestic and foreign competition.

Technical authority

In the programmes and operations in which the DGA acts as the contracting authority, technical authority consists in formulating and validating technical opinions when the safety of individuals and goods is at stake. The technical authority is by nature independent of the management structure of the programme or operation. This guarantees the implementation of technical regulations and the appropriate handling of dispensations. In particular, DGA is a legal technical authority, by ministerial decree, for the aeronautics industry.

In 2010, 6.1 million hours were spent in expert assessments and testing for armament programmes, troop training and external customers.

Quality assurance for projects

The Quality Department (SQ) operates to serve domestic and export programmes and provide in-service support. It also intervenes for CNES, the French space agency (launchers), civil security and customs and helps to certify aircraft airworthiness.

The Department's activities involve auditing and analysing proofs of quality provided by the manufacturers, from system development to support and even dismantling operations. The department focuses on processes and hazardous substances. It has facilities throughout the country, near industrial sites.

This work is essential in order to have total confidence when deploying complex systems with cutting edge technology. In 2010, the Quality Department intervened on the major milestones of programmes such as the nuclear-powered ballistic missile submarine *Le Terrible*, the M51 and ASMPA nuclear missiles, FREMM multi-mission frigate, Rafale combat aircraft, Tiger and NH90 helicopters, armoured infantry combat vehicle and FELIN infantry system.

Human resources

Mobility - Recruitment

The DGA recruited 455 people in 2010 (79% management personnel). These new staff will add to the pool of management skills and maintain technical expertise, particularly in areas directly affected by restructuring.

At the same time, 13% of DGA's staff has moved, either within the DGA or to the armed forces or other ministries.

PSRH, support tool for hr strategy

The Human Resources Strategic Plan (PSRH) has been the foundation for DGA's development strategy since 2008, setting quantitative and qualitative objectives for each profession. Careful management of staff movements by profession - in terms of mobility and recruitment - has helped to meet the crucial objectives set. It ensures that the DGA will achieve the 2014 target without loss of skills.

Training organisation overhauled

The streamlining of training continued in 2010, particularly as applied to training centres. The training centre of Lorient was closed and the Bourges centre was transferred to the SGA. The Aquitaine Region offered to take over the Latresne training centre. Ultimately, DGA will retain a single training centre, the CEFIF on the Arcueil site.

The Human Resources Directorate forming a group of engineering schools around the ENSTA name which has begun with 'ENSIETA' becoming 'ENSTA-Brittany' in December 2010. The group will have particular responsibility for building a European naval hub for education and research in Brest. The ISAE engineering school in turn has created the group of engineering schools associated with ISAE for the purpose of uniting aeronautical and spatial engineering schools under a single banner.

Social dialogue

In addition to the institutional social dialogue, relations with the social partners proceeded under the methodology protocol introduced in 2009. Six meetings this year have addressed the implementation of restructuring with, for example, the creation of the DGA Land Systems branch in Angers and the definition of procedures to keep staff nearing retirement on site. Cross-disciplinary functions have also been reorganised within this framework.

New organisation, simplified management

The new HR organization came into force in early 2010, alongside the establishment of ministerial management centres. Despite these large-scale changes, statutory management has proceeded without a hitch thanks to the HR staff's professionalism and the various tools available - such as iEIA ("annual computerised personal interview") - which resulted in paperless management and simplified procedures.

Human resources key figures

RESTRUCTURING COACHING

- 103 people have taken advantage of the DGA's mobility support plan. **Cost: €0.2M**
- 154 applications for voluntary severance pay
- 84 were granted. **Cost: €6M**

PERSONNEL MANAGEMENT

- 7,400 applications processed
 - 3,000 officers from the armament corps
 - 4,400 civilian personnel, including 2,400 ICT (technical-commercial engineer managers)
- Remuneration of **12,000 officials**
 - 2,000 officers from the armament corps
 - 9,900 civilian personnel including 2,300 ICT

MOBILITY RECRUITMENT

- **455 recruitments in 2010**
 - 62 officers from the armament corps
 - 89 civil servants
 - 292 contract staff
- And :
 - 7 people recruited under the PACTE contract
 - 5 workers with disabilities

1,494 moves in 2010

- 50% are managers, including 525 officers from the armament corps

TRAINING RATE

- 96.3% of planned training courses executed
- Number of training days: 45,732
- Time taken before the beginning of a training course: 7.1 months
- Training budget: **€5M**

DGA institutional site : www.defense.gouv.fr/dga
Public procurement : www.achats.defense.gouv.fr
Industry portal : www.ixarm.com



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