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Policies: 2019



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UPDATING EUROPEAN DEFENSE FOR THE 2020S: ESTABLISHING A EUROPEAN DEFENCE AND SECURITY COUNCIL	4
AN UPDATE ON FRANCO GERMAN PROGRAMS: UAVS, FCAS, TANKS AND A400M	7
FRENCH NAVAL GROUP AND THE GREEK NAVY: BUILDING OUT THE FDI FRIGATE	10
THE FIRST RAFALE TRANSFERRED TO THE INDIAN AIR FORCE: OCTOBER 8, 2019	13
FRANCE, GERMANY AND NEW DEFENSE PROJECTS: FRAMING THE CHALLENGE	16
DASSAULT’S PERSPECTIVE ON THE WAY AHEAD ON EUROPEAN DEFENSE PROJECTS	19
THINKING POST-BREXIT: SERCO LOOKS TO EXPAND FOOTPRINT IN THE FRENCH MARKET	22
AN AIRBUS UPDATE: FIRST HALF OF 2019 FINANCIAL RESULTS	25
THE FRENCH MINISTER OF DEFENSE LAYS OUT THE WAY AHEAD FOR FRENCH MILITARY SPACE POLICY	27
THE COMING OF THE BARRACUDA ATTACK SUBMARINE TO THE FRENCH NAVY	30
PUTTING FCAS INTO A BROADER EUROPEAN POLITICAL CONTEXT: THE EU, BREXIT AND SHAPING A WAY AHEAD	33
MBDA AND FCAS: BUILDING WEAPONS FOR THE “COMBAT CLOUD”	34
FRANCE ARMS ITS REAPERS	36
THE EVOLVING DYNAMIC MISSILE THREAT: A EUROPEAN RESPONSE	38
FINCANTIERI AND NAVAL GROUP MOVE FORWARD ON COOPERATION: THE POSEIDON PROJECT	40
THALES AND THE FUTURE COMBAT AIR SYSTEM	42
REWORKING THE FRANCO-GERMAN ARMS EXPORT POLICIES: A CRUCIAL CHALLENGE FACING FCAS	44
FRENCH NAVAL GROUP AND THE AUSTRALIANS: WORKING THE CULTURAL CHALLENGES	47
RESHAPING A WORK CULTURE	48
AUSTRALIAN BARBECUE AS CULTURAL SIGNIFIER	48
PREPARING FRENCH STAFF	49
CULTURAL PLAY OF THREE NATIONS	50
CURRENT FRENCH SUBMARINE BUILDING APPROACH	50
GERMANY’S EMBARGO ON SAUDI ARABIA AND THE LIMITS OF EUROPEAN ARMS COOPERATION (UPDATED)	52

AN UPDATE ON THE FUTURE COMBAT AIR SYSTEMS PROGRAM: FEBRUARY 2019 54

A LOOK AT THE F-4 RAFALE UPGRADE PROGRAM 56

Updating European Defense for the 2020s: Establishing a European Defence and Security Council

12/30/2019

Paris – France seeks to maintain close ties with Britain after Brexit on a bilateral and multilateral basis, with the Macron administration proposing a European council for security and defense as an institutional link, a government official said.

The Dec. 12th election resulted in the UK seeing the Conservative party returned with a comfortable 80-seat parliamentary majority, allowing prime minister Boris Johnson formally to take the UK out of the European Union at the end of January. “A page will turn,” the French official told Dec. 17 the Anglo-American Press Association.

France sees the UK as a valuable partner and is promoting creation of a European security and defense council, which would work with the European Council, a high-level EU political institution.

“The European defense and security council is not necessarily an instrument solely of the 27 (EU members),” the official said. The council would serve as a “means of structured exchange between the European partners and the United Kingdom.”

“We need to reach agreement on the council’s mission,” the official said.

The idea of such a council has been accepted and there are talks on procedure.

There are already European institutions covering foreign affairs, defense and security **but no such high-level political institution dedicated to defense.**

The European Council is the political forum for heads of state and heads of government of the EU, which Britain will leave on Jan. 31. The European Council sets the political agenda, while the European Commission acts as the executive arm.

France and Germany have floated the idea of a security and defense council, which has been considered by think tanks, a European source in Brussels said. There is not a formal proposal and it remains to be seen how such an organization would fit into the institutional landscape.

French president Emmanuel Macron stirred heated debate by evoking the “brain death” of Nato, in an Nov. 7 interview with British weekly, *The Economist*, with that critical state stemming from a lack of reliable support from the US.

US president Donald Trump said Macron's comment was "very, very nasty," when a few weeks later the political leaders gathered for the Nato summit, held at Grove hotel on a golf course at Watford, north of London. That meeting marked the 70th anniversary of the Atlantic alliance.

How the council would be set up raises questions as the UK will have left the EU if and when the institution were set up.

If Britain were on the council, which other nations would have a place at the table, said Jean-Pierre Maulny, deputy director of think tank Institut des Relations Internationales et Stratégique.

One way round the structural problem raised by Brexit might be an informal group, he said. There are informal groups such Britain, France and Germany speaking as a three-strong European group on Iran.

"Perhaps it will be an informal solution, but an institutional one," he said.

"It's a great idea in principle," said Nick Witney, senior research fellow at European Council for Foreign Relations, a think tank.

Such a council might yield a strategic overview seen as needed in Europe.

"The need to re-engage in serious, collective strategic thinking, as opposed to waiting to be told what to do by the Americans, may be the single most important step towards a Europe that is significantly more capable of defending itself," Witney said in a June 25 ECFR report.

"Such a Europe is more likely to survive the twenty-first century as a protagonist rather than prey."

The ECFR report was titled *Building Europeans' Capacity to Build Themselves*.

Macron in a March 4 speech called for a "European security council with the United Kingdom on board to prepare our collective decisions"

In that discourse, titled For European Renewal, Macron sought a Europe backed by a defense and security treaty "to define our fundamental obligations in association with NATO and our European allies."

Macron also called for more defense spending.

On the bilateral front, there will be celebration in November of the 10th anniversary of the Lancaster House treaty, the French official said.

A French senate report on arms procurement on Nov. 27 called for France to put fresh energy in the Lancaster House accord.

That Anglo-French treaty is a bilateral agreement for operational and industrial cooperation, including research in nuclear weapons, a joint combined expeditionary force, and sharing technology for a combat UAV.

There are also plans to celebrate the 80th anniversary of the call by the late French president, Charles de Gaulle, for France to fight back against the Nazis. The BBC broadcast that call to arms from London on June 18 1940.

On the operational front, the British help in a “very significant way”, in the sub-Saharan Sahel region, flying Chinook heavy transport helicopters supporting French forces. Those Chinooks are “of high value,” the official said.

There is much scope for industrial cooperation, the official said.

“We are confident we can deepen the cooperation in defense and security.”

Asked on whether Britain could join the Franco-German project for a Future Combat Air System, the official said, “It’s clearly a Franco-German project, with a “prime partner” and “junior partner” in each significant part of the aircraft.

These partners have French, German, and French-German-British links, the official said, adding that there was no knowledge of a British request for direct partnership on FCAS.

On the industrial front, “obviously MBDA is an Anglo-French success,” the official said.

MBDA is a missile maker, with joint ownership in Britain, France and Germany.

There is also close French cooperation with Germany, with two flagship industrial projects, namely a New Generation Fighter in FCAS and a new tank in the Main Ground Combat System, and an agreement for arms exports.

“We are working, and Germany works with us,” the official said.

The new tank is a key element in a planned MGCS, designed as a system of systems composed of several land vehicles, both manned and unmanned.

The French vehicles will work in the Army’s Scorpion modernization program, while the German vehicles will plug into the equivalent national system.

On the institutional front, the European Commission is gearing up for a stronger presence in defense, with the appointment of Thierry Breton, European Commissioner for internal markets, and creation of a directorate general for defense.

Breton is former CEO of Atos, a French technology company, and former finance minister.

The EU is setting up the European Defense Fund with a 2021-2027 budget of €13 billion to co-fund research projects with industry. That fund is part of a bid to boost European strategic autonomy and sovereignty.

Macron pursues a strong Europe, which includes European defense. In the pursuit of the latter, the projects for FCAS and the MGCS tank system were launched. There is also a planned medium-altitude long-endurance UAV.

An Update on Franco German Programs: UAVs, FCAS, Tanks and A400M

11/02/2019

Paris – Tough talks between industry and the French and German authorities on development cost are holding up a program launch of a medium-altitude, long-endurance unmanned aerial vehicle, the French procurement chief said.

Joel Barre, head of the Direction Générale de l'Armement procurement office, gave Oct. 2 an update on the stalled UAV project, along with Franco-German efforts to launch programs for a Future Combat Air System and a new tank in the Main Ground Combat System.

Airbus Defence and Space is prime contractor, working with partner Dassault Aviation on the planned UAV, in a European attempt to enter a key market led by the U.S. and Israel.

“The hold up today lies in differences over development cost,” Barre told the defense committee of the French senate, according to minutes of the meeting. Development is one of three elements in the prospective contract for the UAV, along with production and service.

“I have every hope of reaching agreement by the end of the year, because we will not build the MALE (UAV) at any price. Discussions are being held, the conversation of the last few days seem to be rather encouraging. To sum up, I have some hope but no guarantees.”

Berlin and Paris called for a revised plan for the European MALE UAV project after industry requested more than €2 billion (\$2.2 billion), double an initial estimated budget, *La Tribune* business website reported.

That funding overspill from industry compares to an initial Franco-German budget of €4 billion by 2025 for development of a new generation fighter jet in the FCAS project, with France contributing €2.5 billion, according to the French armed forces ministry, *Reuters* reported.

The future European UAV would be armed and equipped for signals intelligence, the Air chief of staff, General Philippe Lavigne, told Oct. 10 the defense committee of the lower house National Assembly.

The UAV budget request reflects twin engines and 10-ton weight, which makes the UAV “too heavy, too expensive and therefore difficult to export,” Christian Cambon, chairman of the Senate defense committee, said in a June 26 parliamentary report. Those specifications reflected German requests, leading to “obesity,” he said.

That weight could be compared to a Rafale fighter jet, which weighs some 10 tons without fuel and weapons, and Reaper MQ-9, weighing some two tons, without arms and payloads.

The German specification for twin engines reflects a concept of operations centered on flying domestic surveillance and avoiding a crash on a German city, Cambon said.

For the French forces, the UAV is for overseas deployment in Mali and Adrar des Ifoghas, a mountainous range near the Mali border with Algeria.

The recurring cost for service of the UAV is the factor closest to budgetary agreement, Barre said.

“The question of over-specification is no longer an issue,” he said. The twin engines are a “reality.”

Two engines increased weight and cost, but France accepted in 2017 that configuration, he said. What remained to be resolved was reaching agreement with industry on cost-efficiency.

Italy and Spain have signed up for the UAV project. The French 2019-25 military budget law foresees 18 UAVs, on the basis of six UAV systems, with three units per system.

On the FCAS project, Cambon said a new fighter program would cost €25 billion, which called for cooperation as such a budget was outside the reach of France acting on its own.

Barre said there remained two factors to resolve before launching work on a technology demonstrator for the new generation fighter.

“The first element is organizing the entry of Spain into the program,” he said. That required finding a “good compromise” to avoid a delay in the prototype and should be reached before an Oct. 16 Franco-German ministerial council meeting on defense and security.

The Spanish defense minister, Margarita Robles, signed June 17, the opening day of the Paris air show, a framework agreement to bring Spain into the FCAS program, led by France and Dassault, and partnered with Germany and Airbus D&S.

The second, more sensitive, element lay in appointing Safran as prime contractor on the engine program, with MTU Aero Engines as industrial partner, Barre said.

The industrial responsibilities should be clearly set out, in contrast to the engine on the Airbus A400M airlifter, he said. There are talks between Safran and MTU to accord program leadership to the former to ensure balance in the work assigned to the companies.

There would be a resolution following talks with the companies and between the companies, he said, adding the “highest political level” would resolve the situation if needed. The French and German ministers would meet Oct. 9 to discuss organization of engine production ahead of the bilateral ministerial council meeting the following week, he said.

In France, the DGA, backed by the government, negotiates with industry, and talks to the German counterpart, the junior defense minister, he said. In Germany, industry has “a very powerful role” in decision-making.

The German political side is complex, with the government seeking consensus between three or four parties, and powerful oversight by the Bundestag parliament, two French defense executives said. On the French side, the president holds political power.

Problems on the TP-400 engines were among the key factors in slowing deliveries of the A400M.

The program to build a new powerful turboprop engine was based on work share, reflecting client orders for the aircraft. Germany had ordered the largest number of A400M, opening the way for German industry to learn how to build core engine parts.

That led to costly delays and a French commitment to avoid future large industrial consortiums.

Airbus and Dassault called Oct. 7, ahead of the ministerial council meeting, for launch of the prototype fighter jet, backed by “a reliable funding plan.”

“We call on our political leaders to make every effort to launch these demonstrators at the earliest opportunity in what will be a key step in moving this ambitious project forward,” Eric Trappier, CEO of Dassault and Dirk Hoke, CEO of Airbus DS said in a joint statement.

On the budget for the MGCS project for a new tank, there is government agreement on 50:50 work share split between France and Germany, with Nexter leading the French side, and Krauss-Maffei Wegmann and Rheinmetall sharing the German stake, a defense source said.

It will be up to the two German partners to negotiate their respective shares of the program, with an equal split seen as the ideal, the source said.

There will also be nine sub-projects for a system architecture study, with each of the three partners taking leadership of three sub projects, the source said.

That architecture study will begin early next year and will launch a technology demonstrator for the tank, the Elysée president’s office said on the Oct. 16 meeting of the Franco-German defense and security council. That meeting was held in Toulouse, southwestern France.

The tank project will be open to other European nations, the Elysée office said. Paris and Berlin would also “examine steps for a further consolidation and evolution of their land systems industries.”

French Naval Group and the Greek Navy: Building out the FDI Frigate

10/27/2019

LORIENT, France – The Greek navy chief of staff was foreign guest of honor at the Oct. 24 ceremony of first cutting of steel for the frigate for defense and intervention (FDI), signaling Naval Group's aim to help close a sale of the new French warship.

Admiral Nikolaos Tsounis sat in the front row, along with his French counterpart Admiral Christophe Prazuck and armed forces minister Florence Parly, as executive chairman Hervé Guillou welcomed guests at the company shipyard in northwest France.

The Greek defense minister, Nikos Panagiotopoulos, and Parly signed a non-binding letter of intention for procurement of two FDI warships, the French minister tweeted Oct. 10.

France launched the FDI program, worth €3.8 billion (\$4.2 billion), in April 2017, consisting of five frigates for the French navy. That warship, under the brandname of Belharra, will be vital to French efforts to win export sales.

A determination to help the government-to-government negotiations could be seen in Guillou's ending his speech in Greek, and Naval Group flying the Greek flag along with flags for France, the European Union and the company.

Naval Group provided transport and accommodation for the press trip, which included four Greek reporters, of which three were for television and one for a weekly magazine.

Guillou welcomed the foreign guests, which included the New Zealand ambassador, and the Polish defense attaché and deputy defense attaché, pointing up the priority set on export deals in a tough world market.

There are potential sales of at least 40 intermediate frigates around the world, a senior Naval Group executive said in 2016.

Guillou was in New Zealand Oct. 10 and 11 as chairman of the France-Australia business council, part of the international office of Medef, the French business lobby group. Guillou was co-leader with Thierry Mallet, CEO of Transdev on that trip, which included Australia.

Transdev is a transport company,

The international department of the Direction Générale de l'Armement (DGA) procurement office is leading the negotiations, which include a Greek request for arming the 4,500-ton warship with 16 cruise missiles.

DGA chief Joel Barre was at the ceremony, in which Parly started the automated cutting equipment, which produced the outline of FDI. Parly and Guillou went on to sign the cut out.

The DGA program director for FDI, Gregory, declined Oct. 23 to comment on whether the contract for the first FDI was worth €2 billion, as reported by business website *La Tribune*.

The Greek navy's requirements are expected to lead to a unit price of €750-€800 million, depending on the choice of arms and equipment.

Athens would mark a step up in the international arms arena if the deal were sealed.

"This is a political decision, as a naval cruise missile is a strategic weapon with deep strike capability," said Etienne Daum, manager for aeronautics, defense and security at think-tank CEIS. Sailing an FDI would also boost the Greek capability within Nato, he added.

A naval cruise missile would add to the Greek air force Scalp cruise missile flown on its Mirage 2000-5 fighter jet.

The first FDI is due to be delivered to the French navy in 2023, with the last by 2030. If Athens and Paris were to reach agreement, Greece would receive the second ship, while the French navy would receive the third, and the second Greek ship would be the fourth built. Two FDI ships are due to be delivered by 2025.

Greece has long sought a heavily armed French frigate, with the Greek navy previously seeking the Fremm multimission frigate with cruise missiles before 2008. But the financial crisis in that year forced Athens to put a hold on a purchase as deep spending cuts were imposed on the frail Greek economy.

For Poland, there is the Swordfish program, with requirement for a highly capable frigate armed with a cruise missile, the Poland In website reported

"The French navy also needs the FDI, which is a more capable ship than the Lafayette frigate, as there is rising threat and proliferation of weapons," Daum said.

The ship is designed for anti-submarine, anti-air and anti-ship operations, capable to make up a third of the 15-strong French fleet of first-rank warships. That fleet includes eight 6,000-ton Fremm multimission frigates, of which two are air defense versions, and two Horizon air defense frigates.

The contract for the first ship – to be christened Amiral Ronarc'h – includes research and development as well as construction. That ship, effectively the prototype, will include a digital open architecture, two data centers, and Thales Sea Fire 500, a fixed-panel radar.

There will be an expanded version of the Setis combat management system to weave together the various onboard subsystems, a workstation for cybersecurity, and capacity to fight off asymmetric attacks by fast small vessels.

There has been work on an onboard workstation to give a more complete tactical picture and share that with other vessels. The naval cooperative surveillance system, which has been tested on the Charles de Gaulle aircraft carrier, Horizon and Fremm frigates, will be fitted on the first FDI.

For the French navy, the main weapons will be MBDA Aster 15 and 30 anti-air missiles, Exocet anti-ship missile, Leonardo 76 mm canon, MU90 light torpedoes, and two remote control Narwhale 20 mm canons. Light weapons such as 12.7 mm and 7.62 mm machine guns could be used for attacks from small vessels.

MBDA is working on a new launch system to accommodate both A-50 Aster and A-70 naval cruise missile. There is no cruise missile for the French navy FDI.

There is deck space for an 11-ton helicopter such as NH90 and a 700-ton helicopter drone. For 360° low-light visual coverage, there will be banks of Bertin cameras on the single mast, and two Safran Paseo electro-optical infrared sights.

Other equipment includes a Thales hull-mounted KingKlip Mk2 sonar and Captas 4 towed sonar array. MTU will supply the diesel engine, expected to deliver speed of 27 knots.

There will a 125-strong crew, comprising 111 sailors and 14 for the aircraft.

The DGA, navy and Naval Group, the prime contractor and systems integrator, are working on collaborative design of the FDI on an enhanced version of the Catia computer system.

The FDI frigate has grown in weight. When France unveiled a reduced scale model at the 2016 Euronaval trade show, the ship had been expected to weigh 4,250 tons rather than the present 4,500 ton.

Naval Group has invested €27 million in the Lorient shipyard, Guillou said.

The shipyard is working on the Alsace, the first of the two Fremm air defense versions, and has capacity for building four warships at the same time. The yard is working to cut the build time, with the Fremm now taking 42 months after 72 months for the first vessel.

The first FDI is scheduled to take 38 months, and a target of 30 months has been set for later units.

“It is close to €12 billion which will be invested in naval combat, anti-submarine warfare and attack submarines,” Parly said at the steel cutting ceremony.

“This military budget law effectively prepares the future for our navy.”

Parly was referring to the funds set aside for the navy in the 2019-2025 military budget law, which requires annual confirmation by the finance ministry.

The First Rafale Transferred to the Indian Air Force: October 8, 2019

10/08/2019

Paris – Dassault Aviation played the host for an Oct. 8 ceremony for hand over of the first Rafale fighter jet to India, signaling a close military and industrial tie France seeks to deepen amidst stiff competition from Israel, Russia and the U.S.

The presence of Indian defense minister Rajnath Singh and his French counterpart, Florence Parly, pointed up the political significance of the deal, worth some €7.9 billion (\$8.7 billion). The two ministers were due to hold in the evening a bilateral meeting and working dinner at Brienne House, the ministerial office in the capital.

India was one of France's "principle strategic partners," as could be seen by Singh's attending the delivery, the French armed forces ministry said in an Oct. 8 statement. The French and Indian defense ministers would discuss bilateral cooperation and security in the Indo-Pacific region.

The first Rafale was delivered last month, but the ministers flying down to Dassault's plant at Merignac, near Bordeaux, point up the political capital invested in the Rafale deal.

That formal event will be held just 10 days ahead of Diwali, a five-day Hindu festival, when lamps, lanterns and candles are lit to mark victory of light over darkness, good over evil. India will be guest nation when France holds its book festival next March.

"This is very important," said Tara Varma, policy fellow and head of the Paris office of European Council for Foreign Relations, a think-tank. The hand over is the "concrete realization" of a deal which took years to seal, after India switched in 2016 to a direct order for 36 Rafale and dropping acquisition of 126 fighters after holding a tender for medium multi-role combat aircraft (MMRCA).

There have been allegations of corruption on the Rafale deal, which India and Dassault have denied.

France is in talks to sell more Rafales to India, looking to an announcement to be made in January when French president Emmanuel Macron visits India, business website La Tribune reported Oct. 7.

Macron's visit will be his second trip to India in three years, pointing up the significance of ties to New Delhi, Varma said.

That presidential visit may reflect French hopes but it is not clear the Indian air force will meet that expectation, she said. India added last year a further €5.6 billion to the defense budget, reflecting the need for anti-submarine warfare and combat helicopters, as well as more fighter jets,

The Indian navy seeks to acquire 57 carrier-based fighters, while the air force seeks a further 110 fighters.

France wants to be close to India, while New Delhi hedges its bets by buying arms from Israel, Russia and the U.S.

Israel is active in India and will supply equipment, including missiles, Varma said. The Indian air force will be armed with other weapons besides the Scalp cruise and Meteor long-range missile, she said.

Russia has supplied MiG and Sukhoi fighters to India and has signed a deal for its S-400 surface-to-air missile.

The U.S. has shipped P-8 maritime patrol aircraft, and Apache attack and Chinook transport helicopters to equip the India services.

The Rafale will be fitted for flying nuclear weapons, Indian business daily Economic Times has reported.

The delivery of the Rafale comes after Pakistan shooting down in February an Indian F-16 and capturing the pilot. The release and hand over of the Indian pilot helped calm some of the tension between the two nations long locked in regional dispute.

That armed clash raised Pakistan to the same high level of threat to India previously held by China, Varma said.

India and France foster close relations, including cultural ties. Macron met Modi in August at prestige-laden Chantilly castle for bilateral talks just ahead of the G-7 summit, to which the French president had invited the Indian political leader.

Those moves signal a “strategic partnership” of 21 years, an Indian official said.

Dassault has given “significant support” to India’s education and science policy by setting up an engineering center, a Dassault skill academy, and a vocational training program dubbed Aeronautical Structure and Equipment Fitter, the company said in a statement.

Dassault has also set up an assembly plant at Nagpur, central India, with its Indian joint venture partner Reliance. That site will build parts for the Dassault Falcon business jet and could allow final assembly for the Rafale, if a deal were struck.

Those investments are part of the offset deals required by the Make in India and Skill India programs set by New Delhi, seeking to boost the domestic economy.

India is a major market for weapons from the west and Russia.

The Indian naval market continues to grow, as the re-election of Modi in May led to early steps of a competition for six more diesel-electric boats, with challenging requirements.

French shipbuilder Naval Group has replied to India's expression of interest in selecting a Strategic Partner to build six more submarines under the Project-75 (I) project.

Naval Group sold six Scorpene submarines in 2005 in a deal reported to be worth \$3.5 billion.

The French company filed a "fully compliant and adapted response," Soumyajyoti Basu, Naval Group's country sales director for India, said Oct. 2. Indian shipyards have also submitted response to the expression of interest to be a local Strategic Partner.

India has set requirements for a stealthy submarine larger than the Scorpene, capable of land attack missiles, and extensive technology transfer for local assembly, he said.

The Indian government said in a June 20 statement the navy would have an option for six more submarines under the P-75 (I) project.

India will likely attract bids from Germany, South Korea, Spain and Russia, along with the French offer. The Indian defense ministry and navy will review the submissions, draw up a short list and send out a Request for Proposal.

Naval Group will pitch its F-21 weapon in an Indian tender for 98 heavy torpedoes, with a competition expected to be launched by the end of the year.

The shipbuilder is also offering extensive service packages.

The Indian Navy commissioned Sept. 28 its second Scorpene class submarine, the Khanderi, which follows the first of class Kalveri, commissioned in December 2017.

The Kalveri was delivered late, reflecting the need to regain expertise after a decade-long gap in building submarines. There was also tardy supply of subsystems and steel.

Delivery of the remaining four Scorpene boats is expected to be every nine to 12 months as from last month. The Indian navy will set the date for formal delivery and commissioning, as much depends on the monsoon, which hits the gulf off Mumbai on the Arabian sea.

India flies eight Poseidon P-8 anti-submarine warfare aircraft and ordered in 2016 four more units. An acquisition of a further 10 units has been approved.

European missile maker MBDA will supply missiles for the Indian Rafale and Mirage 2000H fighter jets, in a deal worth €710 million.

The Rafale will be armed with Mica air-to-air, Scalp cruise and Meteor long-range, air-to-air missiles. The Mica will also arm the upgraded Mirage.

The Indian joint venture between MBDA and Larsen & Toubro will build those missiles.

“The MBDA missile warning system is based on an infrared detector from Lynred,” said David Billon-Lanfrey, strategy director at the specialist in infrared technology.

In the Indian drive for local offset, the European missile builder signed Sept. 12 a memorandum of understanding with Bharat Dynamics Ltd, with the Indian partner taking up final assembly, integration and test of the Mistral and an advanced short-range, air-to-air missile. The latter, dubbed new generation close combat missile, will arm the Jaguar fighter.

Hindustan Aeronautics Ltd will integrate the Mistral on the Dhruv helicopter and the light combat helicopter.

In land weapons, an Israeli company, Elbit, and its local partner Bharat won a contract estimated to be worth more than \$1 billion in the Trajan project for towed artillery, beating a rival offer from Nexter, a French firm.

Nexter awaits launch of a competition for India’s mounted gun system, a requirement set in 2010. The French state-owned company has teamed with Ashok Leyland to pitch its Caesar truck-mounted 155mm/52 caliber artillery for that prospective tender.

India’s military acquisition is part of its drive to foster domestic industry.

“The overall aim would be to progressively build indigenous capabilities in the private sector to design, develop and manufacture complex weapon systems for the future needs of the Armed Forces,” the Indian government said June 20.

“This will be an important step towards meeting broader national objectives, encouraging self reliance and aligning the defense sector with the ‘Make in India’ initiative of the government.”

France, Germany and New Defense Projects: Framing the Challenge

09/18/2019

BOURGES/AVORD AIRBASE, France

France and Germany need to resolve political, industrial and operational differences hanging over projects for a new fighter jet and a new tank, a French senator said Sept. 13.

A New Generation Fighter is key to the planned Future Combat Air System, backed by France, Germany and Spain, while Berlin and Paris are also looking to develop and build a new tank in the Main Ground Combat System.

French parliamentarians, chiefs of staff and top industry executives at a plenary session of a Sept. 12-13 conference heard a summary of problems hanging over the two arms projects seen as cornerstones for future European defense.

The conference, dubbed summer defense university, was organized by CEIS, a consultancy, and backed by Dassault Aviation. The event was held at Bourges and Avord airbase, central France.

The conference is run on Chatham House reporting rules which ask for anonymity of speakers.

“Today, there is concern over FCAS,” said the senator, pointing out that France wants to pursue “operational capabilities,” while Germany seeks industrial content for its companies in a drive for economic gain.

There is also a German call for close parliamentary oversight of the FCAS program through a release of funding in small tranches.

France leads on FCAS, with Dassault Aviation as prime contractor, while Germany steers the MGCS tank project and a planned European medium-altitude, long-endurance unmanned aerial vehicle.

FCAS and MGCS may be separate projects but they have become closely related, as German parliamentarians have linked supervisory approval of one to the other.

Progress on FCAS depends on Berlin finding work to be assigned to Rheinmetall in Germany’s 50 percent in MGCS, the senator said. A US pension fund holds a large stake in Rheinmetall, the senator added.

The assumption had been family owned Krauss-Maffei Wegmann would hold the German stake in MGCS, with state-owned Nexter holding the French 50 percent.

Talks are still going on for how to share out the work between KMW and Rheinmetall, and it cannot be assumed there will be a 25 percent stake for each company, a European official said on the sidelines of the conference.

Rheinmetall supplies the turret, while KMW works on the chassis on the Leopard 2 heavy tank.

A senior French executive, also speaking on the sidelines, made it clear it was only “certain parliamentarians” which were holding up FCAS rather than the full German Bundestag parliament.

An operational issue to be resolved is how the new fighter jet will be able to carry the French nuclear missile and Nato atomic bomb, as the German air force flies the latter, supplied by the US, the senator said.

A further concern is need for an agreement between Berlin and Paris on arms exports, as FCAS will need foreign sales to help fund its program, the senator said.

An export agreement will soon be reached, a senior French official said at the plenary session, declining further comment.

President Emmanuel Macron and chancellor Angela Merkel reached an agreement at the G-7 summit at Biarritz on Franco-German arms export policy, with Berlin foregoing a right of approval if there were less than 20 percent of German content in value in a French weapon being sold abroad, afternoon daily Le Monde reported.

France wanted a lower level of German content, as that would have given Paris more latitude in pitching French arms in overseas markets.

That 20 percent threshold also applied for French oversight of German arms exports.

“When there is a big deal, like a fighter jet, it has to be discussed,” said François Lureau of EuroFLconsult. “There should be rules, but it is hard to generalize and foresee the situation in 30 year’s time,” he added.

There should be discussion and compromise, he said, adding that the Debré-Schmidt agreement on foreign arms sales had never been observed. That was a Franco-German pact dating back to the 1970s.

Lureau is a former procurement chief.

The arms export deal was included in a Franco-German treaty signed Jan. 22 at Aix-la-Chapelle, magazine *Der Spiegel* reported Feb. 15.

French executives point up a tardiness of German delivery of components, seen as a bid to slow sales of French weapons. France and Germany compete in the world arms market.

There was a deafening silence at the conference on the UK’s pursuit of its Tempest project, despite the Sept. 11 announcement British companies had signed a statement of intent with Italian partners on cooperation for a new fighter.

The senior French official, however, did predict there would be cooperation with the British on the new fighter programs.

It made no sense to have two new European fighter programs and it was likely there would be a merging of the projects, a British executive said.

BAE Systems, Rolls-Royce, and the British units of Leonardo and MBDA signed statements of intent with Avio Aero, Elettronica, Leonardo and MBDA in Italy to work on a “concept and partnership

model,” seeking to share knowledge, product definition and technology development for development of a future combat air system

That industrial agreement followed Italy and the UK committing to work together closely on combat air capabilities including Typhoon, F-35 and Tempest.

There was no surprise Italy teamed up with the UK as both nations operate the F-35, a French executive said. It remained to be seen whether there would be funds for Tempest in view of the acquisition of F-35.

Italy had shown no interest in joining FCAS, and there is doubt whether Rome had sufficient funds, a French officer said on the sidelines of the conference.

On the proposal for the European MALE UAV, there is a vast difference between industry’s offer and what the governments are willing to pay, the officer said.

Armed forces minister Florence Parly said in her June 17 speech at the Paris airshow that industry needed to cut the price of the UAV.

“I say to them — and the companies know it — that this program will not get off the ground unless the drone they are proposing is competitive,” she said.

That pricing was not just for the launch nations —France, Germany, Italy and Spain — but prospective export clients, she said. An intensive negotiation was opening up, which she hoped would lead to announcement of a launch contract this year.

Airbus and Dassault are industrial partners, with the former in the lead on the UAV.

The French air force staged an extensive flying display of Rafale fighter, A400M transport plane and Puma helicopter at the airbase on the opening day. There was a display of ground troops attacking insurgents, supported by a low pass by Rafale and helicopter evacuation of a wounded soldier.

On the ground, there was display of armored vehicles including Jaguar troop carrier, high mobility vehicle, AMX10 RC fighting vehicle and Leclerc tank. The airbase supports the fleet of Awacs spy plane.

In a vast hanger, alongside an Awacs plane, there were many stands showing military programs and equipment.

Parly attended the conference.

Dassault’s Perspective on the Way Ahead on European Defense Projects

09/06/2019

European industry needs much patience as key nations have yet to agree on requirements and budgets for a planned Future Combat Air System (FCAS) and a medium-altitude, long-endurance drone, Dassault Aviation CEO Eric Trappier said Sept 4.

France, Germany and Spain have yet to sign contracts for technology demonstrators for the the New Generation Fighter (NGF), a key element in FCAS which includes remote carrier drones and a command and control network.

“We are very impatient,” Trappier told a press conference on the company’s first half financial results. The partner nations need to agree on specifications and budgets for the FCAS, in which the industrial partners have agreed their respective roles, he added.

“We are ready,” he said. “We submitted our offer.”

There had been hopes for a contract to be announced at the Paris airshow, which ran June 17-23, with prospects slipping to September and the end of the year, he said. Engineers are keen to work on a prototype rather than proposals, and need to develop their skills.

A prototype is due to fly in 2026, so the program needs to be launched, he said. Trappier declined to give details of the budget.

France and Germany plan to invest an initial €4 billion (\$4.4 billion) in the new fighter jet by 2025, with €2.5 billion from Paris, Sky News reported June 17.

France is lead nation on the FCAS project, with Dassault prime contractor for the new fighter, which will replace the French Rafale, German Typhoon and Spanish F-18.

It was important for FCAS and a plan for a new Franco-German tank to be kept entirely separate, Trappier said, adding Dassault is working with Airbus on the former.

“We would really like the two subjects to be firmly kept apart,” he said.

Trappier has previously expressed concern over a potential spill over of a row over German industrial leadership on the tank project, dubbed Main Ground Combat System (MGCS).

“Progress is difficult,” he told May 22 parliamentarians of the defense committee of the lower house National Assembly.

Airbus and Dassault are working on the FCAS aeronautical project, while Rheinmetall is the new entrant in the tank deal, in which KMW and Nexter are partners, he said.

Rheinmetall objects to a proposed 25 percent share in the tank project, equal to the stake for Krauss-Maffei Wegmann, with the former seeking a greater role, financial website La Tribune reported May 15.

The French and German authorities proposed the 25/25 percent share for Rheinmetall and KMW for Germany, with Nexter holding 50 percent for France.

Trappier pointed up to parliamentarians “the slightly symmetrical nature of the FCAS project and the Main Ground Combat System in terms of organization,” adding “the difficulties of one could flow into the other as the same two procurement offices are involved.”

The French procurement office, Direction Générale de l’Armement, represents France in negotiations with Germany, where the parliament has a strong supervisory role.

Alongside the new tank, France and Germany are also pursuing planned new artillery, dubbed Common Indirect Fire System (CIFS).

Meanwhile, Airbus, Dassault and Leonardo, are also waiting for contracts on the proposed European MALE UAV. Those are the three key companies on the project backed by France, Germany, Italy and Spain.

Occar, the European procurement office, would manage that program if the four partner nations reach agreement on requirement and budget.

“You have to be resilient; you have to be patient on a large defense program,” even more so when there is cooperation with several countries and other companies, he said, adding that the MALE UAV project will apply for financial backing from the European Defense Fund. Trappier expressed confidence the project would win the contract.

Airbus is prime contractor on the European MALE UAV.

Germany is lead partner on the tank and European UAV cooperative projects, while France leads on FCAS. These projects are part of the pursuit of European defense as evoked by French president Emmanuel Macron.

In exports, Dassault will deliver the first of 36 Rafale to India this month, Trappier said. Now the elections are over in India, talks will resume for further sales of the fighter.

The Indian air force is keen to acquire a further 110 fighters, while the navy seeks 57, financial daily *Les Echos* reported July 22. Macron invited Indian Prime Minister Narendra Modi to dinner a day before the opening of the G7 summit, held Aug. 24-26 at Biarritz, southwest France.

Dassault continues to take part in fighter competitions held by Finland and Switzerland, Trappier said, adding that he was surprised it took so long for Airbus to pull out of the Canadian competition for 88 fighters.

Dassault dropped out of that tender last year, as the terms were seen as unreasonable, particularly security requirements set by the North American Aerospace Defense Command (NORAD), he said.

On the new generation fighter, Trappier called for Berlin and Paris to agree on terms for export controls as foreign sales would be needed to support the program.

Asked about Britain building its Tempest fighter and competing with the Franco-German combat jet, he said. "It is better to have two than nothing."

French officials see that industrial capability as underpinning a strategic autonomy and national sovereignty.

The 2010 Lancaster House defense treaty between France and the UK will weather the planned Brexit move, as cooperation will continue, he said. Britain's pulling out of cooperation on a technology demonstrator for an unmanned combat aerial vehicle (UCAV) may have been for a number of reasons, such as Brexit or budgetary constraint, he said.

France is expected to place an order for 10 Falcon jets, comprising three Falcon 8X, dubbed Arcangel, for electronic warfare, and seven Falcon 2000LS, dubbed Albatros, for maritime patrol. The former will replace an aging two-strong fleet of C-160 Gabriel.

Dassault reported adjusted net profit of €286 million in the first half, up 54 percent from a year ago. Net sales rose to €3.1 billion from €1.71 billion.

Orders rose to €2.9 billion from €2.8 billion, helped by a 10-year service contract with France on the Rafale, based on Dassault's acting as single prime contractor for maintenance of equipment, except for engines and ejector seats.

Adjusted operating income rose to €250 million from €111 million. The order book eased to €19.2 billion from €19.4 billion.

The cash holding slipped to €4.8 billion from €5.2 billion, with the company forecasting a further fall due to spending on export Rafales, development of two Falcon jet programs and new buildings as part of a modernization plan.

KMW has partnered with Nexter in a Franco-German joint venture, KNDS, which had been assigned as prime contractor for the new tank. Nexter is a French state-owned maker of land weapons, including the Leclerc tank and Caesar artillery.

Thinking Post-Brexit: Serco Looks to Expand Footprint in the French Market

08/04/2019

Paris – [Serco](#) is seeking to break into the French defense market with offers of support services to military commanders, part of the British company’s bid to triple sales in Continental Europe in the next four years, two directors said.

That drive to win French outsourcing deals follows a win in September of a Belgian 10-year contract worth €40 million (\$44.4 million) for facilities management of Heverlee and Meerdaal army bases, at Leuven near Brussels. There are 31 more bases, seen as scope for further contracts.

The concept of support service starts with awarding a contract for a company to maintain buildings, taking care of mundane tasks such as catering, supplying bed linen, and mowing the lawn, allowing commanders to release personnel for military duties.

“They can focus on soldiers being soldiers,” said Mark Varney, Serco defense business development director for Europe.

A pursuit of outsourcing deals comes as president Emmanuel Macron, leading a center-right administration, seeks to privatize state-owned companies and liberalize the market. That includes a plan to sell all or part of the government’s 50.6 percent stake in ADP, an airport operator. That prospective deal has sparked strong political protest and call for a referendum.

“France is one of the most un-privatized markets, along with Germany,” said Sash Tusa, analyst at with equity research firm Agency Partners. “The UK has outsourced more than any other country, except for the US, and that cuts the cost base.”

Varney is looking to pitch the offer of facilities management (FM) and other support services to French commanders and procurement officials.

Beyond managing military bases, Serco’s core offers are maintenance repairs for naval fleets and running training academies, he said. In the former, the company runs dockyards at Portsmouth, southern England, and Clydebank in Scotland. The company manages Australian, British and Qatari training academies.

Varney, who relies on introductions through the British embassy, attended a thoughtful presentation of paintings and sketches by Arabella Dorman, a war artist, at the ambassador’s official residence on July 9.

The British executive is also working through the UK department of international trade, as he seeks high level access to propose service support from the private sector.

That is a “mature approach” in the UK, US and Australia, he said. Belgium’s opting for an outsourcing deal could serve as a model for presentations in France. The company could tailor its support to the some 44 bases in France, including the Ecole Militaire, which houses the war college, and has stables and swimming pool to maintain, he said.

Serco competes with Babcock, a British rival, which won in 2016 a contract to support a French air force program, dubbed FOMEDEC, to train fighter pilots. Babcock supplied 17 PC-21 single-engine trainers and teamed up with Dassault Aviation on that landmark deal.

“Flying training is not about the platform, but the complete training system,” Tusa said. “Babcock and the French air force, to their credit, confirmed that.”

Serco’s plan to triple sales on the Continent is based on growth and acquisition, with an option of buying a small or medium company to boost local contact with defense ministries, said Gaetan Desclée, managing director for Europe.

“Do we need to make an acquisition?” he said. “With our knowledge, practices, resource, we can help them develop much faster and access to bigger market. We act as a global company and we are convinced that we need to have local roots in every country, developing our services.”

Serco sees itself as a global company, listed on the London stock exchange with international shareholders, while acting locally, he said.

The company has been on an acquisitive streak, having bought a US company specializing in naval systems and made an unsolicited offer for Babcock, which was rejected.

“They were trying it on,” Tusa said, referring to the Babcock bid.

That pursuit of acquisition may reflect the company’s efforts to counter a slowdown in the core British market, which accounted in 2018 for some 40 percent of Serco’s sales.

The defense sector accounts for €1.1 billion, some 30 percent of of annual sales.

The company strikes local partnerships with companies including Lockheed Martin, Airbus, Thales, Dassault, Engie, and Air Liquid to “customize solutions,” Desclée said. Serco teamed with Airbus in the space sector and works with Lockheed in the UK.

Space is seen as a growth prospect as Macron has said he wants the CNES French national space agency to work more closely with defense, he said.

Serco works with Sodexo, a French catering company, to provide meals in 16 British hospitals, Varney said.

Activities on the Continent generate more than €100 million in annual sales, and the aim is to rise above €300 million in less than four years, Desclée said. The Belgian contract generates annual sales of some €4 million and the company seeks to lift annual sales in that country to €12 million.

“I would be very happy if I got half of that in France,” said Varney, adding that he hoped to secure a “decent sized portfolio” of two or three contracts generating estimated annual sales of €2 million.

Asked about the impact of Brexit, Desclée said, “There is a bemused curiosity about what is going on in the UK.” The European unit of Serco “stands on its own” and is relatively autonomous. On the programs, there is a local manager, with the skills from Continental Europe, not the UK.

Serco announced May 23 acquisition of the naval systems business unit of Alion Science & Technology for \$225 million. The unit reported 2018 sales of \$336 million and orders worth some \$600 million. Serco’s business in North America generated sales of \$453 million.

That business unit specializes in design of ships and submarines, engineering, and support services for the US Army and Navy, and Canadian Navy.

Rupert Soames, a grandson of Winston Churchill, is chief executive of Serco. His brother is Nicholas Soames, a parliamentarian of the Conservative Party, which picked Boris Johnson as prime minister.

Serco reported July 31 reported first-half operating profit fell to £17.2 million from £31.9 million. That fall in operating profit stemmed from a charge for exceptional items, which included £22.9 million tied to the UK Serious Fraud Office (SFO) closing an inquiry, the company said.

Serco had accepted a £19.2 million fine for three charges of fraud and two of false accounting when the company had provided electronic tagging to the UK Ministry of Justice between 2010 and 2013, Reuters reported. That fine was halved as the company had reported the offences and cooperated with the inquiry. An agreement had been reached with the SFO.

First-half underlying trade profit rose to £50.2 million from £37.6 million a year ago.

Serco’s flagship FM deal in the UK is to maintain Fylingdales, the RAF base plugged into the US ballistic missile early warning system. That contract dates back to 1964.

The company also services aircraft in the UK, including BAE 146 jets, which fly the royal family, prime minister and senior officials.

An Airbus Update: First Half of 2019 Financial Results

08/01/2019

Paris, France

Germany’s suspension of arms exports to Saudi Arabia led to a continued financial hit for Airbus, which reported July 31 a charge of €208 million (\$232 million) in first-half results.

That charge comprised a charge of €18 million in the second quarter after a charge of €190 million in the first quarter, the European aircraft builder said in financial results.

Berlin earlier this year extended to September its six-month ban on weapons exports to Riyadh, to protest against the slaying of Saudi journalist Jamal Khashoggi.

London and Paris have criticized that German sanction, as the Berlin ban has held up delivery of British and French weapons which rely on German parts.

Meanwhile, the Airbus Defence and Space (ADS) division said Julian Whitehead would take up the post of executive vice president for global business and strategic programs on Oct. 1. Whitehead is executive VP for finance and sits on the executive committee at the division.

That appointment was significant in view of the work on the Future Combat Air System and a European medium-altitude, long-endurance drone, Dirk Hoke, Airbus DS chief executive, said in a statement.

The first-half charge of €208 million on the German arms freeze was what Airbus dubbed an “adjustment” and led to an adjusted operating profit of €2.5 billion, up 118 percent from a year ago.

Other charges included €138 million for closing down production of the A380 super jumbo and €90 million of other costs, including compliance. The latter covers an internal inquiry into the use of middlemen for aircraft and other sales, Reuters reported.

Airbus Defence and Space reported a 25 percent fall in adjusted operating profit to €233 million from €309 million, reflecting investment in sales campaigns. Sales of the division rose eight percent to €5 billion, boosted by military aircraft.

That compares to total Airbus revenue of €30.9 billion, up 24 percent, helped by airliner sales.

ADS won a 33 percent rise in orders worth €4.2 billion compared to €3.2 billion, including a contract signed with the OCCAR procurement agency for service of the A400M airlifter in global support step 2, and a next-generation communications satellite on the Ka-band.

Orders for the helicopter division included Spanish procurement of 23 NH90 military transport helicopters. That deal led to net orders of 123 units, down from 143 a year ago.

The helicopter division reported adjusted operating profit of €125 million, down seven percent, on sales of €2.4 billion, down one percent.

On the A400M military airlifter, Airbus signed in the second quarter a contract amendment with OCCAR, a deal which took two years of negotiations. Airbus last year booked a further €436 million of charge, following a total of €7.2 billion of previous charges on the A400M.

The A400M contract agreement, dubbed global rebaselining, set new terms for a development plan for capabilities, new production delivery schedule, new timetable for retrofit and new financial terms.

In the financial terms, Airbus and OCCAR agreed “significant compensation in products and services” in exchange for dropping penalties for late delivery, the company said June 14.

In comparison, Boeing reported July 24 a loss of \$2.9 billion in the second quarter, compared to profit of \$2.2 billion a year ago. That loss was due to a grounding of the 737 Max airliner after two deadly crashes.

That quarterly loss followed a charge of \$4.9 billion due to slower production of the troubled passenger jet, delayed delivery and related costs.

The French Minister of Defense Lays Out the Way Ahead for French Military Space Policy

07/26/2019

Paris – Armed forces minister Florence Parly set out July 25 a strategy for boosting military capability in space, backed by a funding boost of €700 million (\$780 million) and plans to field lasers to disable space-borne threats to French satellites.

Parly also said a space command will be stood up on Sept. 1 and placed under the orders of the air force, which will become the air and space force.

“Yes, we will develop powerful lasers,” she said in a keynote speech at Lyon airbase, central France. France may have lagged behind other nations but fully intended to catch up in this area, with the launch of an arms program dubbed “mastery of space,” she added.

“ I hope we can as soon as possible equip our valuable satellites and spy nano-satellites to keep at a distance and, if necessary, blind those which have a tendency to come too close,” she said.

This was an ambitious plan, but France would have the first capabilities in the present military budget law, with a full capacity by 2030, she said.

An extra €700 million will be earmarked for acquiring space capabilities, on top of the €3.6 billion set aside in the present military budget law, she said, adding that the spending increase for space will come from the overall budget, which remains unchanged.

That bid to increase and arm space assets means spending cuts in other programs, which will call for talks with the armed forces and procurement officials.

To underline the perceived need to bolster military space, Parly said the Russian satellite Luch Olymp had approached eight satellites of various nations since she revealed a year ago the space craft had closed in to listen to Athena-Fidus, a Franco-Italian spacecraft used for military communications.

There are already means — which are being developed — to “neutralize” or destroy satellites, she said.

“We know it; the shadow of threat is real,” she said.

The space command will be initially staffed by 220 personnel and be based in Toulouse, southern France.

The operations center will be backed up by a space lab which will have close ties to the DGA procurement office and CNES civil space agency. There will also a space academy to train staff.

France will revise the law to allow military space operations, Parly said, such as the US and Finland have already done.

Alongside work on space weapons for an “active defense.” France will increase surveillance capabilities, she said. Parly made a call to Berlin to cooperate with Paris in a European drive, along with Rome.

“I particularly count on [Germany](#) to make up the beating heart of space surveillance,” she said.

France has the rare capability to detect and track satellites with its Graves and Satam radars, along with telescopes operated by CNRS and Ariane group, she said. There are plans to refine those, with the successor to the ground-based Graves system expected to detect satellites as small as a shoe box at a distance of 1,500 km.

CNRS is a research institute, while Ariane is an Airbus-Safran joint venture which builds the Ariane commercial space rocket.

Research agency Onera is working on increasing the power of Graves, a ground-based radar.

France will support CNRS’s plan to increase its Tarot telescope and Ariane’s Geotracker system, she said, adding that the ministry will ask for Airbus to provide greater earth observation.

Tarot consists of two robotic observatories, while Airbus has tracked satellites for the French joint space command on its Geotracker optical system since autumn 2017.

The ministry asked in September that cameras be fitted for self-defense on the Syracuse military telecommunications satellite, and that capability is being fitted, she said.

Thales Alenia Space and Airbus Defence and Space are building two Syracuse 4 satellites, and a third is to be added to the constellation.

France expects to have nano-satellites — small satellites between one and 10 kg — in 2023, which will be « patrol » craft providing eyes in space, she said. Thales plans to build a private constellation for earth observation, which France is following with close interest.

There are also studies on a very long-range radar, which would be useful due to the growing missile threat, she said.

Besides prime contractors, the authorities are counting on companies such as Hemeria, Sodern, Cilas and others, in the drive for a stronger military space, she said.

“We are counting on you,” she said.

President Emmanuel Macron said July 13 the French air force would set up in September a space command, seen as needed to ensure “national security.”

“We will increase our knowledge of the situation in space, we will better protect our satellites, including in the active sense,” Macron told senior officers, industry chiefs and personnel at the traditional garden party on the eve of the Bastille Day parade. Parliamentarians Olivier Becht and Stéphane Trompille delivered in January a report to Parly, laying out the key issues for a space force.

There are more than 15 nations capable of space launch, with over 65 countries using satellites, the legislators said in a July 24 statement. There are some 1,500 satellites — with half of those American — and the total number is expected to rise above 8,000 by the end of the next decade, they said.

National and European sovereignty were at stake, with steps needed to be taken to protect civil and military satellites as these allowed France to see, avoid, respond and “neutralize” threats, they said. Transport, communications and banking could be at risk from attacks on French satellites.

Such threats made it “indispensable” for France to have a military space strategy and the funds needed to make it credible, they said.

To address those concerns, the parliamentary report called for boosting space surveillance both by satellites and ground-based equipment, including new radars for the Grave and Satam systems, telescopes, and a second Cosmos base to track space assets.

The aim is to know what objects are in space, their location, owner, trajectory and purpose. Space surveillance calls for French satellites to carry sensors which sound the alarm another spacecraft closes in, “satellite watch dogs” namely small satellites keeping watch on French space assets.

France should acquire means to disable space threats, said the parliamentary report, which recommended “non-kinetic” means rather than anti-satellite missiles. The latter would scatter hundreds of thousands of space debris, which would add to the risk to other satellites and lead to “collateral damage.”

There may one day be “high intensity” war in space, with French satellites being knocked out temporarily or permanently.

That risk called for the means to pursue missions despite a disabled satellite, the parliamentarians said. There are already cases of a foreign satellite approaching in an attempt to eavesdrop on a French spacecraft.

The scale of the task and financial need call on France to work with European allies rather than compete.

The report cites the “sterile competition” between Berlin and Paris on radar and optical surveillance satellites.

“France cannot exist in space without Europe,” the authors said.

Looking further ahead, the report sees the prospect of mining on distant planets, with greater interest in otherworld resources as natural resources dwindle on earth and the cost of launch fall.

“The interest in space-based resources will grow,” the parliamentarians said.

Access to resources on earth and in space are economic interests which should be protected by military means, they said.

The Coming of the Barracuda Attack Submarine to the French Navy

07/19/2019

Paris – There will be much national pride and honor when French industry hands over July 12 to the Navy the first nuclear-powered Barracuda attack submarine, a new-generation boat three years late and generating an initial loss in the contract worth €9.1 billion (\$10.2 billion) for six units.

President Emmanuel Macron and armed forces minister Florence Parly are due to go to Cherbourg, northern France, for the formal hand over, pointing up the political significance of the Barracuda program.

The first Barracuda boat will be christened Suffren, named after Pierre André de Suffren, an admiral who fought the British on the high seas in the 18th century and highly regarded by the French Navy.

A delay of delivery was to be expected in view of program complexity and the time needed to train a labor force to build a nuclear submarine, an executive said.

“This is one of most complex programs in the world,” Vincent Martinot Lagarde, Naval Group program director, told a July 9 press conference. There was a concurrent development and building of the first boat of the Barracuda series, which meant this was a “difficult” project, which took time to master.

“What’s important is delivering a high quality system which meets the requirements of operational capability,” he said. Time was also needed as the nuclear ballistic missile submarine Terrible was built 11 years ago and the personnel needed time to learn how to build an atomic boat.

Naval Group is prime contractor, with CEA overseeing work on the nuclear reactor, a revised version of the K15 engine which powers the nuclear ballistic missile boat and Charles de Gaulle aircraft carrier. TechnicAtome built the nuclear propulsion reactor.

France launched the Barracuda program in 2006 with a contract worth €9.1 billion for six boats, said Emmanuelle TR, program director at Direction Générale de l'Armement, the procurement office. That budget included development, manufacture and spares, while excluding modification of the ports, mainly at Brest and Toulon.

This is an "ambitious and challenging" program, she said. An order for the sixth and last attack submarine is due later this year, as set out in the military budget law.

Sea trials are due to begin in the first quarter next year.

The armed forces ministry last year ordered a fifth Barracuda and set aside €2.3 billion for the boat, the financial annex of the 2018 defense budget shows. The ministry spent some €612 million on the submarine program last year, the budget annex shows.

The late delivery leads to penalty payments under the contract, so industry will make a loss on the first boat, a senior executive said. Lessons learnt on building the first of series, which is also a prototype, helps industry speed up production on the following submarines, allowing a recovery of profit. Industry can also ask for refund on penalty payments and there is money to be made on the service contract.

Delivery in 1997 of the first Triomphant ballistic missile boat was some two to 2-1/2 years late, the executive said.

The Barracuda carries new capabilities including long range strike with a cruise missile, wire-guided F21 heavy torpedo, Exocet SM39 anti-ship missile, and a mini submarine for special forces. The latter is housed in a dry deck shelter fitted on the hull. The submarine can also lay mines.

The boat is equipped with an electro-optical periscope which projects pictures on a digital screen, replacing conventional technology. France considered a periscope from Pilkington, based in Glasgow, Scotland, before selecting Safran as supplier, the senior executive said.

Pilkington is a British unit of the French Thales group.

The 2018 military budget shows 50 naval cruise missiles are to be ordered.

There is a quieter and faster submarine, drawing on a mix of electric and turbine engines, with greater automation, said Naval Group.

Increased automation allows a Barracuda to be crewed by 65 compared to 75 on the present Rubis class. The new boat can sail for 70 days at sea compared to 45 days on Rubis.

A Barracuda can carry a 10-15 strong special forces unit.

There is a national sovereignty issue on the new submarine, a defense analyst said. There are only three Nato nations with a nuclear attack submarine, namely Britain, France and the US.

Ownership of that capability keeps France in the “club of decision makers,” the analyst said. France deployed its Amethyst nuclear attack submarine in the Adriatic in 1999, under the Nato mission in Kosovo.

The attack boat operates as escort for the Charles de Gaulle carrier naval task force, offers a capability for special forces, intelligence gathering, and works with the ballistic missile boats. Work on the stealth qualities of Barracuda hull plates can help development of the next-generation ballistic missile submarines.

The Barracuda can also be seen as part of broad acquisition policy, including an accelerated order of A330 MRTT inflight refueling jets, Rafale F4 upgrade and the Army’s Scorpion modernization. These orders signal a pursuit of French independence of capability.

Work on the Barracuda helped France win the A\$50 billion Australian contract for 12 ocean-going, diesel-electric boats, which strengthens bilateral ties, the analyst said.

The late delivery reflects the complexity of the program, said parliamentarian François Cornut-Gentille, who sits on the finance committee of the National Assembly.

“It is the program itself,” he said. The French Navy, DGA and industry were caught up in complexity which arises from the concept of the program.

France launched the program with an order in December 2006 for the first Barracuda boat, followed by an orders in June 2009 for the second, June 2011 for the third, and July 2014 for the fourth. A sixth order remains to be placed.

The first Barracuda boat would enter service in 2020 instead of 2017, the Navy chief of staff told July 26, 2017 the defense committee of the lower house National Assembly.

“This is not a scooter but a system hard to build, and mistakes were made, which have to be identified, fixed and caught up on,” Adm. Christophe Prazuck said. The Navy has been training its first crew on simulators, awaiting delivery of the first boat.

That delay in delivery has forced the Navy to stretch out the operational life of the Rubis class of submarines, to ensure a six-strong fleet of submarines, he said.

That fleet size met the Navy’s operational requirement, he said, as one will be undergoing a major overhaul over 1-1/2 to two years, a second will be in dock for routine service, a third will used for training, a fourth deployed in the Atlantic, a fifth in the Mediterranean, and the sixth will sailing in the Atlantic, or Mediterranean, or Indian Ocean, he said. The British Royal Navy sails seven attack submarines, he added.

In the UK, the Astute hunter-killer submarine was £2 billion over budget and four years late.

There will be a heavy budgetary impact after 2020, with the delivery of the Barracuda, a 2018 report of the parliamentary finance committee said. There has already been an operational hit due to delayed delivery of the Barracuda, the report said. The Navy retired the first of the Rubis class boats in January 2017, leaving only five submarines in service.

Due to the greater length and weight of the Barracuda compared to Rubis, the submarine docks in the Toulon naval base, southern France, as well those at Brest and Cherbourg, will need to be adapted, the parliamentary committee report said. Some €524.3 million was earmarked last year for adapting the docks, with €170.5 million disbursed.

Funds will be needed for dismantling the retired Rubis, with €2.8 million cleared last year, the report said. NG and Areva TA are breaking up the Rubis at Cherbourg.

Putting FCAS Into a Broader European Political Context: The EU, Brexit and Shaping a Way Ahead

06/20/2019

Paris – French and German defense ministers attended an unveiling of a mock-up of a new fighter jet at the Paris air show, even as the two countries compete to fill top jobs in the European Union, and the UK Conservative party limps toward selecting a new prime minister to steer an exit from the EU.

French president Emmanuel Macron and German chancellor Angela Merkel are attending June 20 an EU summit of the European Council in Brussels, seeking to agree on a series of key appointments in leading EU institutions.

Previously, France and Germany agreed to support the same candidates, but Macron and Merkel are jostling to field their respective candidates.

There is much to play for, as these senior posts will steer future EU policy, which includes European defense.

This will be the last EU summit for Theresa May, who is stepping down as British prime minister and handing over the task of negotiating Brexit to her successor.

The political appointment is widely expected to be Boris Johnson, who has garnered the most votes in a secret ballot by Conservative party legislators. Paid-up members of the Conservative party, estimated at 160,000, will then get to vote on the two candidates.

That raises the prospect of Johnson moving into 10 Downing Street as the next prime minister, and becoming the political decider on issues such as whether to cooperate with European military projects pursued across the English Channel.

Johnson has campaigned as a fervent supporter of Brexit, insisting on leaving the EU on Oct. 31, whether there is a negotiated deal or not.

Then again, Johnson has also, in a televised debate with Conservative party contenders, fudged on whether he would indeed observe that deadline for departure.

Johnson might one day be asked to consider whether London will bring the British Tempest future fighter jet project closer to the future combat air system (FCAS), in which Berlin, Paris and Madrid have signed up to build a new European fighter.

The competition between France and Germany to appoint senior EU officials includes presidents of the European Commission, the executive arm; European Council, the political forum; European Central Bank; and European parliament.

There are also top jobs to be filled at the EU foreign policy unit and the EU's recommendation for the next NATO secretary general.

The EU is gearing up to take an active role in defense and security, with the creation of the European Defense Fund, intended as a means to channel investment into research and development of military technology.

The European Parliament will have a word to say as the European members of parliament, fresh from elections last month across the 28 member states, have to the right to endorse the selection of the European Commission president. That endorsement grants political power to the EP, in a bid to respond to criticism of a "democracy deficit."

British voters took part in the European parliamentary elections last month, and the UK is due to leave on the date which coincides with Halloween.

MBDA and FCAS: Building Weapons for the “Combat Cloud”

06/19/2019

Paris Air Show 2019

MBDA, a missile builder, displayed at the Paris air show life-size models of concepts for cruise missiles and tactical smart weapons as options for the Future Combat Air System, a European plan for a new fighter jet and other weapons.

A Spear missile was also on show at the MBDA exhibition chalet, signaling the European company's targeting sales to operators of the [F-35 fighter](#).

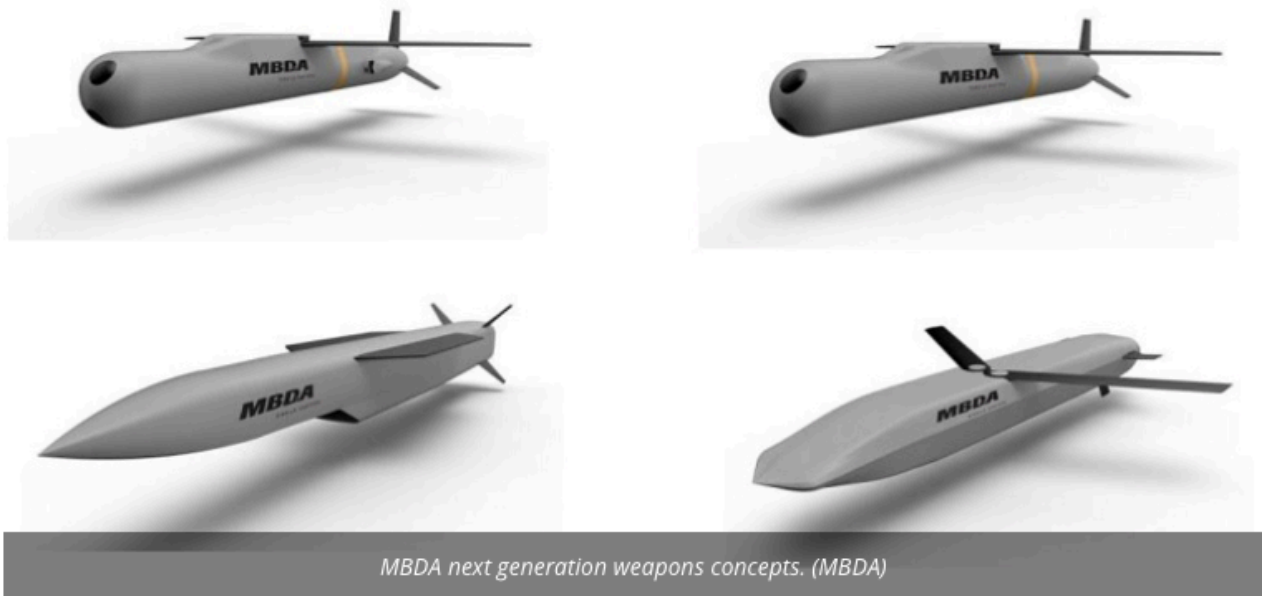
The UK's development contract for the air-to-ground weapon opened up a global market on the joint strike fighter and prospects on the British [Tempest](#) new air combat systems project.

These displays give a glimpse of weapons which might be used to outsmart the [anti-access, area denial systems](#) deployed by enemy forces.

For allies planning a deep strike mission, there are mockups of concepts for subsonic and supersonic cruise missiles, potential replacements to the Storm Shadow/Scalp British and French weapons.

The former would weigh around one ton, fly more than 1,000 km to hit hard targets such as concrete bunkers and command centers.

The latter would have speed of Mach 2 and more and offer agility in flight.



For tactical strike, there are models of Smart Glider and a powered version, Smart Cruiser.

The former would not have an engine and would be guided by a targeting system of infrared, laser and GPS. The latter would have a motor and range of some 200 km.

Both these would be part of the FCAS combat cloud, connected to fighter pilots and ground control, loaded with artificial intelligence for a target designator, with their use set by rules of engagement.

These weapons could be used as a “swarm” to saturate air defense systems such as the S300 or S400 missile.

The destructive power of warheads could be scaled up or down according to operational need, with the weapons small enough to fit six units on a contact point. That would allow up to 18 weapons on a Rafale, or four units in each of the internal weapons bay on the FCAS fighter.

MBDA invested company funds on studies for the Smart Glider, and a couple of countries are interested in ordering the weapon, an executive said.

There are also two types of small drones weighing 150 kg and 250 kg, dubbed remote carriers. These are derived from Smart Glider and designed to carry sensors and “effectors” such as electronic warfare payloads to confuse or hit an integrated air defense system.

Such a powered, low-cost drone might emulate a Rafale, tricking the defense system and act as decoy. Speeds of Mach 0.75 to 0.9 on a small turbojet are envisaged.

Another type of concept weapon consists of a small anti-missile missile, a last chance “ultimate defense” a pilot would fire against an approaching missile.

This could be a “hard kill” weapon working on kinetic strike and would be a complement to self-defense tools such as chaff, flares and electronic jamming.

There could be at least four of these weapons, each weighing less than 10 kg and less than one meter long. MBDA is pitching the concept to Airbus and Dassault Aviation for the FCAS fighter.

The [Meteor missile](#) is also on show, and the reach of this long-range weapon could be extended. There are studies for an upgrade with a multimode seeker for future models.

MBDA signed up as a partner on the FCAS joint concept study led by Airbus and Dassault.

France Arms Its Reapers

06/18/2019

Paris – France is due in November to arm its Reaper medium-altitude, long-endurance drone with the GBU-12 smart bomb, with the Hellfire missile to be fitted next year, a defense source said.

The French Air Force arms the Mirage 2000 fighter jet with the GBU-12, said the source, adding, “The next step is the Hellfire at the end of 2020.”

The GBU-12 is a laser-guided bomb.

A delivery of six armed Reaper UAVs to the Air Force is in the 2019-2025 military budget law, allowing France to follow the British and US in flying weapons on the Reaper fleets.

“The GBU-12 capability will be available from the end of 2019,” said a spokesman for the Direction Générale de l’Armement (DGA) procurement office. The capacity for the Hellfire will be available at the end of 2020, he added.

The third batch of Reapers is due to be delivered this year, with the fourth and final set to be shipped next year, he said.

France ordered in December 2016 the fourth batch of Reapers for delivery in 2019. That system, which will be shipped a year later, will be delivered in the Block 5 version, as will the third batch.

The first two batches of the UAV will be upgraded from Block 1.

Each batch comprises three units.

Adding weapons will roughly halve the Reaper’s flight time to some 10 hours, as the bombs or missiles increase the drag effect on the drone, the source said.

That shorter flight time boosts the importance of preparing, or “shaping,” the strike mission when flying a critical reconnaissance mission, the day before.

The French forces expect to fly at least 10 Reapers next year, and there is much thought on where to deploy the drones.

The Air Force has been flying the Reaper from an airbase in Niamey, the capital of Niger, to support French and allied troops in the Barkhane military mission across the sub-Saharan Sahel region.

Potential deployments include Djibouti, Iraq and Syria.

One of the factors in deciding that dispatch is “co-deployment” with the US, with shared logistics, training and equipment in the “US Reaper footprint,” the source said.

That would maintain close ties forged in operations in Niger.

There are French special forces alongside British and US units fighting Islamic State (ISIS) insurgents threatening Kurdish communities in northeast Syria.

US Reapers are based in that region, with the consent of Syrian president Bashar al-Assad, so a despatch of French Reapers could draw on mutual support.

The French forces continue to rely on General Atomics, the manufacturer of Reaper, for take-off and landing the UAV in Niger.

There are only four or five French pilots “on the ground” to fly the Reaper, so there are too few to send to the US for the two or three months needed to train for take-off and landing.

In the Barkhane operation, France is allied with the G5 Sahel group comprising Mauritania, Niger, Mali, Burkina Faso and Chad.

That military alliance seeks to fight against fundamentalist jihadist forces.

France is also active in the Middle East Levant, spanning Iraq and Syria.

The Evolving Dynamic Missile Threat: A European Response

06/17/2019

Paris – Western allies face the threat of a wide range of Chinese and Russian ballistic missiles and cruise weapons, while North Korea and Iran look to their missile capability to back up claims to regional power.

The nature of the development of Chinese and Russian missile capacity is seen by some in European industry as threatening Western parity, by shifting the geostrategic and operational balance.

Ballistic missiles tipped with conventional warheads and designed to fly in an evasive terminal flight can be used as political and strategic tools as a factor affecting crisis management even without being fired.

Besides missiles to hit targets on land and at sea, Moscow has invested heavily in anti-access area denial (A2AD) or defense in depth, designed to hinder Western combat aircraft looking to strike Russian targets.

There are some in Europe who consider that enemy air defenses should be considered as a key challenge to be dealt with when France announces at the Paris air show a project for a technology demonstrator for a Future Combat Air System, which includes a new fighter jet.

The Paris Air Show is due to open June 17.

The West redeployed its combat aircraft in Syria out of harm’s way when Russia sent its S400 surface-to-air missile to the Middle Eastern country. That was seen by some as a shift in the balance of power in Syria, with Russia winning the advantage point.

Moscow dispatched its advanced Triumph weapon system to Syria in response to Turkey, a NATO ally, downing in 2016 a Russian fighter jet.

China and Russia are both seeking to boost ballistic strike capabilities with development of faster missiles with greater range and maneuverability to overwhelm air defense systems and hit targets.

Those weapons can be launched from warships, submarines and fighter jets, intended to hit command centers and airbases.

A Chinese ballistic anti-ship missile, dubbed Dong Feng-21D could be fired against key naval targets such as aircraft carriers.

Russia is working to boost anti-access area denial (A2AD), with greater networks of detection and tracking to enlarge the geographical coverage of anti-missile defense.

Such a missile defense concept can be likened to the China Wall or Hadrian's Wall, built to protect the home territory from outside encroachment. Building up that Russian A2AD makes it harder to mount a surprise attack by stealthy enemy aircraft.

Meanwhile in Europe, France and Italy are upgrading the Aster 30, a land-based, surface-to-air missile, to the Block 1 NT version, to deliver a greater range of interception.

Other European air defense projects are understood to be planned.

On the strike side, Russian president Vladimir Putin said March last year that Russia was working on a nuclear-powered, hypersonic missile.

CNBC reported March 22 that Russia has been working on development of that weapon, dubbed Skyfall, since the early 2000s, drawing on a gasoline-powered motor for take-off and a nuclear-powered engine for flight.

But that missile will need work for another decade to be "combat ready," according to a US intelligence report, CNBC reported.

For countries seeking to secure regional power, ballistic missiles of short, medium and intermediate range are an affordable alternative to developing a jet fighter to counter Western air superiority.

One of the developments which has raised the threat is the shift to solid fuel from liquid propellant, as that makes it faster to prepare and launch the missile.

The short-range SS-26 missile uses solid fuel and is compatible with the intermediate-range nuclear force (INF) treaty.

Russia declared the 4-ton SS-26, dubbed Iskander, operational in 2007. That domestic version can fly 480 km, while the export model has a range of 280 km. Variants of the SS-26 arm China, Iran and Pakistan.

That missile is able to change course some 20-30 km from target to avoid interceptors, flying by its built-in guidance systems.

The SM3 has been deployed in Poland, with that US missile deemed to be capable of intercepting the SS-26 in certain parts of the country.

Meanwhile, French Air chief of staff Gen. Philippe Lavigne May 15 told the defense committee of the lower house National Assembly that France has “holes in its racquet” as its air defense system lacked capability against drones and other new threats.

The Nato program for an integrated Air Command and Control System (ACCS) is late, he said.

A plan, backed by France and its Air Force, has been drawn up to tackle the problems.

But those countries which opted for the F-35 joint strike fighter have not backed that plan, he added.

Nato has asked its Allied Command Transformation office to draw up options, so a decision on the ACCS program could be made by the middle of 2019.

ACCS is intended to link up into one network the various national command and control systems of some Nato members in Europe.

Fincantieri and Naval Group Move Forward on Cooperation: The Poseidon Project

06/17/2019

Paris – Fincantieri and Naval Group (NG) signed June 14 an agreement setting out cooperation on their Poseidon project, a joint venture aimed at boosting Italian and French collaboration in building and selling warships for navies at home and abroad.

“Following the announcement made on 23 October 2018, today Fincantieri and Naval Group signed in Rome the Alliance Cooperation Agreement, which sets out the operational terms for the incorporation of a 50/50 owned joint venture,” NG said in June 14 statement.

“There was good support from the ministers,” NG chief executive Guillou said.

“Perhaps there will be a share capital deal later,” he added.

The creation of a jointly owned subsidiary is a cooperative step but real consolidation in European defense industry requires change of ownership in the parent companies.

Previously, there had been a plan for a cross-shareholding of five to 10 percent between Fincantieri and NG, but the French authorities dropped that as concern rose over the anti-European sentiment of the Italian government, a fragile coalition between the far-right League and anti-establishment Five Star Movement.

The alliance agreement aims to share best practices between the partner companies, work on selected research and development (R&D), trim procurement costs, and make joint offers for French and Italian programs and export deals.

Submarines are excluded from the deal, which covers surface warships.

The joint venture is expected over the next 10 years to win orders worth up to €5 billion (\$ billion), build 10-15 warships and achieve synergies of 10-15 percent, Reuters reported.

Thales, which builds naval combat systems, holds a 35 percent stake in NG, with the French state owning most of the share capital.

There is need for “critical mass,” to be competitive, Guillou said June 14 at Paris Air Forum, a business conference organized by financial website La Tribune.

The French Navy depends on exports to generate a “supplementary” €400 million a year, he added.

“Without exports, the military budget law is beyond execution,” he said.

There is “complementarity” between Fincantieri and Naval Group in the world market, as the former is present in 15 countries, while the latter is in 10, with no overlap, he said.

That bilateral cooperation is essential in view of severe competition from China and Russia, and shipbuilders in Korea, Ukraine and India.

A European cooperative link is needed due to a greater burden of research and technology, and R&D, he said.

Twenty years ago, a warship would sail with two generations of technology, but the French intermediate frigate being built is expected to support six generations in its operational life. That required sharing the cost of R&T and R&D.

There will be six executives on the board of the joint venture, with three from each partner company. Fincantieri will name the chairman and chief operational officer for the first three-year term, with NG appointing CEO and chief financial officer.

Bono will be board chairman, and Guillou will also sit on the board.

The joint venture company will be legally set up by the end of the year, following authorization from the authorities, with headquarters in Genoa, northern Italy, and a subsidiary at Ollioules, just outside the Toulon naval base, southern France, the French shipbuilder said.

“The alliance represents a great opportunity for both groups and their ecosystems to enhance their ability to better serve the French and Italian navies, to capture new export contracts, to develop new technologies and, ultimately, to improve the competitiveness of the naval sectors of both countries,” NG said.

France and Italy “support the key initiatives set by Fincantieri and Naval Group which intend to swiftly put in place, notably setting up in 2019, a joint venture of equal parts, for which the aim is to reach commercial and industrial synergies,” the two governments said in an Oct. 23 statement.

The European Union’s antitrust arm is examining Fincantieri’s acquisition of 50 percent of Chantiers de l’Atlantique, a French shipbuilder. That company is a civil shipbuilder with the sole yard in France big enough to build a future aircraft carrier, so deemed to be of strategic importance.

Giuseppe Bono, chief executive of Fincantieri, and Guillou signed the alliance agreement on the Federico Martinengo, an Italian Fremm multimission frigate at La Spezia naval base.

The Fremm frigate was developed and built in a Franco-Italian program, with a lower level of joint procurement compared to the Horizon air defense frigate, also a project between the two countries.

Thales and the Future Combat Air System

06/14/2019

Paris – French electronics company Thales expects to bring greater network connection and speeded up responses as contributions to the Future Combat Air System, a project key to the concept of European defense backed by president Emmanuel Macron.

“Clearly the role that we intend to play, in whatever configuration ultimately the project has, is around ... the notions of augmented, connected, collaborative combat,” Alex Cresswell, executive vice president for land and air systems, told journalists June 12.

That concept of an integrated approach to combat was based on “all the things that enable the immense amount of data that these sensors and systems will collect to be able to be used to make smarter, faster decisions with regard to the application of military force and the organization of military capabilities,” he said.

It was too early to say exactly what Thales’s contribution will be to FCAS but the company has invested heavily in technology which aimed to “flatten command structures and make these assets more useful,” he said.

“So we expect to play a role, and with the level of definition of the project either in France or Germany, or in France and Germany.”

The company has invested heavily as the concept of augmented, connected, collaborative combat is seen as important.

Thales will be displaying at the Paris air show systems which seek to deliver increased smarts and speed, including an upgraded Talios airborne target designation pod and Ground Force 300 land-based radar.

Macron is due to visit the air show June 17, the first day of the showcase for global aerospace, and the head of state is expected to make announcements on a technology demonstrator for a next-generation fighter jet, and research and technology for a new engine, critical parts of the FCAS project backed by France and Germany, with Paris as the leader. Spain is joining that partnership.

Airbus and Dassault Aviation are working on the joint study contract for FCAS, with the former as systems architect while the latter focuses on the new fighter.

Negotiations on who-does-what in the FCAS project have been tough, and announcement of industrial contracts might be made at the end of summer, financial website La Tribune reported June 12.

Dassault, meanwhile, will put on display at the air show concepts for the demonstrator.

“The 2019 Paris air show will highlight how we are preparing for the future: extending the Falcon family (6X), reinforcing our support services, presenting what could be a demonstrator for the next generation fighter (NGF) under the future combat air system (FCAS) and the agreements between Dassault Aviation and Airbus,” Dassault CEO Eric Trappier said in a June 4 statement.

Airbus has the capabilities to take up the role of systems architect, an Airbus spokesman said.

Those skills are to be found in its defense and space unit, which works on military aircraft including A400M, A330 MRTT and Eurofighter Typhoon; drone technology; space including Syracuse and Skynet military satellites; and communications, intelligence and security, which works on C4ISR and systems of systems.

Some 2,000 staff at the Elancourt office, just outside Paris, work on cybersecurity, artificial intelligence and studies on the combat cloud. Airbus completed a flight demonstration of a “connected airborne battlespace scenario, centred on (an) MRTT aircraft,” the company said June 13. The test was part of the development of Airbus’ network for the sky (NFTS) program.

That flight demonstration simulated wideband communication links between ground forces, fighter jet, a multirole transport /transport aircraft, and a combined air operations center on the ground, the company said.

“This unique demonstration is a significant milestone in realizing our vision of secure connectivity, which will enable the future air combat cloud and enhance real time execution of military missions,” said Evert Dudok, head of communications, intelligence & security at Airbus Defence and Space.

Airbus, partnered with Naval Group and Rohde & Schwarz, won last year a contract to update the French Navy’s Rifan 2 broadband communications network to a 2.1 level.

Last year, Airbus, partnered with Atos, won a six-year deal to provide cybersecurity for 17 European Union institutions and agencies.

Meanwhile, Thales will showcase combat systems which draw on technology deemed to be essential to FCAS.

An upgraded Talios pod will equip the planned Rafale F4 fighter with a capability dubbed neural process imagery.

That capacity will allow the pod to process the imagery picked up in flight and deliver target detection to the pilot in real time, while in flight.

The present Talios system collects and stores high resolution visual data in the pod while in flight.

After the pilot lands and data is transferred, image analysts’ pore over the pictures.

The new pod aims to speed up operations, with the equipment seen as replacing seven or eight image analysts working for a week to find a target for a strike.

Thales will also display GF300, a land radar based on Sea Fire 500, a digital sensor developed for the intermediate frigate for the French Navy.

The DGA, which funded development of GF300, is in talks with Thales for a selection of a new radar to equip the next-generation SAMP/T, an update for a Franco-Italian air defense system with the Aster missile.

GF300 is pitched as having longer range than the present Arabel system and offered at a similar price as the latter, with greater reliability.

A decision on the radar is due by the end of the year, Thales said.

Reworking the Franco-German Arms Export Policies: A Crucial Challenge Facing FCAS

04/19/2019

Paris, France

France and Germany need to update a 1972 joint agreement on arms exports, a bilateral pact which has economic bearing on a planned European fighter jet, the future combat air system or FCAS.

Eric Trappier, chairman of GIFAS, highlighted the challenge at the GIFAS press conference held on April 18, 2019.

The French and German clearance for the foreign sale of weapons should be “harmonized,” he said at a news conference on the 2018 results of GIFAS.

“French companies are calling for a revision of the Debré-Schmidt treaty,” he said.

That update would address the export outlook of the fighter jet in the Future Combat Aerial System, an ambitious Franco-German project.

That bilateral treaty refers to an agreement signed in 1972 by the then French defense minister Michel Debré and his German counterpart Helmut Schmidt, adopting a cooperative approach to selling arms abroad.

Despite that accord, French concerns have risen in recent years over a reluctance in Berlin to clear the sale of German equipment for French weapons, holding up exports for France.

The “German problem” on exports stems from differences between the coalition partners, Trappier said.

Britain and France are relying on German clearances for equipment, he added.

In France, there is broad political consensus on backing arms exports, with defense ministers and presidents promoting French weapons when abroad.

“At a certain time, at the start of development, the issue of exports arises,” Trappier said.

“There is an economic reality.”

The “internal” European market is not big enough for European companies to recover investment, unlike the U.S. market, which is large enough for American firms working on the F-35 fighter to make money, he said.

“There need to be rules of the game if we are to cooperate,” he said.

The rules will cover operational requirements, which will include some specific capabilities, and also exports.

France bans all foreign arms sales, so companies must apply for government clearance from an inter-ministerial committee, dubbed Commission Interministérielle pour l'Etude des Exportations de Matériels de Guerre (CIEEMG).

"It's complicated," he said.

But despite the need, it was unlikely France and Germany will come to a common export agreement in the near future, according to Thomas Gassilloud, deputy of the La République En Marche (LREM), a center right party launched by French president Emmanuel Macron.

Perhaps the two countries could form a "common consultative governance body," Gassilloud argued in a Feb. 2 interview with La Tribune, a business website.

That organization would deliver advice on whether or not to approve French and German arms sales.

France takes into account the German "interest and opinion" on exports and the planned Franco-German tank, dubbed Main Ground Combat System, he said.

On the prospects for Britain later joining the FCAS project, Trappier said, "It is a question of timing."

Britain is tied up in talks on Brexit, on whether or not to leave the European Union, whether on hard or soft Brexit terms, during or after summer, he said.

Whether the UK leaves the EU, the country has its role in European defense.

British companies are members of AeroSpace and Defence Industries (ASD), he said.

ASD is a European trade association in Brussels, lobbying on behalf of aeronautics, space, defense and security companies.

Those British companies are considered European, he said.

"We have told those firms: even if Britain leaves the EU, you will still be considered European," he said.

"The hand of French and European companies absolutely will be held out to you."

It is up to the British and French governments to pursue the 2010 Lancaster House defense cooperation treaty.

"It is the responsibility of France and Great Britain to continue to cooperate" he said.

Britain has announced its project for Tempest, a potential British rival to the Franco-German fighter in the FCAS project.

Dassault will be prime contractor for the new European combat aircraft.

France plans to announce contracts for a fighter technology demonstrator at the Paris airshow, which opens June 17.

Airbus and Dassault are equal partners on a study on concept and architecture of the demonstrator.

Thales, an electronics company, will have a key role in the demonstrator project, French defense minister Florence Parly has added as well.

“I have plans to sign contracts between now and the middle of summer on this demonstrator: in this system of systems, Thales, thanks to its capabilities as an integrator, will play a full role in building the dialogue between the objects connected in this system of collaborative combat,” she said April 15.

Parly was visiting a Thales radar factory at Limours, just outside the capital.

Gifas reported a 1.2 percent rise in 2018 sales to €65.4 billion (\$ billion), of which 23 percent was in defense. That compares to sales of €64.2 billion in the previous year.

Exports accounted for 85 percent of sales.

Orders fell 17 percent to €58.2 billion, of which military accounted for 28 percent.

Gifas booked orders worth €68.2 billion in the previous year.

Some 4,000 jobs were created last year, with 15,000 new posts expected this year.

French Naval Group and the Australians: Working the Cultural Challenges

04/17/2019

Paris

Naval Group (NG) is implementing a change in employee communications and behavior, in a bid to smooth out cultural differences between French and Australian staff working on a US \$34 billion (A \$50 billion) program to build submarines for the Australian Navy, senior executives said.

That drive to improve “intercultural” relations stems from Australians’ difficulties in understanding the French way of work soon after NG won a three-way competition in 2016 to build 12 ocean-going boats, dubbed the Attack submarine class.

These undersea vessels for Australia's Sea 1000 Future Submarine Project will be a diesel-electric adaptation of the Barracuda, a nuclear-powered submarine NG is building for the French Navy.

The French company has sold Scorpene submarines and Gowind corvettes around the world, with a transfer of technology to allow local assembly. Among these, Brazil and India are building their Scorpene boats, while Egypt has assembled its first of four Gowind warships.

But this is the first time the company has been asked to rethink its cultural approach, as Australian-French teams were formed and problems of communications unfolded.

Reshaping a Work Culture

The aim is to develop a common working culture built from Australia and France, allowing these submarines to be built on time and on budget.

"Not everyone thinks like the French," said Jean-Michel Billig, NG program director for the Attack submarine.

"We have to make a necessary effort to understand that an Australian does not think like a French person, and that it's not better or worse, it's just Australian."

There is a need to organize the Attack program accordingly, he said. That includes translating French not just into English but Australian English.

There is need to go beyond that, "to speak a common language in cultural terms," he added.

The importance of Australia as a distinct and important region can be seen by The Guardian, a British daily, publishing UK, US, International and Australia editions of its news website.

"Based on discussions, there is a willingness to know the qualities and faults of each other, not to use them but to converge, to find common points so we can work together, so we can deliver," said Yvan Goalou, NG institutional relationship manager.

"There is search for openness and sharing."

There is need for listening and humility, he said. Goalou is a former French Navy commander of both the nuclear-missile and nuclear-powered attack submarine.

Australian Barbecue as Cultural Signifier

An example of Australian culture is the barbecue, an important part of fostering good work relations, Billig said.

There is a reciprocal need for Australians to understand the French sanctity of the lunch break, not just a sandwich snatched at the screen.

Another bid by NG to boost its openness to “Anglo-Saxon culture” is publishing its inhouse magazine in French and English, seen internally as a radical move.

Big companies such as Airbus and Thales may have long published inhouse magazines in English and French, but an NG executive said those firms lack a 400-year history as a state arsenal.

Another need to bridge a cultural gap could be seen in the letter to staff from CEO Hervé Guillou, who referred to initiatives to be adopted after “la rentrée.”

It had to be explained to Australians la rentrée that refers to staff going back to work in September after the company closed down for the month of August for the traditional French holiday. A one-month holiday stunned Australians who thought of a short “summer break.”

On the French side, there was surprise to see an Australian insistence on punctuality, that a meeting scheduled for an hour meant just that, not an extra 15 minutes. So when Australians got up and left a meeting whether an agreement had been reached or not, that startled French counterparts.

In France, there is the concept of a “diplomatic 15 minutes,” indicating that one is not considered to be late if the tardiness is a quarter of an hour.

NG pursues a “multidomestic” approach as it seeks deals with countries with distinct cultural difference such as Malaysia, Brazil or India, said Arnaud Génin, strategic communications director.

“One would think Australia would be relatively easy because of ease of language, but the cultural difference goes deeper,” he said. “We have to work on that.”

Preparing French Staff

NG is training some 20 Australians on design and manufacture of the Attack boat at Cherbourg, northern France, and that is due to rise to more than 150 key staff. Some personnel are accompanied by their family and those Australians need to adapt to life in France.

Meanwhile, French staff are preparing to fly to the other side of the world and work in the Australian subsidiary in Adelaide, south Australia, where the boats will be built.

There are some 350 staff working on the program in France, with 100 in Australia.

In France, that staff tally will climb to a peak of 700 around 2021/22 before falling to 200 by 2030, as the work moves to Adelaide, Billig said. In Australia, the staff will rise “smoothly” to 1,500 in five to six years when the manufacturing hits full pace.

The company is developing tools for the intercultural courses, which include two-hour seminars and one-day workshops, Marion Accary, global human resources business partner said.

These aim to prepare French expatriates and their families “how to behave, how to understand and decode,” she said. “The staff will learn how to communicate, hold meetings and work in French-

Australian teams. Personnel will also be encouraged to take distance from situations which might seem to be conflictual due to misunderstanding.”

There is also work in Australia to develop training and communications.

Separate seminars for French NG staff and Australians started last May in Cherbourg. The former includes the history of Australia as a way to explain the behavior of Australians, importance of defense, and strategic significance of the South Pacific for the Commonwealth of Australia.

In France, there is strong staff demand for English language courses. There is interest in learning French in Australia but it is harder to find teachers.

The willingness of French teams to take part in the intercultural program is an indirect indicator of a keenness to overcome cultural problems, Billig said. If there were an “evaporation” of that readiness, that would undermine the program.

Cultural play of Three Nations

NG will work with Lockheed Martin, which will supply the combat management system for the Attack boat. NG does not expect problems in working with the US company, as the French firm has worked with partners on other vessels.

“We will learn by working with Lockheed Martin on this program,” he said. “It will be a three-way process of cultural learning.”

NG will work with its local partner, state-owned ASC, formerly known as Australian Submarine Corporation, as well as working with the Australian authorities.

Asked if there is a change of business culture, Billig said the Australian program “has pushed Naval Group’s ambition a couple of ranks higher in the drive for a multidomestic approach.”

That intercultural approach is part of the technology transfer, as Australians want to extend know-how to know-why.

That requires a great deal more than handing over a sheet of paper and say, “Voilà, I have transferred technology,” Billig said. It is about explaining the French approach to building a submarine. The French way is not the German or Japanese way.

Current French Submarine Building Approach

The cultural factor is the French intellectual approach to building the submarine, he said. That reasoning led the French to adopt certain methods, allowing the French Navy to deploy a submarine permanently at sea for 47 years.

“That French method is a concentration of history, competence, training, and the French ecosystem,” he said. “Part of the technology transfer baggage is having to explain what we do, why we do it this

way, and it is not good enough to say you have to do it this way. If you said that, part of the know-how would have evaporated.”

That approach is offered to explain why the French aim to use water rather than laser to cut steel and use French rather than Australian steel.

“The French have a welding method, Americans have their own,” he said.

NG’s dedication to the Attack program reflects the company’s need to win — and retain — foreign deals, as the company cannot rely solely on the domestic market. Australia picked the French firm in a competition which drew rival offers from German shipbuilder ThyssenKrupp Marine Systems and Mitsubishi Heavy Industries, which led a Japanese group, backed by the Japanese government.

It is clear NG intends to deliver on the intercultural approach as the Commonwealth of Australia, buyer of the Attack submarine, saw the need to improve communications.

“The client asked for this effort,” Billig said.

“This is a key factor for success. It is not for us to be Australian, for them to become French. We keep our roots. We learn the culture of the other.”

Editor’s Note: This is the initial look at this dynamic between France and Australia.

To be clear, this is not a technology transfer program of an existing submarine.

This is a co-development of a new build submarine.

As such, the opportunity on the French side is to redo, even significantly, how they build new classes of submarines going forward.

And at the heart of the challenge of working through the program is that the Australians intend in this program and in the frigate to build a manufacturing line around digital production of the sort that Naval Group does not currently do.

Different work styles are also at work, whereby the French follow an approach significantly different from the Australians, and there is likely not just to be cross-learning, but the possibility of significant change on the French side as well.

There is a very significant opportunity for Naval Group to expand its concepts of operations and production technologies and work approach through the program, something useful not just in Australia but in France and globally.

For example, an interesting question in play: What is the nature of the Barracuda being offered to the Dutch Navy and how does it relate to the Australian program?

Germany's Embargo on Saudi Arabia and the Limits of European Arms Cooperation (Updated)

04/05/2019

Paris – Germany's renewal of an arms embargo on Saudi Arabia effectively casts doubt as the lead partner for France to build a future fighter jet, drone, and tank, key projects to boost consolidation in the European defense industry.

Berlin on March 28 extended by a further six months a ban of the sale of weapons to Riyadh. German imposed that sanction last October in the wake of the slaying of journalist Jamal Kashoggi by Saudi officials in Turkey.

There is some easing on existing contracts, but the renewed embargo forbids new German arms contracts with Saudi Arabia and slows delivery on existing deals, effectively dragging shipment of parts to maintain equipment in service.

Britain and France have privately and publicly lobbied Germany to ease that clampdown.

For London, the restriction hinders hopes of signing a contract worth £10 billion (\$13.2 billion) for the sale of 48 more Eurofighter Typhoon jets to Saudi Arabia.

Germany is a partner of the Eurofighter consortium through Airbus and engine builder MTU.

Paris has urged Germany to slacken the sanction, which blocks delivery of key German subsystems for the MBDA Meteor long-range, air-to-air missile, to arm the Typhoon.

This embargo casts a shadow on how much Paris can rely on Berlin as lead partner on the Future Combat Aerial System, a vast project including a next-generation fighter jet, drones flying as remote carriers and smart cruise missiles.

France may lead on the FCAS project, but export efforts will require German approval.

That reliance on Berlin's green light extends to Franco-German plans to design and build a future tank, dubbed Main Ground Combat System, and new artillery, named Common Indirect Fire System. Germany will lead the programs for those land weapons.

Berlin also takes the lead industrial role in a European medium-altitude, long-endurance drone, another major bilateral project with Paris.

Those cooperative projects will be key to a consolidation of European industry and interoperability with the services. Spain has signed a letter of intent to join the FCAS project.

Dassault Aviation is piloting the next-generation fighter project, which seeks to maintain a French bid to retain national sovereignty on an important capability.

But while it is critical to be able to design and build an advanced combat aircraft, its profitability will hang on selling as many jets as possible. And for that, German consent will be essential.

French and German officials have long held talks behind closed doors to update bilateral rules for arms exports, but they have so far failed to reach agreement.

The officials have sought to agree the threshold of German or French content in a weapon system which would require just one nation's approval for foreign sale, not both countries.

Those negotiations are critical to KNDS, which partners French state-owned Nexter with German privately owned Krauss-Maffei-Wegmann. That joint venture plans to build the successor to the Leclerc and Leopard tanks and the new artillery.

A reluctance to sell weapons to Saudi Arabia and tardiness in agreeing a new export regime reflect the need to reach consensus in German domestic politics, said François Lureau, a former French arms procurement chief.

In Berlin, the coalition government led by the conservative Christian Democrats must negotiate with their junior partner Social Democrats. The center-left party takes a dim view of arms sales and seeks to limit deals with countries in the EU and NATO.

Chancellor Angela Merkel has called for closer cooperation with European allies on arms exports, but it will be her successor, Annegret Kramp-Karrenbauer, who must find a politically acceptable solution.

Consensus is the German way, Lureau said. It will take time, but an agreement will last.

That party-political debate has led to some compromise in the arms ban on Saudi Arabia.

Cooperation with European allies in joint projects was allowed to go on, as long as fresh conditions were observed, *The Telegraph*, a British daily, reported.

Fully assembled new weapons should not be sent to Saudi Arabia, was one of the conditions.

That looked like a ban on delivery of new Eurofighters.

European partners of Germany may supply weapons to Saudi Arabia, but those arms should not be used in the civil war in Yemen, was another condition.

The British foreign minister, Jeremy Hunt, wrote a private letter earlier this year to his German counterpart, calling for an easing of the crackdown, which hurt BAE Systems, the British partner on the Eurofighter and supplier of spares for the Tornado fighter.

Florence Parly and Bruno Le Maire, the French armed forces and economy ministers, have also called on Germany to relax the sanction, to little avail.

“It is useless to produce weapons through improved cooperation between France and Germany if we are unable to export them,” Le Maire told Welt am Sonntag newspaper, Reuters reported.

“If you want to be competitive and efficient, we need to be able to export to countries outside Europe,” he added.

Berlin’s reluctance to authorize foreign sales from European partners extends beyond Riyadh.

Arquus, a French builder of light armored vehicles, finds it hard to pitch its products not just to Saudi Arabia and Egypt but also Indonesia and India, said CEO Emmanuel Larcher, business daily La Tribune reported Feb. 6.

German clearance was slow for automatic gearboxes and engines, which may be civil products but they would be fitted on military vehicles.

Sale of those German products is not banned but a lengthy regulatory clearance is seen as effectively forcing the German suppliers to practice “self-censorship,” forcing Arquus to look elsewhere, he said. The French company relied on US firm Allison and German manufacturer ZF for gearboxes.

In the long term, development of new technology such as batteries will break out of “this vicious circle,” he said

An Update on the Future Combat Air Systems Program: February 2019

02/25/2019

Paris

Negotiations are being held with electronics company Thales and European missile maker MBDA on joining Airbus and Dassault in a joint concept study for the Future Combat Air System, said a source who declined to be identified.

The industrial partners aim to decide who does what, for how much, and with whom, said the source, adding, “We are not far from an agreement.”

Airbus and Dassault Aviation, which signed a contract Jan. 31, 2019 with the French and German governments, have agreed on their respective roles in the two-year joint concept study.

French Armed Forces minister Florence Parly, in the company of her German counterpart Ursula von der Leyen, announced Feb. 6 the study, worth €65 million (\$74 million). The ministers were visiting Safran’s engine plant at Gennevilliers, just outside the capital.

Parly also announced a €115 million contract for a feasibility study, dubbed Turenne 2, in which Safran will develop new turbine blades for the M88 engine, which powers the Rafale fighter jet.

The new blades are expected to boost the M88's thrust to nine tons compared to the present 7.5 tons.

Safran and its German partner MTU signed, during the ministerial visit, a cooperation agreement to build engines for a Next Generation Fighter, with Paris and Berlin expected to sign this year a contract for an engine demonstrator for the future fighter.

The joint concept study seeks to define architecture and concepts of the Next Generation Fighter, a pack of "remote carriers," and missiles. These elements are due to be hooked up in the Future Combat Air System, a system of systems.

A demonstrator for the new fighter is expected in 2025/26, with the aircraft due to enter service in 2040, the source said.

French, German and Spanish officers gathered Feb. 20 at the offices of Dassault at St Cloud, just outside the capital, in the "kick-off" meeting for the study.

Airbus and Dassault executives also attended.

Spain signed a letter of intent Feb. 15 to join France and Germany, and that is expected to be firmed up to a memorandum of understanding. The Spanish Airbus unit is likely to be the industrial partner.

The partner nations expect to announce at the Paris air show contracts for studies for a demonstrator for the planned fighter, and research and technology for an engine and remote carriers.

Other studies may also be unveiled.

Dassault will take the lead role in the new fighter, which will replace the Rafale and Eurofighter Typhoon.

The new fighter is expected to be in the 30-ton class and be between 15-20 meters long.

The French version will be able to land on aircraft carriers.

For French planners, there are four classes of remote carriers, comprising a large drone weighing several tonnes, a cruise missile, a Smart Glider and a variety of smaller remote systems. That compares with the US, which has drawn up a framework encompassing some 15 different remote carriers.

A remote carrier is an unmanned system which would fly in a first wave of attack and seek to destroy, confuse or disable enemy systems, allowing manned aircraft to fly in.

MBDA unveiled at the previous Paris air show in 2017 its Smart Glider concept, a family of low-cost, unpropelled weapons deployed in “packs” while interconnected with manned aircraft.

The new fighter will be capable of air-to-air, air-to-ground missions and carry a nuclear weapon for the French forces.

Currently, for the Germans, the Tornado can carry the B61 nuclear bomb, with the German government considering the Tornado replacement.

“We, as Dassault Aviation, will mobilize our competencies as system architect and integrator, to meet the requirements of the nations and to keep our continent as a world-class leader in the crucial field of air combat systems,” Dassault executive chairman Eric Trappier said Feb. 6.

Dirk Hoke, chief executive of Airbus Defence and Space, said, “Both companies are committed to providing the best solutions to our nations with regard to the New Generation Fighter as well as the systems of systems accompanying it.”

Officers of the French Direction Générale de l’Armement procurement office, air force and navy, and their German and Spanish counterparts attended the Feb. 20 meeting at St Cloud.

And the at the Paris air show to be held from June 17-23 is where the companies promised to showcase demonstrators.

Editor’s Note: The question of using remotes as the initial entry platform will require low observability, engines which can support low observability, secure data links which can operate in a severely contested environment, and an ability to be appropriately weaponized, and in the case of having non-lethal means of destruction, effective small power plants.

And of course, the remotes will need to operate in a GPS jammed environment as well.

A Look at the F-4 Rafale Upgrade Program

02/19/2019

Paris

French Armed Forces minister Florence Parly announced Jan. 14 the award of a €1.9 billion (\$2.2 billion) development contract to upgrade the Rafale fighter jet to an F4 standard, while evoking national sovereignty, operational capability and exports as key factors.

That budget was agreed after close negotiations between government and industry, a source close to the talks said.

“This is a guarantee of our sovereignty,” Parly said on a visit to the Dassault Aviation factory at Mérignac, next to Bordeaux, southwest France.

“This is a chance for our capabilities,” she added.

“It is also a necessary investment to ensure the Rafale’s competitiveness for exports in the coming decades and to safeguard the industrial sector for the fighter jet.”

Parly said she was proud to be the lead advocate for the Rafale in any prospective foreign deal, adding that the upgrade offered further argument in favor of the French fighter.

Dassault, MBDA, Safran and Thales are the four big companies working on the Rafale.

The main modernization features include a connectivity of data links with French and allied forces, greater detection and identification of threats, and fitting upgraded missiles.

A modernization to F4 was in response to the French Air Force’s “evolution of probable threat,” said Etienne Daum, manager for aeronautics, defense and security at think-tank CEIS, based here.

The F4 is important as a step toward the Future Combat Air System.

The F-4 upgrade is the first technology package which allows the French fighter to fly in a data network until the planned Next-Generation Fighter flies sometime after 2035.

That fighter will be a key element in the FCAS, a European project for a system of systems, which will include a mix of piloted jets, unmanned armed drones and smart weapons.

A Rafale upgrade could be seen as a victory of pragmatism over a cultural stereotype of the French character which is said to favor philosophy.

The upgrades are due to be installed in two phases, with a first batch in 2023, followed by a second in 2025, the Armed Forces ministry said in a statement.

That incremental approach is intended to fit the features as soon as they are available, part of a new defense policy.

“The F4 standard is part of the ongoing process to continuously improve the Rafale in line with technological progress and operating experience feedback,” Dassault said in a statement.

The work will also allow more weapons to be fitted to aircraft, including Mica New Generation air-to-air missile and 1,000-kg AASM powered smart bomb.

Planned upgrades of the ASMP-A airborne nuclear-tipped missile and Scalp cruise weapon will also arm the F4.

France will order a further 30 Rafale in 2023, with delivery of 28 due by 2024, Parly said.

Dassault will be industrial architect, the company said.

“We will be responsible for implementing innovative connectivity solutions to optimize the effectiveness of our aircraft in networked combat (new satellite and intra-patrol links, communication server, software defined radio).”

There will be also be upgrades to the active electronically scanned array radar, front sector opto-electronic targeting system, and helmet-mounted display, the company said.

There will a new service contract and a prognosis and diagnostic aid system intended to deliver a predictive capability.

Maintenance will draw on the use of Big Data and artificial intelligence.

A new control unit for the M88 engine will be fitted.

The Spectra electronic warfare system and Talios targeting pod will be boosted, the ministry said.

The Direction Générale de l'Armement (DGA), Joint Chiefs of staff and the service wing — Direction de la maintenance aéronautique (DMAé) – worked together to draw up the F4 requirement, seen as essential to maintain French capability with the introduction in Europe of the F-35 joint strike fighter.

France signed a development contract with MBDA for the Mica NG, the company said Nov. 11, 2018.

The weapons is intended to have greater range and sensitivity in sensors,with lower service cost.

First delivery is due in 2026.