Volume 09 Number 19 – Wednesday, 10 May 2017

Part I: France

1. France: Defence Budget & Future Procurements
2. French Defence Industry: Exports and Success Stories
3. Epicos "Industrial Cooperation and Offset Projects"
4. Customised actuators for best possible control of movement for new generation all terrain UGV (Unmanned Ground Vehicle) systems and unattended sensors
5. Development of an integrated parts' codification system complying with NATO standards
6. News from our A&D Business Network

Part II: Epicos Newsroom

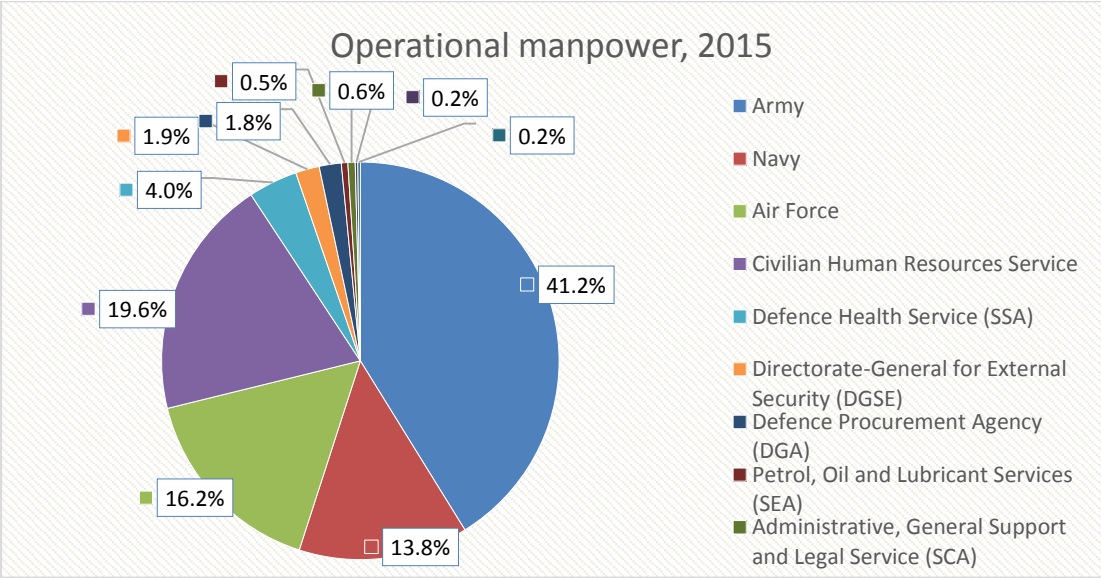
1. F-35 Complete First European Training Deployment
2. YARA and KONGSBERG enter into partnership to build world's first autonomous and zero emissions ship
3. Harris Corporation Awarded $90 Million in Tactical Radio Contracts from European Nation
4. LEONARDO Signs Up to Be the First Company to Work with the Royal Air Force's New Rapid Capability Office
5. Comtech Awarded $4.2 Million Contract to Provide Blue Force Tracking Aviation Terminals

France: Defence Budget & Future Procurements

Under the impact of globalization, the world has changed profoundly. The acceleration in information exchanges, the increased trade in goods and services, in addition to the rapid circulation of individuals, have transformed the global political, social and economic environment nowadays, with effects in national and international security. Considering such emerging risks and a modern national defence strategy, France now focuses on internal reforms to further strengthen its military force and overall national security. According to the 2013 White Paper, the French Armed Forces – French Army, French Air Force, and National Gendarmerie of France- have the following five basic strategic functions: knowledge and anticipation, prevention, deterrence, protection and intervention.

By having turned its former enemies into allies (including Germany and the UK), unlike a century ago, France has managed to limit its external traditional threats and be a leading player among the European nations, with a significant role in NATO, G-8, G-20, as well as other multilateral organisations. However, new risks have appeared, including the Ballistic missiles developed by new powers (e.g. North Korea), as well as frequent cyber-attacks to critical installations and/or national organisations. In addition, non-intentional health or environmental related crises are expected to further amplify in the near future. Finally, the crisis in the Middle East and Jihadism-inspired terrorism, have created an unstable reality worldwide.

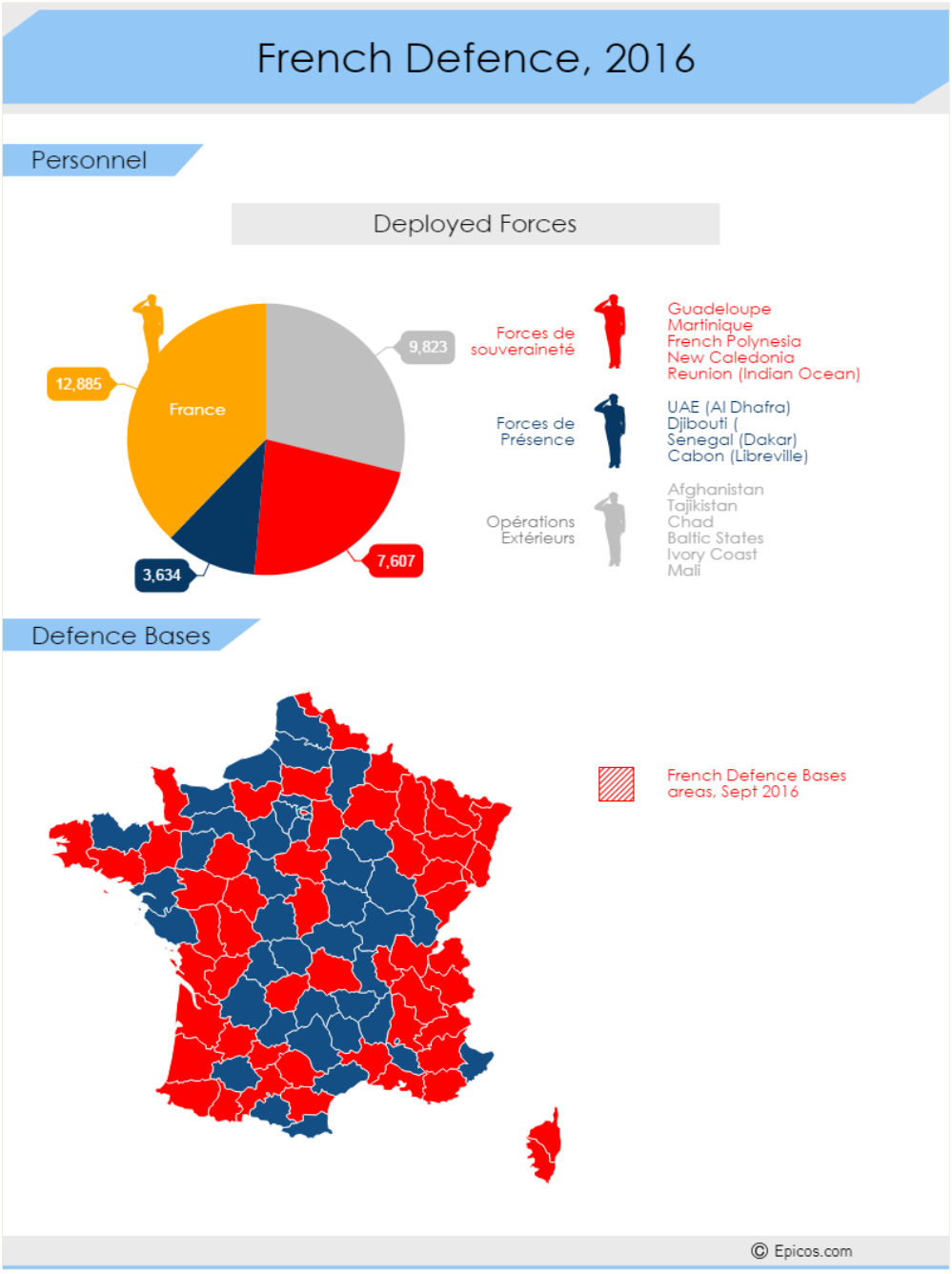
Today (2015), the operational manpower of the French Forces, consists of 263,350 people, of which, 41% are employed in the Army, 13.8% in the Navy and 16.2% in the Air Force (See chart below).



Source: http://www.defense.gouv.fr/english

To address these risks, France has been participating (as of July 2015) in aerial, land and naval operations in the Near & Middle East, aerial and land operations in the Sahel-Saharan Strip area and Central Africa, naval operations in the Indian Ocean and West Africa, and finally UN/EU/NATO commitments, in Liberia, Ivory Coast and Western Sahara. In addition, presence and sovereignty forces, are deployed by France in the Atlantic Ocean, Black Sea, Persian Gulf and the Gulf of Guinea (See Infographic below).

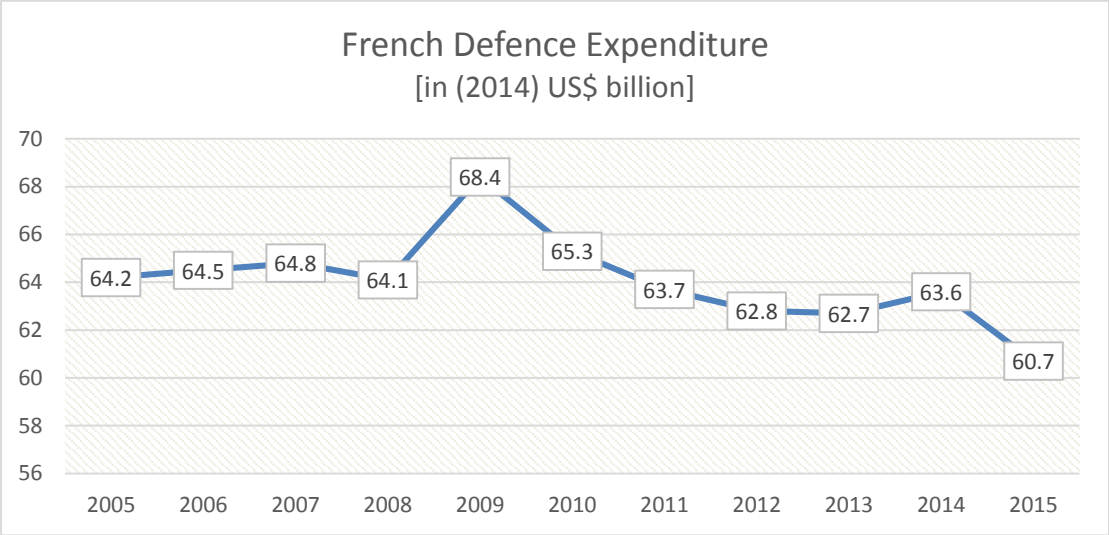
Moreover, following the attacks of 2015 in Paris and 2016 in Nice, the number of soldiers deployed permanently within the country, increased significantly, reaching by the end of 2016, the 12,885 figure (See Infographic below).



Source: http://www.defense.gouv.fr/sga/le-sga-en-action/economie-et-statistiques/annuaire-statistique-de-la-defense

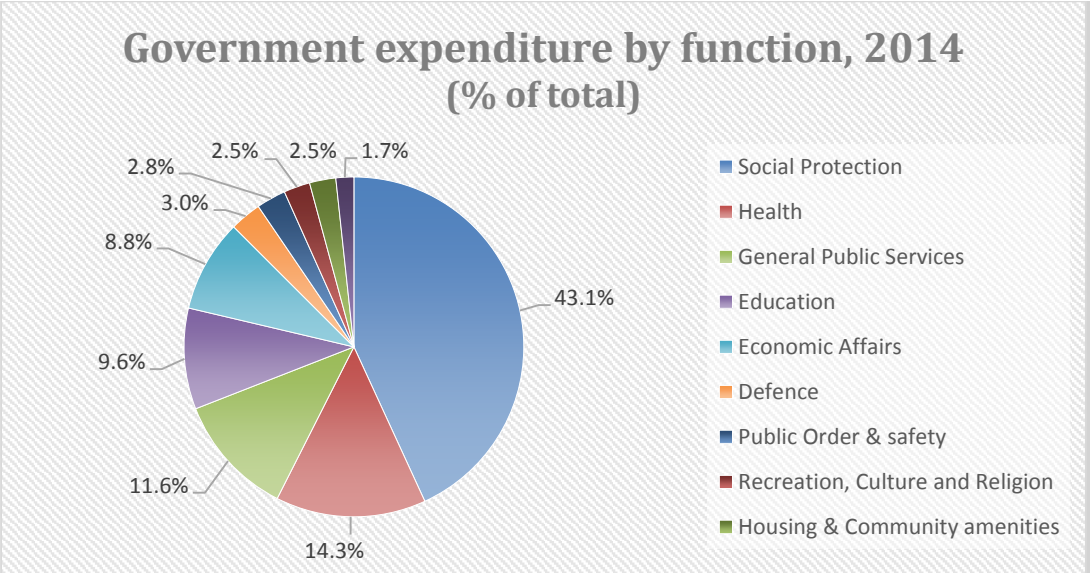
France is ranked among the highest defence-spending nations, in terms of the percentage of GDP allocated for related expenditure.

According to the SIPRI database, in 2009, France's military expenses reached the amount of US $68.4 billion (2.4% of the GDP). Since then, this figure has decreased significantly, as in 2015, related expenditure amounted to US $60.7 billion (2.1% of the GDP).



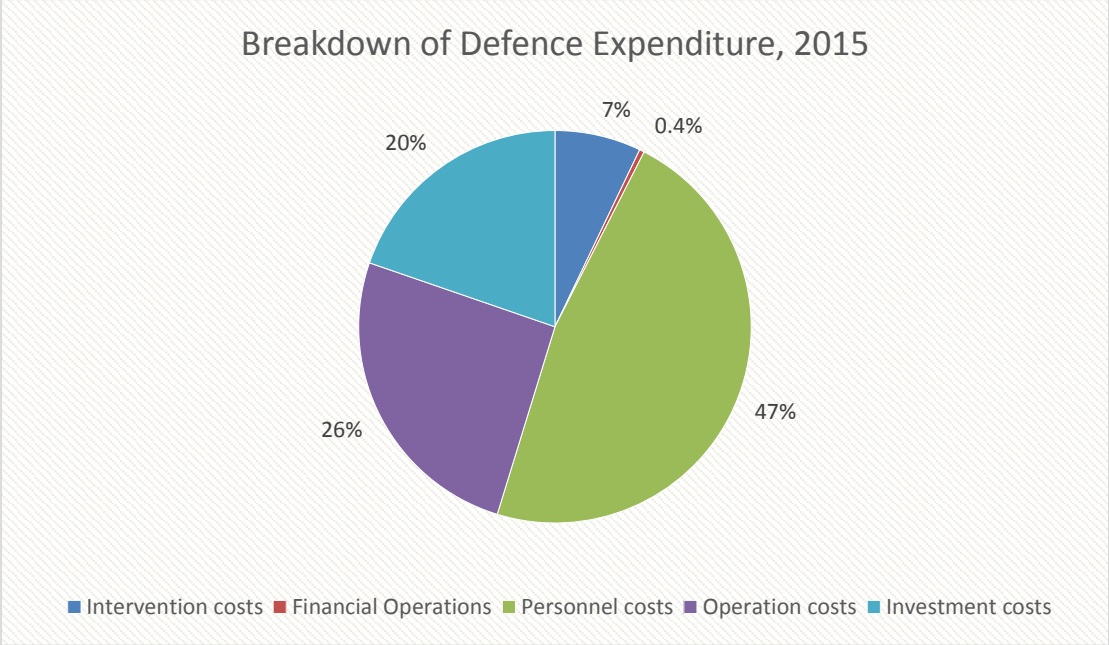
Source: http://www.sipri.org/research/armaments/milex/milex_database

In 2014, France spent 3% of the national GDP on Defence, as well as more or less the same amount (2.8% of the GDP) on Public Order & Safety (see chart below). In that year, France had the 5th largest defence budget worldwide.



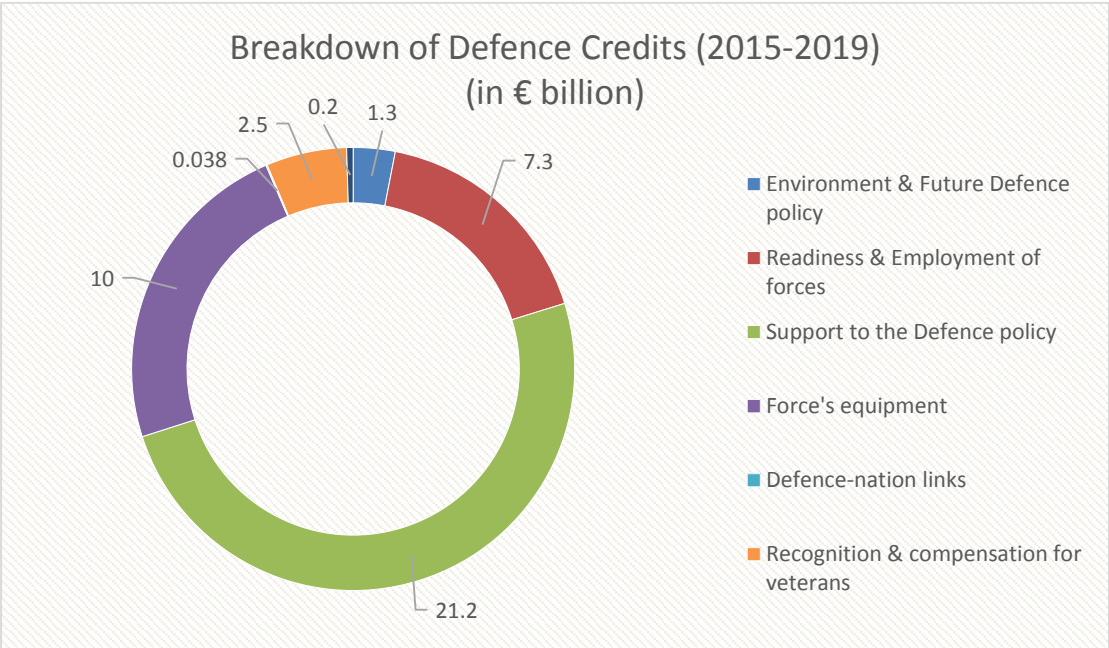
Source: http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_by_function

The country's core defence budget for 2015 (excluding pensions and the Gendarmerie) was €31.4 billion (US $33.8 billion), indicating a small in real terms fall, compared to the previous year. This budget was distributed to the areas, as illustrated in the chart below.



Source: http://www.defense.gouv.fr/portail-defense/mediatheque/publications/annuaire-statistique-de-la-defense-2014-2015

According to the updated 2015-2019 Military Programming Law (after the January's and November's 2015 terrorist attacks in Paris) and in contrast to the initial decisions, it has been agreed to increase the defence expenditure by € 600 million, while programmed staff cuts have been paused till 2019. More specifically, the allocation of funds among the different programs (including pensions), is illustrated in the below diagram.



Source: http://www.defense.gouv.fr/english
Note: Adapted to 2016 Defence Budget (including pensions).

However, only in 2016, Defence Budget increased further, by almost €0.7 billion, reaching the €32.08 billion figure (excluding pensions).

Moreover to the aforementioned, and in order to ensure the security of its citizens from 'asymmetric' dangers (including terrorist attacks), the MoD announced the further increase by €300 million of the budget for 2017, for equipment/materiel procurement purposes.

France has set a series of industrial and technological priorities for 2025, that ensure the country's sovereignty and promote technological advancements and a highly skilled workforce. Apart from focusing on information security systems, as well as limiting the restraints on the free exports of defence electronic components –as a result of the various national regulations- the French government has introduced a set of important goals.

First of all, to secure its future capability, a proactive policy has been set up by the government, regarding the support of companies (including SMEs (Small-Medium Enterprises), in the field of exports. Additionally, France aims to maintain its capability for the design, development and production of nuclear weapons and nuclear-powered submarines, as well as continue further the ballistic missiles' development. Recognising the necessity for developing a fighter aircraft program, France will continue to actively support, at both the national and European levels the design, production and acquisition of manned and unmanned aerial vehicles, in addition to land equipment (including the production of ammunition).

In addition, being a strong supporter of the European share & pool policy, France promotes common frameworks to support shared technological and industrial capabilities. Within this context, the Franco-British Defence Cooperation Treaty, relating to a joint nuclear facility and a package of defence initiatives -such as sharing of aircraft carriers for training purposes, possible military operations and shared resources on training, as well as Maintenance, Repair and Overhaul (MRO) of A400M transport aircraft- has been agreed between the two countries, in November 2010. The treaty also provided the regulatory framework for the establishment of the Combined Joint Expeditionary Force (CJEF), whose concept was validated recently, during the Exercise 'Griffin Strike' (April 2016). Following this, France and the UK will jointly conduct a broad range of military intervention tasks, from humanitarian assistance and disaster relief (HADR) to high-intensity warfighting. Under CJEF, the two countries are also aiming to build a common architecture for IT and communication systems, increase their intelligence exchanges, and also coordinate more effectively their national strategic planning mechanisms. The related multi-annual training programme will take place between 2017-2022, while taking into consideration associated requirements and examining the conditions for a possible opening up to other allies.

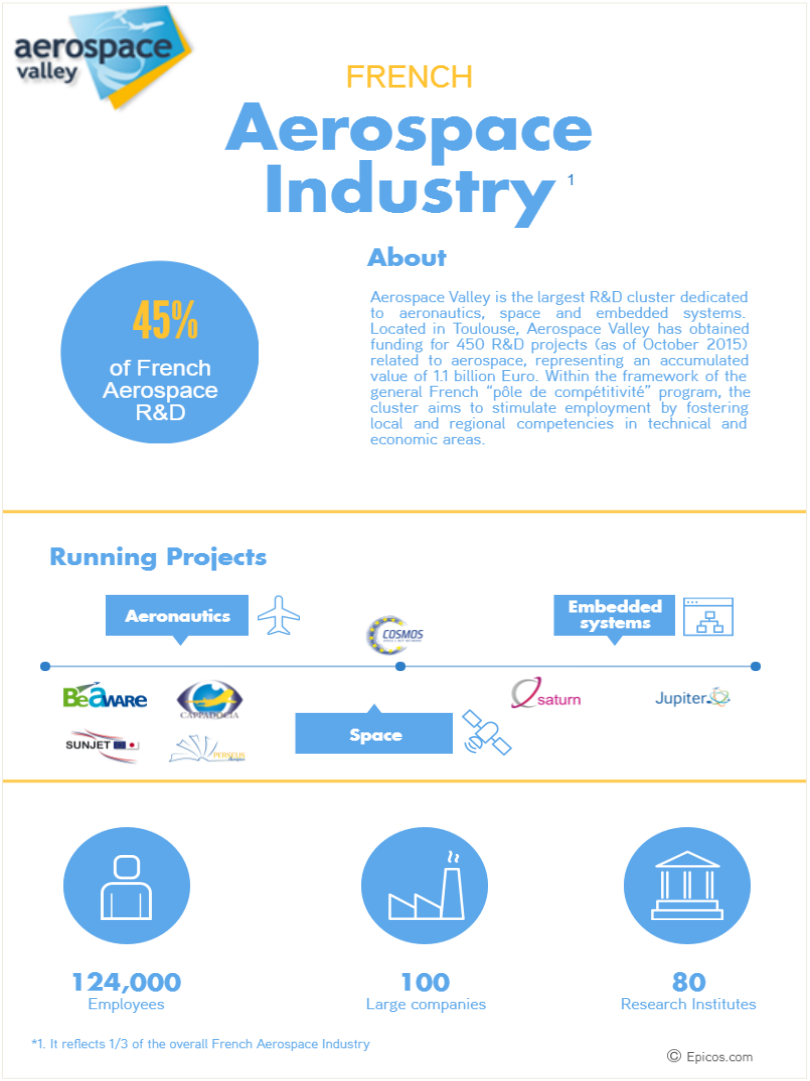
Within this collaborative environment, France will cooperate with Germany in one of the major European procurement programs, towards the replacement of their Leopard 2 MBTs (Main Battle Tanks), the service life of which will come to an end, by 2030. Moreover, as agreed on May 2015, France (Dassault), Germany (Airbus) and Italy (Finmeccanica), in an attempt to end Europe's reliance on Israeli and US drones, will collaborate in a European MALE UAV program.

Moreover, as announced in February 2015 by the President of France, Paris would allocate until 2019, 12.3% (€180 billion) of the annual defence budget towards the enhancement of its nuclear deterrent capabilities –in both sea and air-based nuclear forces.

French Defence Industry: Exports and Success Stories

According to GIFAS (the Group of French Aerospace and Defence Industries), 2015 was an extraordinary year for the sector. Surpassing the 2014 record year –with €50.8 billion turnover and €73.1 billion in orders (for the next 5 years)-, the French Defence Industry registered a record of €58.3 billion turnover and €78.3 billion in orders – increased by 8.5%- and a total export value of €39.4 billion, in 2015. In the same year, there was a trade surplus of €22.2 billion, with the French supply chain companies participating in this growth, recording an estimated turnover of €20.3 billion.

In December of 2015, 185,000 people were employed in the defence industry in France, with 11,000 of them being recruited in that year alone. Having realised the significance of the Aerospace and Defence Industry for the French Economy and employment, the Aerospace Valley cluster was created in 2005, in the Southwest of France (See infographic below).



Sources: http://www.aerospace-valley.com/en/page/about-us & http://www.eacp-aero.eu/index.php?id=26

Maintaining its presence in the power, public transport, and defence industries, the government has partially or fully privatized many large companies -including Air France, France Telecom, Renault and Thales- increasing the country's competitiveness worldwide. Most notably, France was ranked as the 4th largest Arms exporter worldwide, in 2013. In that year, the exported defence items reached the amount of €9.8 billion.

According to the SIPRI database (2014), among the top 100 arms-producing and military services companies, seven French companies are included: Thales (US $8.6 billion for arms sales alone), Safran (US $5.1 billion), DCNS (US $3.9 billion), CEA (US $2.3 billion), Dassault Aviation Group and Nexter (US $1.3 billion for both) (See following table). Also, Thales was ranked among the 10 largest in terms of revenues Aerospace & Defence companies worldwide, for 2014. Finally, another distinguished French A&D company, is Renault Trucks Defence (US $418 million), operating exclusively in the military domain.

In the following table, the most prominent French Aerospace & Defence companies are listed, along with some key associated figures and information:

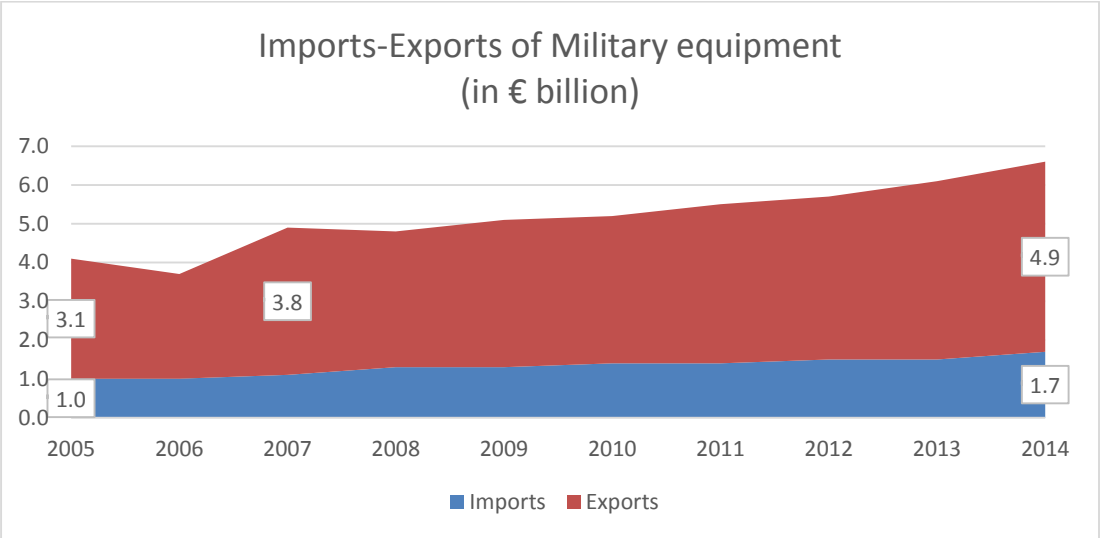
Prominent French A&D companies	Arms sales, 2014 (in US $ Bn.)	Total sales, 2014 (in US $ Bn.)	Arms sales %, 2014	Total Employment, 2014	Activities
AIRBUS GROUP	14.5	80.5	18	138,620	Civil & Military Aviation, Helicopters, Drones, Electronics, Cyber security
THALES	8.6	17.2	50	61,710	Aeronautics Systems & Appliances, Sensors, Communication systems, Weaponry systems and Ammunition, Training and Simulation, Space
SAFRAN	5.1	20.3	25	68,950	Engines, OEM, Aeronautics Propulsion, Space and Missile systems, Optronics, Avionics, Navigation, electronics and critical software systems, Drones
DCNS	3.9	4.0	96	13,130	Ships, Submarines, Underwater weapons, Combat systems, Control systems, Integration, naval drones, Naval bases, Marine energy & nuclear power, services related to the above.
CEA	2.3	5.8	40	15,770	Provides conventional Defence management assistance services, CBT verification methods, NRBC-E program, Design & Manufacture of

					nuclear steam supply systems and associated logistics, Test reactors, Simulation facilities.
Nexter	1.3	1.4	95	3,320	Armoured systems and weaponry systems, Munitions and warheads, Mechanical/ hydraulic/electronic equipment, Robotics, Optics, CBRN protection (NBC-Sys).
Dassault Aviation Group	1.3	4.9	27	11,750	Business Aviation, UAVs, Patrol aircraft and maritime surveillance, Pyrotechnics, Space activities
Renault Trucks Defence	0.4 (**Total turnover** Note: in 2014 average EU/US =0.75).	0.4	100	1200	Armoured wheeled vehicles, Tactical vehicles and logistics, Propulsion armour chain, Weaponry systems (remotely operated turrets), MCO modernisation.

Source: **http://books.sipri.org/files/FS/SIPRIFS1512.pdf**
http://www.defense.gouv.fr/sga/le-sga-en-action/economie-et-statistiques/annuaire-statistique-de-la-defense

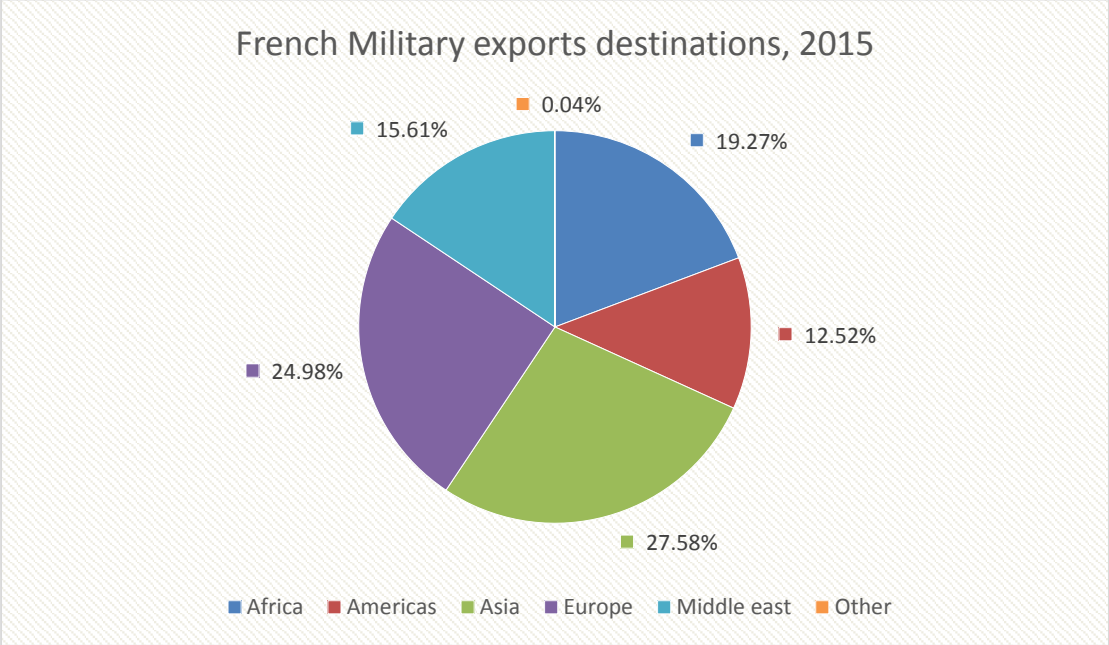
Note: As of Jan. 2014, the company previously known as EADS started operating as Airbus Group. Airbus Group's main production facilities are based in France and Germany.

As illustrated in the chart below, France has managed to increase its military exports from €3.1 billion in 2005, to €4.8 billion in 2014, which can be considered a notable change considering the recent economic crisis. In the same period, imports also increased, but not so significantly.



Source: **http://www.defense.gouv.fr/portail-defense/mediatheque/publications/annuaire-statistique-de-la-defense-2014-2015**

In 2015, military/arms orders from abroad, increased by 106%, recording a historic record, while the deliveries to foreign countries accounted for a value of €7.4 Billion. The main destinations of French Military exports in 2015, were Asia, Europe and Africa (See chart below).



Source: **https://www.data.gouv.fr/fr/datasets/annuaire-statistique-de-la-defense-edition-2016/**
https://www.data.gouv.fr/fr/datasets/annuaire-statistique-de-la-defense-edition-2016/

In March 2016, France and Qatar completed a deal worth €6.7 billion (US $5.7 billion), for the acquisition of 24 Dassault Rafale fighter jets, MBDA missiles, as well as pilots and engineers training.

Also, France signed (in April 2016) a package deal of €2 billion ($2.26 billion) with Egypt for the development of a military telecommunications satellite, to be built by Airbus Space Systems and Thales Alenia Space. This built on top of the France-Egypt collaboration as of 2015, when the provision of cutting-edge multi-mission frigates -able to respond to air, marine, submarine and land threats, a deal of € 950 million- and the purchase of 24 Rafale fighters (€5.2 billion deal), had been agreed.

Finally, the greatest success in terms of French defence sales in 2016, was the $50 billion submarine contract signed with Australia, to build 12 diesel-powered submarines for the Royal Australian Navy, destined to replace their outdated ones.

Epicos "Industrial Cooperation and Offset Projects"

Epicos "Industrial Cooperation and Offset Projects" provides a unique set of online tools enabling the structure, identification and implementation of comprehensive Offsets programs, through a searchable database. By introducing different offset projects and ideas proposed by local A&D industry it ensures the optimum cost for Prime Contractors and reassures that the priorities of local industry are fully met…

For Further Information Press Here

Customised actuators for best possible control of movement for new generation all terrain UGV (Unmanned Ground Vehicle) systems and unattended sensors

A company with extensive experience in designing and manufacturing precision actuators is proposing implementation of existing technology to new generation UGV systems and unattended sensors. The proposed solution includes the initial customised design of automatic actuators, motor, sensor control electronics, as well as field bus solutions for the UGV designs.

For Further Information Contact our ICO Department
Mail at: a-kintis@epicos.com

Development of an integrated parts' codification system complying with NATO standards

A company providing solutions for corporate and/or governmental organizations critical information systems is proposing the development of an Integrated Parts Codification System, according to NATO Supply System standards. This system will provide sourced items codification functions for the Armed Forces or other organizations where appropriate parts' codification according to NATO standards and related information exchange is crucial for the related organizations' operations. Integration with existing life-cycle support products is also possible.

For Further Information Contact our ICO Department
Mail at: a-kintis@epicos.com

CAE awarded contract to provide comprehensive RPA training solution to UAE Air Force & Air Defence

CAE today announced it was awarded a C$56 million contract by the General Headquarters (GHQ) of the United Arab Emirates (UAE) to provide the UAE Air Force and Air Defence with a comprehensive training solution for remotely piloted aircraft (RPA). Under terms of the five-year contract, CAE will deliver an integrated training solution that includes academic, simulator, and live flying training for the UAE Air Force's fleet of RPA systems. CAE's local UAE-based company, CAE Maritime Middle East LLC, will serve as the prime contractor and program management company in Abu Dhabi.

"Remotely piloted aircraft have been proven as an indispensable asset in modern combat operations, and like all platforms they require skilled and proficient aircrews who are prepared for a range of missions," said Ian Bell, CAE's Vice President and General Manager, Middle East/Asia-Pacific. "We are pleased the UAE has once again selected CAE as its training systems integrator, and look forward to working closely with the UAE Air Force as we develop and deliver a world-class turnkey training solution for these unmanned systems."

CAE will support the UAE Air Force and Air Defence in establishing a training centre where all RPA type conversion and mission training will be conducted. CAE will design and develop the courseware and comprehensive curriculum for academic and classroom training, including fundamentals courses for RPA pilots and sensor operators as well as courses specific to the UAE Air Force's medium-altitude long-endurance (MALE) RPA platforms such as the General Atomics Predator family of RPAs. To support the ground-based training system, CAE will deliver a full suite of synthetic training equipment, including desktop trainers, sensor operator trainers, Unmanned Aerial System (UAS) mission trainers and high-fidelity, type-specific mission trainers. In addition to delivering the classroom and simulator training, CAE instructors will provide the live flying instruction for UAE Air Force RPA aircrews.

CAE will also support the Khalifa Bin Zayed Air College in the development of an RPA Pilot Fundamentals training course as well as training instruction to be delivered as part of the cadet curriculum at the air college.

The UAS mission trainers and type-specific mission trainer will include the CAE Medallion-6000 image generator with Common Database (CDB) architecture, which was recently adopted by the Open Geospatial Consortium (OGC) as an international standard for the creation of synthetic environment databases. This common software and standardization, which are also being deployed on naval and helicopter training systems that CAE is currently

developing for the UAE, will further enhance networked, interoperable mission training across the UAE Armed Forces.

"This is another strategic win for CAE that clearly demonstrates our capabilities to serve as a training systems integrator as well as our strong position on enduring platforms," said Gene Colabatistto, CAE's Group President, Defence & Security. "Our support of delivering the training to the U.S. Air Force's MQ-1 Predator and MQ-9 Reaper aircrews gives us a wealth of intimate experience with creating a professional, well-trained cadre of RPA pilots and sensor operators."

For Further Information Click Here

Airbus begins production of first U.S.-built A320 in Mobile

The Airbus U.S. Manufacturing Facility in Mobile, Alabama, has received the major component assemblies for the first A320 that will be produced in the U.S. The 27 aircraft delivered from the facility thus far have been A321s.

This marks another important milestone for the manufacturing facility, which began production in July 2015 and is equipped to build three members of the A320 Family: A319, A320 and A321.

This A320 is destined to be delivered to Spirit Airlines this summer.

For Further Information Click Here

Epicos NewsRoom

F-35 Complete First European Training Deployment

Eight F-35A Lightning IIs from the 34th Fighter Squadron, along with supporting units and equipment from Hill Air Force Base, Utah, completed the first F-35A training deployment to Europe, May 7, 2017. While at Royal Air Force Lakenheath, the squadron flew 76 sorties and tallied more than 154 flying hours alongside F-15s from the 48th Fighter Wing.

"This exercise provided our pilots with the opportunity to practice working together to solve complex tactical scenarios using integrated operations that optimized both the F-35 and F-15's capabilities," said Lt. Col. Jason Zumwalt, the 493rd Fighter Squadron commander. "We found that by working together, we can achieve a higher level of performance than either aircraft can achieve alone." During the training deployment, the aircraft forward deployed to Estonia and Bulgaria to maximize training opportunities, build partnerships with allied air forces and familiarize Airmen with Europe's broad and diverse operating conditions.

For Further Information Click Here

Source: Epicos, F-35 Lightning II

YARA and KONGSBERG enter into partnership to build world's first autonomous and zero emissions ship

The vessel "YARA Birkeland" will be the world's first fully electric and autonomous container ship, with zero emissions. Operation is planned to start in the latter half of 2018, shipping products from YARA's Porsgrunn production plant to Brevik and Larvik in Norway.

Named "YARA Birkeland" after YARA's founder, the famous scientist and innovator Kristian Birkeland, the vessel will be the world's first fully electric container feeder. YARA's new vessel will reduce NOx and CO2 emissions and improve road safety by removing up to 40,000 truck journeys in populated urban areas.

YARA Birkeland will initially operate as a manned vessel, moving to remote operation in 2019 and expected to be capable of performing fully autonomous operations from 2020. The new zero-emission vessel will be a game-changer for global maritime transport contributing to meet the UN sustainability goals.

For Further Information Click Here

Source: Epicos, KONGSBERG

Harris Corporation Awarded $90 Million in Tactical Radio Contracts from European Nation

Harris Corporation has received contracts valued at a total of $90 million from a European nation for tactical radios as part of the country's communications readiness program. The contracts were received during the third quarter of Harris' fiscal 2017.

The contracts include the company's Falcon II® AN/PRC-150C, which provides beyond line-of-sight communications and assured communications in a satellite-denied environment, and the Falcon III® AN/PRC-152A that provides wideband voice and data capability for enhanced situational awareness. The combination of the two radio systems will increase readiness and allow for full interoperability with U.S., NATO and coalition forces.

"Harris is committed to supporting this nation's readiness effort with solutions that deliver expanded and reliable communications for the modern battlefield," said Chris Young, president, Harris Communication Systems.

For Further Information Click Here

Source: Epicos, Harris Corporation

LEONARDO Signs Up to Be the First Company to Work with the Royal Air Force's New Rapid Capability Office

Leonardo has announced, at the IDEF exhibition in İstanbul, Turkey on the 9th May that it has signed up as the first company to partner with the UK Royal Air Force's newly-established Rapid Capability Office (RCO). The RCO has been created to bring new technologies and capabilities to the war fighter, in a faster more streamlined fashion.

The RCO's first joint project will see the RAF and Leonardo each invest into a project that will develop the next generation of fighter jet countermeasures known as 'expendable active decoys' (EADs), using Leonardo's test-proven BriteCloud EAD technology. The RCO and Leonardo are also working to clear the existing BriteCloud EAD for operational use.

BriteCloud is a radar jamming decoy for fighter aircraft that can be deployed from a standard chaff and flare dispenser. It protects aircraft from modern, sophisticated radar-guided missiles that are able to outwit older, anti-radar countermeasures such as chaff. The incoming missile is drawn to the BriteCloud and misses the aircraft by a large margin. Manufactured by Leonardo in the UK, BriteCloud being offered to a number of export nations.

BriteCloud is what is known as a 'second generation' expendable active decoy (EAD). First generation EADs were developed towards the end of the cold war. They used early jamming techniques that would not defeat today's more advanced missiles, guided as they are by

sophisticated radars on the ground or even on the missile itself. BriteCloud, which uses much smarter on-board jamming techniques, is the first 'second generation' EAD to have been proven in live trials to defeat these more advanced threats. BriteCloud's effectiveness was demonstrated in launches from RAF Tornado aircraft in March 2016. The new collaboration between Leonardo and the RAF will see the two organisations jointly develop 'third generation' EADs; details of which are currently classified.

A quantity of BriteCloud decoys has already been acquired by the RAF with a view to writing CONOPS (concepts of operations) for the decoy, effectively a 'user guide' for pilots who will use the countermeasure on operations.

For Further Information Click Here

Source: Epicos, Leonardo

Comtech Awarded $4.2 Million Contract to Provide Blue Force Tracking Aviation Terminals

Comtech Telecommunications Corp. announced today that its Maryland-based subsidiary, Comtech Mobile Datacom Corporation, which is part of Comtech's Government Solutions segment, has been awarded a five-year, Firm Fixed Price (FFP), Indefinite-Delivery/Indefinite-Quantity (IDIQ) contract for providing Blue Force Tracking ("BFT-1") Aviation Terminals to the Defense Logistics Agency (DLA). This contract is in addition to the previously announced $42.7 million contract to provide sustainment support for the BFT-1 program.

Under this contract, DLA will procure Comtech's AVX-06-203 Aviation Satellite Communication Transceivers. This contract has a single Five (5)-year base period from April 20, 2017 through April 19, 2022 and a maximum value of $4.2 million.

Fred Kornberg, President and Chief Executive Officer of Comtech Telecommunications Corp., stated, "We are extremely pleased with the confidence that the Defense Logistics Agency has placed in Comtech's BFT-1 technology. This award demonstrates the critical role that our Mobile Datacom organization continues to play in providing the U.S. Military with trusted BFT-1 satellite tracking communication capability."

Comtech Mobile Datacom Corporation, a Germantown, Maryland-based company, is engaged in the provision of satellite-based packet data communication systems and location and messaging services through the use of advanced communication and network technology. To learn more about Comtech Mobile Datacom, please visit the company's website at www.comtechtel.com.

Comtech Telecommunications Corp. designs, develops, produces and markets innovative products, systems and services for advanced communications solutions. The Company sells products to a diverse customer base in the global commercial and government communications markets.

Certain information in this press release contains statements that are forward-looking in nature and involve certain significant risks and uncertainties. Actual results could differ materially from such forward-looking information. The Company's Securities and Exchange Commission filings identify many such risks and uncertainties. Any forward-looking information in this press release is qualified in its entirety by the risks and uncertainties described in such Securities and Exchange Commission filings.

For Further Information Click Here

Source: Epicos, Comtech Telecommunications Corp