

PRESS KIT

PARIS AIR SHOW

Le Bourget, June 2015

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INNOVATION BY SAFRAN

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About Safran

Safran is a leading international high-tech group, and tier-1 supplier of systems and equipment for aerospace, defense and security.

Operating worldwide, Safran has 69,000 employees and generated sales of 15.4 billion euros in 2014. Safran comprises a number of companies and, working alone or in partnership, holds world or European leadership positions in its core markets. The Group invests heavily in Research & Development to meet the requirements of changing markets, including expenditures of 2 billion euros in 2014. Safran is listed on Euronext Paris and is part of the CAC40 index.

www.safran-group.com

Foreword

t the 51st Paris Air Show, the watchword for Safran is innovation. Innovation is the engine driving our strategy, and an imperative for our development and future success. It irrigates all of Safran: through the streams of solutions we develop for our customers, in the breakthrough technologies we are already developing right now, and in our hefty investments to ensure the continuous improvement of our processes and facilities.

In a world on the move, characterized by heightened competition and with successive waves of technological revolutions, it's also worth remembering, here at Le Bourget, a cradle of aviation, that France and Europe still boast, more than a century after the pioneers, great aerospace champions like Safran, a world-leading supplier of aerospace systems and equipment.

Through this prestigious showcase, we would also like to pay tribute to the talent behind our ability to innovate, one of the world's largest communities of scientists, engineers and technicians. The Paris Air Show is a sterling opportunity to present their advanced solutions to the market and to the media, and also to share these advances with the public, and the many people who are passionate about aerospace and technology - just like the men and women of Safran!

Philippe Petitcolin, Chief Executive Officer



OVER A CENTURY OF INNOVATIVE SUCCESS

THE WORLD'S OLDEST AERO-ENGINE MANUFACTURER, SAFRAN IS THE HEIR TO A SERIES OF HIGHLY INNOVATIVE COMPANIES, EACH OF WHICH LEFT THEIR MARK BECAUSE OF LANDMARK PRODUCTS, SERVICES AND PROCESSES. OVER THE YEARS, THESE COMPANIES CAME TOGETHER TO GIVE BIRTH TO AN INTERNATIONAL GROUP, AND WORLD LEADER IN AEROSPACE, DEFENSE AND SECURITY.

1909 Gnome Omega

The world's first production rotary aircraft engine.
In 1910, Gnome engines set virtually all world aviation records (speed, distance, altitude, etc.) at major aviation meetings.

1912 Société des Moteurs Le Rhône



1921 1 abital

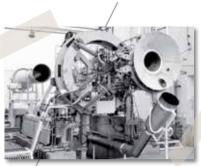
1948 ATAR 101V

The first military jet engine designed by Snecma. The prototype develops 4,840 lb of thrust and weighs 1,980 lb (900 kg).

1938 Turbomeca

1961 Inertial navigation

First flight of the first inertial reference system designed by Sagem. Four years later, the Diamant A launcher, guided by this type of system, orbits the first French satellite.



1979 Viking

First launch of the Viking and HM7 rocket engines on the Ariane 1 launcher.

1974 CFM International



2009 Face/Finger on the fly®

Morpho unveils the world's first contactless facial recognition and fingerprint identification technologies.

2001-2006 Electric actuation and brakes

First flights of the Airbus A380, fitted with an electric thrust reverser actuation system designed by Hispano-Suiza in collaboration with Honeywell, and the Boeing 787, the first aircraft equipped with an electric brake, designed by Messier-Bugatti.

1990 M88

The M88 jet engine developed by Snecma makes its first flight on Dassault's new Rafale fighter. 2013 EGTS™ electric faxiing system

At the Paris Air Show, the first public demonstrations of the EGTS electric taxiing system.

1900

1905 191 Société Hispa des Moteurs Suiz

1911 tispano-Suiza France

1914

Hispano-Suiza

V8 engine

First flight of Hispano-

Suiza's V8 engine which

would power Georges Guynemer's Spad VII

pursuit plane. A total

of 4,000 versions of this

V8 engine were produced

during the First

World War.

1920 Messier Automobile

Sagem 19a Oleopne

Oleopneumatic suspension The Farman-190 is the first

The Farman-190 is the first aircraft to be fitted with oleopneumatic shock struts, designed by Messier.



1945 Snecma

1955 Artouste

The Alouette II
helicopter makes its
first flight, powered by
the Turbomeca Artouste
turboshaft; this
is the world's first
certified turbinepowered helicopter.

1960 / Infrared guided missile

SAT (Sagem) designs the world's first infrared guidance system for an air-to-air missile. 1982 Morpho

1974 CFM56®

First ground test of the CFM56, a new engine developed jointly by Snecma and General Electric. It's now the best-selling engine in the history of aviation.



1995 Fingerprint identification

Morpho's first automated fingerprint identification system (AFIS) is tested by the FBI.

\ 1985 Carbon brake

First flight of an Airbus A300 with carbon brakes. Developed by Messier-Hispano-Bugatti, these brakes provide weight savings of 1,210 lb (550 kg) per aircraft.

Safran

2015 LEAP

First flight
of the LEAP-1A on an
Airbus A320neo. Successor
to the CFM56, the LEAP
will power the Airbus
A320neo, Boeing 737 MAX
and Comac C919.

2000 Hemispherical resonator gyro (HRG)

Sagem's HRG technology is selected for use in the AASM missile's guidance system.



rom its predecessor's invention of the rotary engine, to today's advanced composite parts, Safran has always pioneered the development of cutting-edge technologies. Innovation is an integral part of our DNA, leveraging our competitiveness in

WHY DO WE INVEST IN INNOVATION?

SAFRAN OPERATES IN HIGH-TECH
BUSINESS SECTORS, WITH CONSTANTLY
CHANGING MARKET EXPECTATIONS
AND INDUSTRIAL CHALLENGES.
WE THEREFORE DEPLOY A BUSINESS
MODEL BASED ON A CONTINUOUS
INNOVATION POLICY WITH THREE
MAIN THRUSTS: NEW MOBILITY MODES,
SUPPORT FOR SOCIAL PROGRESS,
AND LONG-TERM RESEARCH TO DEVELOP
DISRUPTIVE TECHNOLOGIES.

our core markets, and allowing us to offer our customers solutions tailored to their fast-changing challenges: new regulations, energy and environmental imperatives, and more.

THE NEW COMPETITIVE LANDSCAPE

Until just recently, Safran operated in a relatively stable ecosystem, in which technical content and specific industry requirements limited the arrival of new players. But new technologies and changing business models now enable new players to rise up the skills chain and deploy brand-new business models that reshape the competitive landscape. Under these circumstances, developing innovative new solutions for our customers is the best way for Safran to stand out and consolidate our leadership.

DID YOU KNOW?

Safran was once again ranked among the Top 100 Global Innovators by Thomson Reuters in 2015.



About one-fifth of Group employees work in R&D.

€2 billion

R&D expenditures in 2014

29,000 patents in our portfolio

900

patents filed in 2014 worldwide

2nd

leading company in France for number of patents filed in 2014



Based in Colombes, near Paris, the Copper Bird® is an exceptional test rig that plays a key role in the development of "more electric" aircraft by Safran and its partners.

DEVELOPING NEW MOBILITY MODES

THROUGH ITS DIFFERENT BUSINESS
LINES, SAFRAN IS A PIVOTAL PLAYER
IN THE CHALLENGES FACING TRAVEL,
AND MOBILITY IN GENERAL: HIGHER
PERFORMANCE, INCREASING AWARENESS
OF ECO-RESPONSIBILITY, TRAVEL SAFETY
AND SECURITY, ETC. WE DEPLOY THE
FULL SUM OF OUR EXPERTISE IN THIS
AREA TO COME UP WITH THE INNOVATIVE
SOLUTIONS THAT ACCELERATE THE ADVENT
OF NEW, MORE EFFICIENT, ECO-FRIENDLY
AND SAFE MOBILITY MODES.

Safran, an active actor in all mobility modes

X The Patroller™ drone developed by Safran can integrate civil airspace, without impacting traffic or safety.

X In the space sector, Safran is designing future-generation electric propulsion systems for satellites, reducing their launch weight by 30% versus a satellite with chemical propulsion, for a given payload and capacity.

X In terms of digital technology, Safran is developing simple and secure ID authentication solutions for online transactions with smartphones, for instance. opulation growth and environmental issues are major trends that make it more urgent than ever to invent new forms of sustainable mobility. Managing flows of people, goods or data becomes more critical than ever as personal travel and data transmissions continue to grow.

TOWARDS SUSTAINABLE MOBILITY

These challenges concern all of our business lines - aircraft propulsion and equipment, space, defense and security. The upshot is new expectations expressed by markets, customers and society in general, for us to reduce the environmental footprint of air transport, improve safety and security processes at airports and in flight, and simplify and ensure the security of passengers, goods and transactions.

For all of these reasons, we have made mobility a primary Research & Development focus. We are concentrating our innovation efforts on key projects, such as the new-generation LEAP aircraft engine, or the development of a system to detect liquid explosives in carry-on luggage.



ECO-FRIENDLY TECHNOLOGIES

Fuel consumption and CO2 emissions 15% lower than current engines

Oxides of nitrogen (NOX) emissions 50% under the CAEP/6 standard of the Committee on Aviation Environmental Protection

Significant reduction in noise footprint

TOWARDS MORE AUTONOMOUS VEHICLES

Safran and Valeo have formed a research partnership, mainly focusing on driving aids and autonomous vehicles, whether cars, military vehicles or aircraft. The two partners unveiled the first results of their collaboration in 2015, presenting the prototype of an autonomous car equipped with the "Drive4U®" system. It combines the best of automotive and aeronautical technologies: laser scanner, camera and radars to provide a real-time picture of the driving environment, a telemetry unit to communicate with other vehicles and road infrastructures, guidance system, etc. Based on operational, high-reliability technologies, an autonomous vehicle could be "on the road" towards 2017.

LEAP, THE NEW BENCHMARK IN COMMERCIAL TURBOFANS

Along with GE, through CFM International, Safran makes the CFM56, the best-selling engine in the history of aviation. The newgeneration LEAP, already chosen to power the upcoming single-aisle commercial jets, Airbus A320neo, Boeing 737 MAX and Comac C919, gives Safran another global success with more than 8,900 orders and commitments at April 30, 2015.

The LEAP advanced turbofan incorporates several technical breakthroughs that make it the benchmark in this segment, in terms of performance, reliability, environmental-friendliness and reduced operating costs. The first LEAP-1A-powered Airbus A320neo made its first flight in Toulouse on May 19, 2015. The LEAP should be certified in 2015 and enter service in 2016.



The next generation of inertial navigation systems, based on MEMS (micro-electromechanical system) micro-sensors, will provide high performance in miniaturized packages. They could provide precise positioning on tomorrow's autonomous vehicles.

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BEYOND THE PERFORMANCE OF OUR PRODUCTS AND SERVICES, SAFRAN IS JUDGED ON ITS ABILITY TO MEET THE DEMANDS OF STAKEHOLDERS. THROUGH OUR CORPORATE SOCIAL RESPONSIBILITY POLICY, WE HAVE SET A MAJOR OBJECTIVE OF DEVELOPING INNOVATIVE PRODUCTS AND PROCESSES THAT REDUCE ENVIRONMENTAL IMPACT.

INNOVATING TO SPUR SOCIAL PROGRESS

reserving natural resources,
protecting our environment, ensuring
the stability and socio-economic
development of local regions:

Safran has made these objectives an integral
part of its R&D policy, with the aim of
developing solutions that address today's
concerns. One of our major challenges in
recent years has been to reduce atmospheric
emissions from our engines - during both
operation and production.

At Safran, our Research & Technology teams continue to focus on goals such as the design of lighter aircraft systems, which will in turn reduce fuel consumption and ${\rm CO_2}$ emissions.

TECHNOLOGIES THAT BENEFIT CITIZENS

Another striking example of how Safran applies its expertise and resources to meet current social and economic challenges is in India: Morpho's biometric technologies are at the heart of the Aadhaar program, designed to assign a unique identification number to over one billion residents of India, and giving them safe and easy access to a wide range of social and other services.



AADHAAR
Thanks to Morpho's technologies, more than
800 million people have so far been enrolled in the
Aadhaar program based on two-pronged security:
iris recognition and fingerprint identification.

DID YOU KNOW?

In the last 50 years, carbon monoxide emissions by aircraft engines have been cut in half, while smoke and unburned particles have been reduced 90% (source: International Coordinating Council of Aerospace Industries).

SPEARHEADING "MORE ELECTRIC" AIRCRAFT

Already a major contributor to leading aircraft programs, Safran is now focusing part of its R&D efforts on the gradual electrification of these aircraft. Today, we cover all aspects of aircraft electrical power, based on specific areas of expertise grouped in a dedicated entity. We have already developed several key technologies reflecting this inevitable trend, including the electric thrust reverser actuation system, jointly developed with Honeywell for the Airbus A380, and the electric brake on the Boeing 787 Dreamliner.

A DOWN TO EARTH ADVANCE: ELECTRIC TAXIING

One of the main programs reflecting the more electric aircraft trend is the upcoming EGTST, jointly developed by Safran and Honeywell, to provide more ecological taxiing through the use of electric motors to replace jet engines for taxiing. Advantages:

- · Fuel consumption reduced 4% over the flight cycle
- · Ground emissions reduced 50 to 75% (carbon and nitrogen oxide)
- · Reduced noise.



Developed in partnership with Honeywell, the EGTS was first demonstrated at the 2013 Paris Air Show.



UNLEASHING THE POTENTIAL OF COMPOSITES

A world leader in the application of composite materials to aviation, Safran has been working on these advanced materials for over 35 years. Light, yet strong, composites are a key to the improvement of engine performance.

The LEAP's composite fan blades and case, for instance, provide 1,100 lb (500 kg) of weight savings per aircraft. To fully leverage the advantages of composites, Safran has set up a dedicated organization with several entities centered on the Safran Composites research center.

3D WOVEN CARBON FIBERS

The 3D weaving of composite materials, a revolutionary technology developed by Safran and Albany International, improves the strength of these materials. It is already being used on the LEAP's fan blades and cases.

IN ADDITION TO OUR EXTENSIVE R&D EFFORTS TO COME UP WITH CONCRETE APPLICATIONS FOR THE NEAR FUTURE, WE ARE ALSO LEVERAGING OUR INNOVATIVE CAPABILITIES FOR THE LONG HAUL, BY INVENTING THE DISRUPTIVE TECHNOLOGIES THAT WILL SHAPE TOMORROW'S WORLD.

he Safran Innovation division
oversees teams dedicated to longterm planning and creativity, to
imagine breakthrough, or even
disruptive products and services for all
of our businesses, based on a clear vision
of our customers' future needs. We aim
to expand our spectrum of research and
experimentation, including work on some
very futuristic subjects.
For example, Safran is working with
the Perceptual Robotics Laboratory
(Percro) at the Sant'Anna School of

PLANNING AHEAD TO MEET LONG-TERM MARKET NEEDS

Advanced Studies in Pisa on a fascinating subject: exoskeletons, which multiply the capabilities of the human body. Our aim is to design a prototype by 2017. We are also studying modular transport solutions; for example, Safran is a partner in the Clip-Air train-plane project developed by the Ecole Polytechnique of Lausanne. The Clip-Air is a flying wing, which will carry "capsules" for passengers or freight, that can then be directly attached to trains. In 2012 Safran set up a think tank that groups our in-house experts on innovation, plus outside specialists from industry and academia, to identify long-term future developments in air transport. In other words, at Safran we're actively shaping the operational and business models that will govern our business sectors towards 2050, while laying the

foundations for our future success.

AND BIG DATA?

Big data is one of Safran's strategic priorities. In 2015 we created a dedicated entity, Safran Analytics, tasked with making big data analysis a performance driver for the Group, and a way of creating innovative customer services. For example, Safran teams are developing smart sensors for aircraft equipment to improve health monitoring. By integrating these sensors on engines or landing gear, we can continuously track their condition, to optimize maintenance scheduling.

INVENTING TOMORROW'S ENGINES

Whether through its own programs, or joint programs, Safran is at the forefront of design projects for tomorrow's aircraft engines. For instance, the open rotor project (part of the European research program Clean Sky) heralds what could be the propulsion solution on future-generation jetliners. With its characteristic unshrouded counterrotating fans, the open rotor is halfway between a conventional turbofan and a turboprop. It will consume 10% less fuel than the LEAP, while generating no more noise. For helicopters, Safran is exploring a hybrid turbine concept, promising a 25% reduction in fuel consumption, compared with the potential improvement on conventional turboshaft engines.

Safran is also a major contributor to Airbus's all-new E-Fan 2.0, an all-electric plane: we are developing the electric integrated propulsion system (eIPS).



Open rotor blades under test in a wind tunnel.



Safran's detection and biometric ID technologies make traffic flows at airports simpler, more secure and more cost-effective.

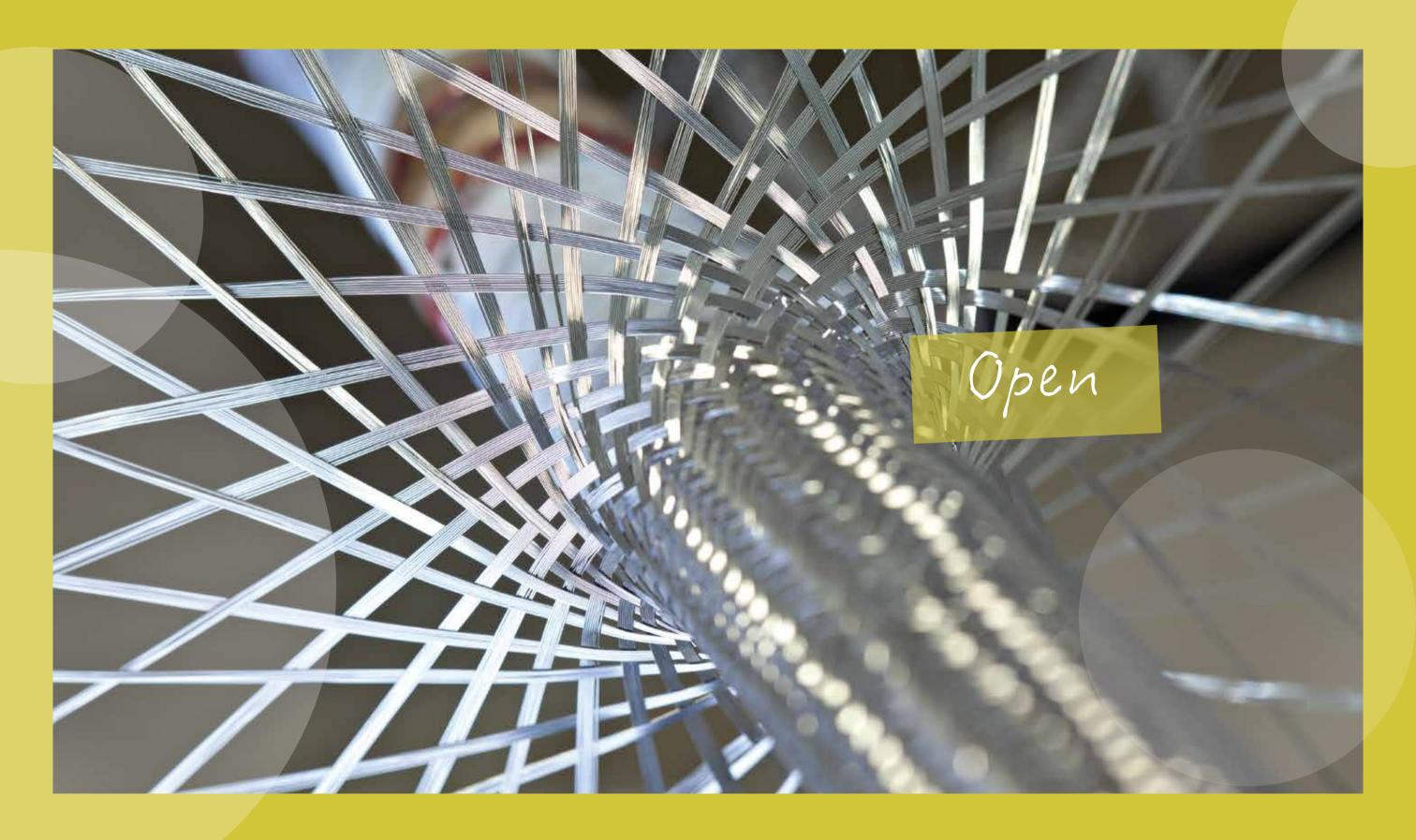
AIRPORT CHECKPOINT OF THE FUTURE

Airports are critical infrastructures to ensure the smooth transit of people and goods, based on secure ID and control procedures. In today's world, they have to reinvent their processes to ensure optimum passenger safety and throughput. The Checkpoint of the Future is a Safran project to simplify the different pre-boarding steps in airports, by combining several advanced technologies. Safran is the only company to apply the two enabling technologies: detection of dangerous substances, and biometric personal identification.

IN THE PIPELINE

* XDi™, a solution for the automatic detection of liquid explosives in carry-on luggage

* MorphoWave™, a contactless technology to read fingerprints on a moving hand



SAFRAN LEVERAGES KNOWLEDGE SHARING AS AN INNOVATION ACCELERATOR, BASED ON PARTNERSHIPS WITH WORLD-CLASS LABORATORIES, PRESTIGIOUS UNIVERSITIES AND ENGINEERING SCHOOLS, AND OUR SUPPLIERS. BY POOLING OUR KNOWLEDGE WE DRIVE CONTINUOUS PROGRESS AND ADDRESS OUR CUSTOMERS' EVOLVING NEEDS.

OPEN INNOVATION: BEING MORE CREATIVE TOGETHER

afran applies an open innovation policy in conjunction with our suppliers, by bringing them into our research projects early in the process. Our suppliers enjoy special reserved areas at Safran Tech, our corporate Research & Technology Center, to facilitate exchanges. Safran also teams up with our counterparts in different business sectors and with innovative small businesses, including startups.

For example, we have formed major industrial partnerships with the metallurgist Aubert et Duval to develop a very-high-strength steel for the new LEAP engine, and with auto parts giant Valeo to conduct research on autonomous vehicles.

PUSHING THE COLLABORATION ENVELOPE

We have also formed collaborative ventures with world-class organizations such as the CEA (French Alternative Energies and Atomic Energy Commission), Onera (French aerospace research agency), CERFACS (European research and training center for scientific computation), CNRS (French national scientific research agency), and several IRT (Technology Research Institutes), Saint Exupéry, M2P, SystemX and Vedecom.

TEAMING UP WITH LEADING SCHOOLS AND UNIVERSITIES

In France, Safran has formed close ties with leading engineering schools, including the École des Mines de Paris, as well as prestigious universities, such as Université Pierre et Marie Curie. Safran is actively involved on a daily basis, with our staff participating in student forums, roundtable discussions with universities and boards of directors, and also by funding chairs. Outside of France, Safran has formed a number of partnerships, including with the University of Sheffield (UK), MIT (Massachusetts Institute of Technology), Stanford and Virginia Tech (Virginia Polytechnic Institute and State University) in the United States, as well as with schools in China and India.

A DYNAMIC JOINT RESEARCH CENTER

Inaugurated in 2015, Safran Tech is a dynamic joint research center, open to innovators from within Safran and from the outside. It groups Safran's specialists, while giving them the freedom to investigate the specific development issues facing each company and each market. Safran Tech also hosts joint structures for scientific and industrial research partners, fostering the development of projects based on a shared vision.

A THINK TANK THAT LOOKS FAR INTO THE FUTURE

Launched in 2012, Safran's think tank melds outstanding individuals with different skills and backgrounds to stimulate research on new concepts and study long-term scenarios. Along with our own experts it includes leaders from industry and academia. Together, they are focusing on identifying future trends in air transport, towards 2040-2050.





Safran's Research & Technology Center inaugurated in Saclay in 2015.

FOSTERING AN INTRAPRENEURIAL CULTURE

Safran has set up "Creativity-Innovation Spaces" to bring together people with new ideas and incubators, and further anchor our culture of innovation and intrapreneurship. These spaces encourage and support Safran's own intrepreneurs, providing dedicated resources to help them bring their ideas to fruition. The first Safran Fab Lab was opened in 2014, as part of Snecma's Service Innovation Workshop in Montereau, near Paris.

Safran's scientists work with the world's top research centers and universities.



INNOVATION IS A PRIMARY FOCUS AT SAFRAN. WE INVEST HEAVILY IN INNOVATION, WITH A CONSIDERABLE NUMBER OF PEOPLE WORKING ON R&D. STATE-OF-THE-ART RESEARCH CENTERS, AND A POLICY EMPHASIZING EMPLOYEE-DRIVEN INNOVATION, COVERING NOT ONLY TECHNOLOGY AND PRODUCTION, BUT ALSO FUNCTIONAL AND ORGANIZATIONAL ASPECTS.

afran's Research & Technology (R&T) division is a strategic entity, encompassing fundamental research and state-of-the-art technologies. It enhances our visibility, especially through new patents. The Innovation division is a Group-wide entity, covering all our business sectors and companies. It manages large-scale, long-term work that culminates in new projects or models. We also have a complete array of networks and structures to support innovation across Safran.

INNOVATION **DRIVEN BY TALENT AND RESOURCES**

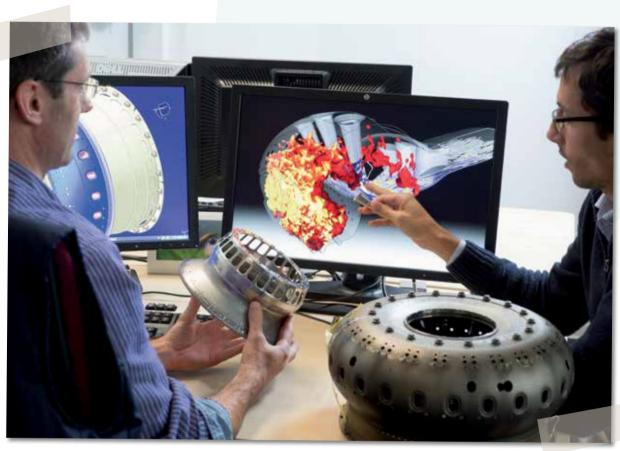
450

70,000 employee improvement ideas applied in 2014

LEVERAGING EXPERTISE AND RESEARCH

To consolidate our innovation policy, in 2014 Safran built two new world-class centers of expertise. Safran Tech groups all of our R&T teams, and will eventually house 300 engineers and scientists at its Paris Saclay venue. Safran Composites is wholly dedicated to R&D on composite parts. It represents an investment of 50 million euros and will eventually house some 150 specialists.

At Safran, we also invest heavily to develop our production facilities and implement advanced technologies. Touch tablets, robots, digital systems and other advanced tools are revolutionizing our plants, and transforming professions. By analyzing the massive data flows from our connected plants, we can also continuously improve our processes and product quality.



Turbomeca engineers conducting a numerical simulation analysis on the Makila 2A turboshaft engine.

EVERYBODY INNOVATES

Innovation at Safran is not just the job of specialists. Nor is it restricted to research and technology. Innovation also affects our commercial proposals, manufacturing processes, managerial organization and many other areas. Each employee is encouraged to share his or her ideas. Safran has signed the Employee-Driven Innovation Charter, a pledge initiated by the association Innov'acteurs to promote this approach at French companies. In 2014, more than 70,000 ideas submitted by employees were applied.

CONTINUOUS IMPROVEMENT: SAFRAN+

Safran+ is our corporate continuous improvement initiative, designed to transform and simplify our organization and operations. This management initiative groups all actions at Safran focused on improving productivity and reducing cycles, promoting innovation on the ground and deploying new processes across the Group.



REWARDING ALL FORMS OF INNOVATION

The Innovation Awards is an annual competition organized by Safran that offers our employees and suppliers the opportunity to promote their innovations, from ideas originating on the shop floor to patented technologies, covering products, services, methods and processes.



Strength and solidity tests on a part at the specialized Safran Composites R&D center.

2015 AWARDS

- 112 projects submitted
- 500 participants
- Grand Prize winner: Sagem's MEMS-based inertial micro-sensors will allow tomorrow's navigation systems to combine ultra-lightness, compact design and high-performance.



Snecma's Fab Lab supports employees who want to develop innovative service concepts for airlines and leasing firms.

A NETWORK OF 900 IN-HOUSE EXPERTS

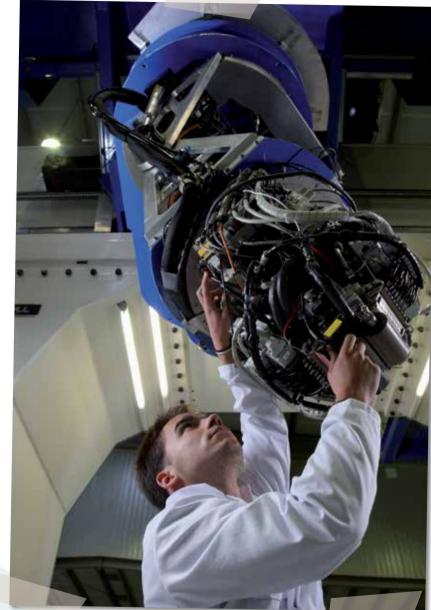
In addition to our R&T and Innovation units, Safran has established an in-house network of 900 experts, who enjoy a special status to help them foster joint research and shared expertise. Along with this network, we also deploy an array of innovators, who help bolster the local innovation culture in our companies by issuing calls for ideas. Safran also has a Scientific Council comprising seven internationally known specialists in disciplines that are key to our businesses, chaired by the physicist Mathias Fink.

SAFRAN DESIGNS TOMORROW'S FACTORIES

The innovation strategy deployed by Safran to design our products and services also applies to our plants. For several years now, we have been one of the European leaders in applying advanced technologies to define tomorrow's factory. Robotization, digitization, additive manufacturing... Safran continuously develops and applies advanced production processes to rationalize our activities and enhance our industrial performance. Additive manufacturing is one of the most striking examples, since it allows us to produce parts by building them up layer by layer following a 3D model. With this process, we can now make complex, single-piece parts that would be impossible using a conventional process,

and reduce development time

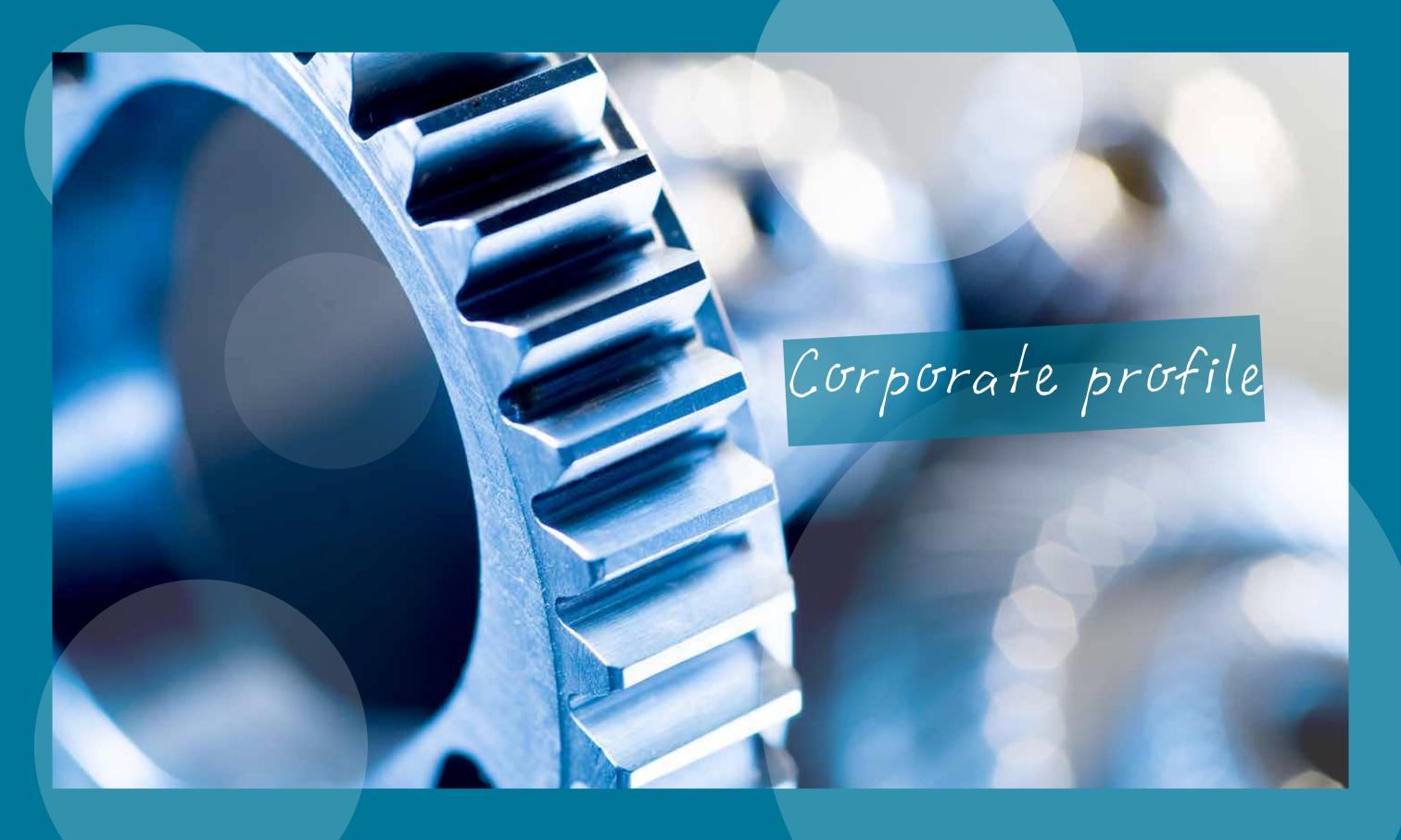
by 60%.



Safran's R&T projects now include cobotics (humanrobot collaboration) to facilitate tasks, as shown here at Aircelle, with a composite part lay-up robot for A380 nacelles.



A combustion chamber built from laser-sintered metallic powders using additive manufacturing.



SAFRAN IS AN INTERNATIONAL HIGH-TECH GROUP, AND TIER-1 SUPPLIER OF SYSTEMS AND EQUIPMENT FOR THE AEROSPACE, DEFENSE AND SECURITY MARKETS. COMPRISING A NUMBER OF PRESTIGIOUS COMPANIES, SAFRAN HOLDS, ALONE OR IN PARTNERSHIP, WORLD OR EUROPEAN LEADERSHIP POSITIONS IN ITS CORE MARKETS.

SAFRAN, AN INTERNATIONAL **HIGH-TECH GROUP**

AVIATION

Safran is a specialist in propulsion systems and equipment for civil and military airplanes and helicopters. Our engines and equipment are used on most aircraft now in service or to come, including regional and business aircraft, single-aisle and widebody commercial jets. Drawing on our proven technological expertise, we provide complete packages to aircraft manufacturers and operators, including integrated propulsion systems (with nacelles), electrical systems and complete landing systems.

DEFENSE

and military systems and equipment in the key areas of optronics, avionics, navigation and electronics, plus safety-critical software. Our solutions also facilitate the missions assigned to homeland security and police forces, plus customs services, and at-sea or mountain rescue units. Our products and services boost the efficiency of armies, navies and air forces in many different

Safran offers a complete range of civil

SPACE

For more than a half century now, Safran has applied the advanced technologies needed to design and produce rocket propulsion systems. Through Airbus Safran Launchers, a 50/50 joint company between Safran and Airbus Group, we produce the current Ariane 5 launcher and are developing Ariane 6. Safran also makes systems and equipment for launchers and spacecraft.

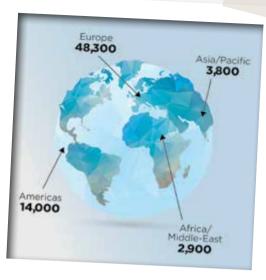
SECURITY

Safran's security business spans a number of technology-driven areas: detection of explosives and illicit substances, ID document security, online transactions, etc. Our solutions contribute to the safety and security of people, goods, businesses and countries, by guaranteeing the safety of transportation, high-value infrastructures and transactions.

€15.4billion

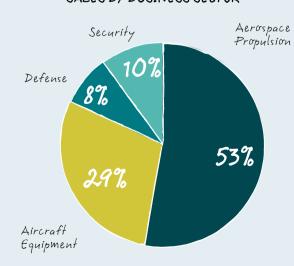
€64 billion

69,000



SAFRAN WORLDWIDE

SALES BY BUSINESS SECTOR



X No. 1 worldwide for engines on mainline commercial jets (over 100 seats) and turbine helicopters

X No. 1 worldwide for landing gear, wheels and carbon brakes (mainline commercial jets over 100 seats)

X No. 1 worldwide in launch vehicles

X No. 1 worldwide in helicopter flight controls

X No. 1 in Europe for tactical drones, optronics and inertial navigation systems

X No. 1 worldwide in biometric identification solutions and automated identification systems based on fingerprint, iris and facial recognition

SAFRAN COMPANIES

AIRCELLE

Complete nacelle systems for aircraft engines, associated support services, composite materials for aerostructures.

HERAKLES

Solid rocket motors for launchers and missiles, as well as energetic materials, pyrotechnic equipment, thermostructural and organic composite materials for the aerospace, defense, automobile and manufacturing industries.

HISPANO-SUIZA

Mechanical power transmissions for commercial and military airplane engines and helicopters. Maintenance, repair, overhaul (MRO) and associated services. Mechanical components for airplane and helicopter propulsion systems.

LABINAL POWER SYSTEMS

Electrical power systems for the aerospace market, covering all onboard electrical functions (power generation, distribution and conversion, wiring, load management, ventilation). Engineering solutions for the aerospace, automobile and rail industries.

MESSIER-BUGATTI-DOWTY

Aircraft landing and braking systems. Control and monitoring systems. Capabilities covering the entire product cycle, from design and production to maintenance, repair and overhaul (MRO).

MORPHO

Multibiometric identification technologies (fingerprint, iris and facial recognition) and identity management solutions. Secure smart cards, documents and transactions. Explosive and narcotics detection solutions. Solutions for road safety. Gaming and betting terminals.

SAGEM

Optronics, avionics and navigation systems and equipment, electronics and critical software for both civil and defense markets, covering land, sea, air and space applications. A full range of product support services.

SNECMA

Engines for commercial and military aircraft, maintenance, repair and overhaul (MRO) services. Liquid-propellant rocket propulsion systems for launch vehicles and plasma propulsion systems for satellites and space vehicles.

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Low-pressure compressors for aircraft engines. Equipment for aircraft and spacecraft. Test cells and equipment for engine testing.

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Turboshaft engines for civil and military helicopters, auxiliary power units (APU), starting and propulsion systems for missiles, target drones and unmanned aerial vehicles (UAV). Maintenance, repair, overhaul (MRO) and associated services.

OUR ACHIEVEMENTS

AN AIRCRAFT TAKES OFF EVERY 2 SECONDS SOMEWHERE IN THE WORLD POWERED BY SAFRAN ENGINES

1 OUT OF EVERY 4 TURBINE HELICOPTERS WORLDWIDE POWERED BY SAFRAN



BY AIRCRAFT WITH SAFRAN LANDING SYSTEMS.

17,000 NACELLES PRODUCED BY SAFRAN OUTFIT

17,000 NACELLES PRODUCED BY SAFRAN OUTFIT JET ENGINES IN SERVICE.

MORE THAN 40,000 LANDINGS PER DAY PERFORMED



65 SUCCESSFUL MISSIONS IN A ROW FOR ARIANE 5, THANKS TO SAFRAN TECHNOLOGIES



20,000 FELIN SYSTEMS CURRENTLY ORDERED OR IN SERVICE

2.5 BILLION ID DOCUMENTS DELIVERED BY SAFRAN

1	Votes

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