

ALLEN

ENGINEERING AND TECHNOLOGY CONSULTING

DEFENSE & SECURITY SECTOR

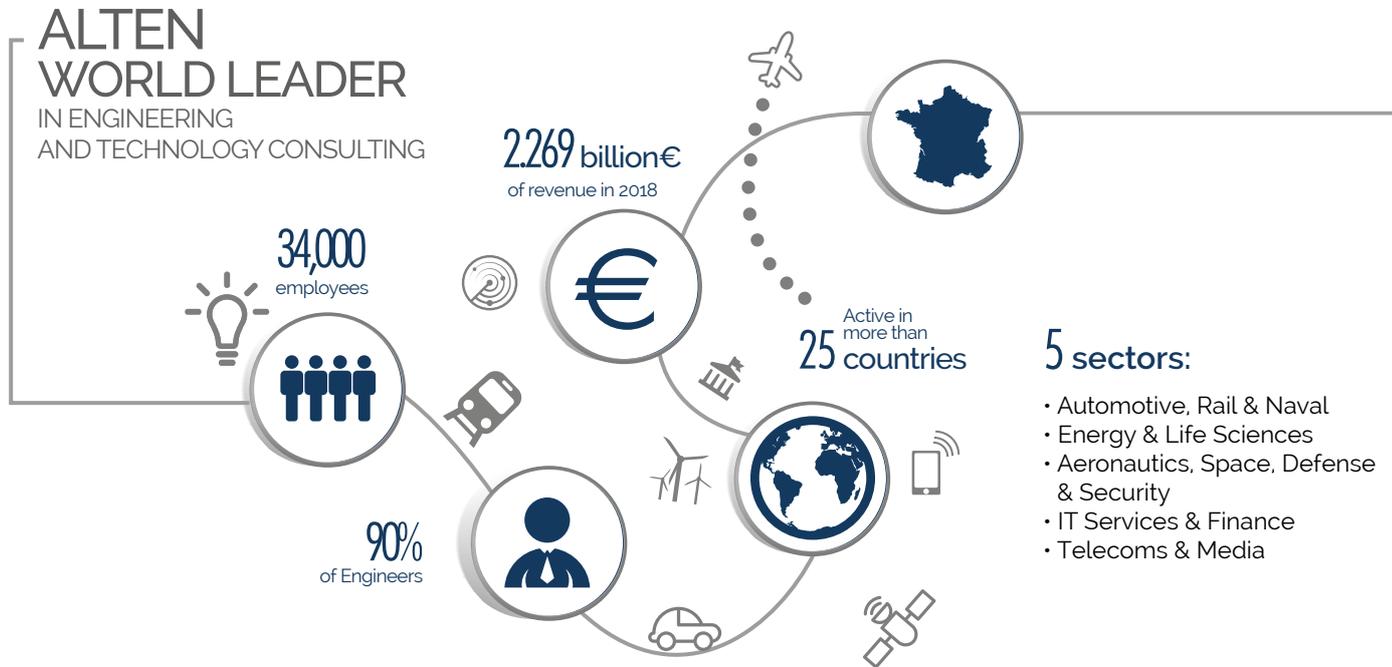


ALLEN

ALTEN GROUP

KEY FIGURES

Over the past 30 years, ALTEN has established itself as a leader by supporting its customers' development strategies in the areas of innovation, R&D and information systems.



ALLEN IN DEFENSE AND SECURITY

Cybersecurity

Air
Defense

Naval Defense

Land Defense



1,300

Defense & Security Engineers

OUR CLIENTS

AIRBUS D&S | ARQUUS | IDEMIA | SAFRAN GROUP | THALES GROUP | MBDA | NEXTER | NAVAL GROUP |

DASSAULT AVIATION | LEONARDO | SAAB

AIR DEFENSE

Facing the rise of new regional powers or the fight against terrorism, governments are pursuing the development of their military air power.

With its strong engineering know-how (embedded systems, mechanics, etc.), ALTEN supports manufacturers in developing state-of-the-art combat aircraft and weapons systems.



Multi-role combat aircraft: adaptation for export

ALTEN is supporting a French aeronautical manufacturer with its export projects: modifying the aircraft to meet the specific needs of the client country's army and implementing technological transfers to upskill the local industries.

More than 70 ALTEN engineers are working in the following fields:

- Systems engineering: integrating new equipment and adding new features
- Layout: revising equipment layout (cables, pipes and supports)
- Mechanical design: optimisation of the assembly of sub-assemblies; complex calculation of vibro-acoustic loads and fatigue.

As part of the digital model's migration to a more recent CAD tool, ALTEN is in charge of methodological support and the quality of the parts (compliance of the design method, factory part/digital mock-up consistency).

Development of electronic war system embedded software

Capable of identifying, locating and scrambling air-to-air or ground-to-air threats, one of the world's leading electronics companies has developed an extremely sophisticated countermeasure system to increase the in-flight survivability of a French omni-role combat aircraft.

ALTEN has set up a specialist service centre in the development of real-time embedded software. Engineers are working at all stages of the cycle:

- Functional and technical specifications
- Programming the embedded software
- Integration and validation

With its strong technical expertise and organisation, ALTEN is able to provide a cost unit catalogue service to the client and train its employees on the Agile method and specific programming languages for the project.





Design of optronics and guidance systems for missiles

A historic partner of the global leader in optronics systems for defense, ALTEN has set up a service centre specialising in the systems engineering of missile seekers, a very sophisticated product.

ALTEN's engineers are working on:

- Hardware architecture: specification and choice of components, supplier monitoring and manufacturing support
- Integration and validation of the guidance system
- Development of test benches for optronics systems (black body, light point simulation)

Furthermore, they are helping to develop the complete modular missile system: specification of aerodynamism, full system validation testing and performance assessment (range, precision).

NAVAL DEFENSE

The naval industry sector is strengthening the development of innovative technological solutions (Artificial intelligence, cybersecurity, industry 4.0, etc.). Tomorrow's ship will be more interconnected and automated, while offering superior operational capabilities.

ALTEN is supporting the leaders in naval defense systems in designing ships and submarines, developing systems and the digital transformation of the sector.



New generation frigate: 3DEXPERIENCE migration

With its strong experience in aeronautics and automotive, ALTEN completed the project to implement and deploy the Cloud collaborative development platform with a European leader in naval defense.

Mastering the design office technical constraints and the digital skills, ALTEN worked on:

- The platform functionality tests
- The transfer of the digital mock-up of a new generation frigate in 3DEXPERIENCE
- User support

Today, ALTEN is a benchmark in the transfer of CAD models and helping engineering teams take ownership of the solution. This new process guarantees project delivery lead times with an expected level of quality and enhanced productivity for engineering teams.

Development of systems for submarines

To support the ramp-up of a naval manufacturer in several submarine programmes, ALTEN has set up a service centre to carry out the preliminary studies and establish the functional specifications of various sub-systems or installations.

With a multi-specialist approach (mechanics, embedded system, electrics, thermodynamics), ALTEN engineers are contributing to:

- The analysis of end client requirements
- The definition and modification of the technical specifications
- The review of 2D drawings or 3D mock-ups
- Management of the validation tests
- Supplier monitoring





Installation studies on an attack submarine

To support the completion of an important export contract, ALTEN set up a service centre dedicated to studies on the submarine's installations.

In an extremely confined space there are hundreds of thousands of equipment items (hulls, pipes, electrical cable raceways). As an indication, in a submarine there are nearly 200 kilometres of piping. Solutions for integrating all the components must take into account a multitude of technical constraints (management of cohabitation between fuel and comburent).

With their strong expertise in mechanical design, ALTEN's engineers are working on:

- Analysis of functional needs for the submarine programme
- Equipment and networks integration studies (electrical, piping, ventilation and their support in a room in the vessel)
- 3D modelling and modification of 2D drawings
- Configuration management.

LAND DEFENSE

Digitalisation of the battle space and optimisation of equipment availability are the major challenges facing land armies today.

Combining its expertise in products engineering with its digital-networks skills, ALTEN is actively contributing to land defense manufacturers' innovative projects and provides support throughout the product life cycle.



Optimisation of armoured vehicle maintenance

The equipment availability rate has become crucial, due to armies' new operational and budgetary challenges. ATEXIS, a subsidiary of the ALTEN Group, is a source of proposals to improve vehicles' availability and optimise their maintainability.

The ATEXIS project team is providing a series of services to an armoured vehicle manufacturer following S-series standards (S1000D, 2000M, 3000M) including:

- Maintenance and reliability studies
- Analysis of the life cycle cost (LCC)
- Level of repair analysis (LORA)
- Maintenance procedures
- Creation of the spare parts catalogue (IPC, IPL)

ATEXIS also supports the client in deploying the output of engineering support work into a modular technical documentation.

Development of very high-speed broadband tactical software-defined radios

Capable of providing a very high-speed network, the new generation of tactical software-defined radios developed by one of the Group's clients enables the different units to share information in a tactical situation in real time. It offers services such as combat voice communication, messaging, video or monitoring of allied forces.

Recognised for its expertise in embedded systems and network protocols, the ALTEN service centre contributes to:

- The development of embedded software
- Validation on the system lower and middle layers

ALTEN also supports the client with working in Agile mode to adapt quickly to the needs of end users.





Augmented reality display system for armoured vehicles: software integration

With an armoured vehicle renewal programme (transport, combat and reconnaissance), land forces are preparing for information superiority over the adversary.

ALTEN is supporting an industrial armament group with software integration for the new armoured vehicle driver display system. The augmented reality helmet, connected to different computers, offers a real view of the terrain enhanced with threat or ally information in real time. This geolocated information is merged from various connected sensors on the armoured vehicle (camera, thermal camera) and the network.

With its strong expertise in digital technology and development of the Human Machine Interface (HMI) on embedded systems, ALTEN is introducing new methods in the military sector:

- Agility to adapt the project to the user's changing needs and the progress of industrial partnerships
- Ongoing integration for total traceability over all the project phases

This methods have optimised lead times and guarantee better coverage of end user requirements.

CYBERSECURITY

The digital revolution, the Internet of Things (IoT) and associated services, the exponential multiplication of data as well as the management of flows and storage make cybersecurity a major challenge.

With its strong expertise in cybersecurity and its knowledge of the client's IT environment, ALTEN helps its clients secure their information systems and develop and deploy cybersecurity solutions.



Integration of SoC (Security Operation Centre) solutions

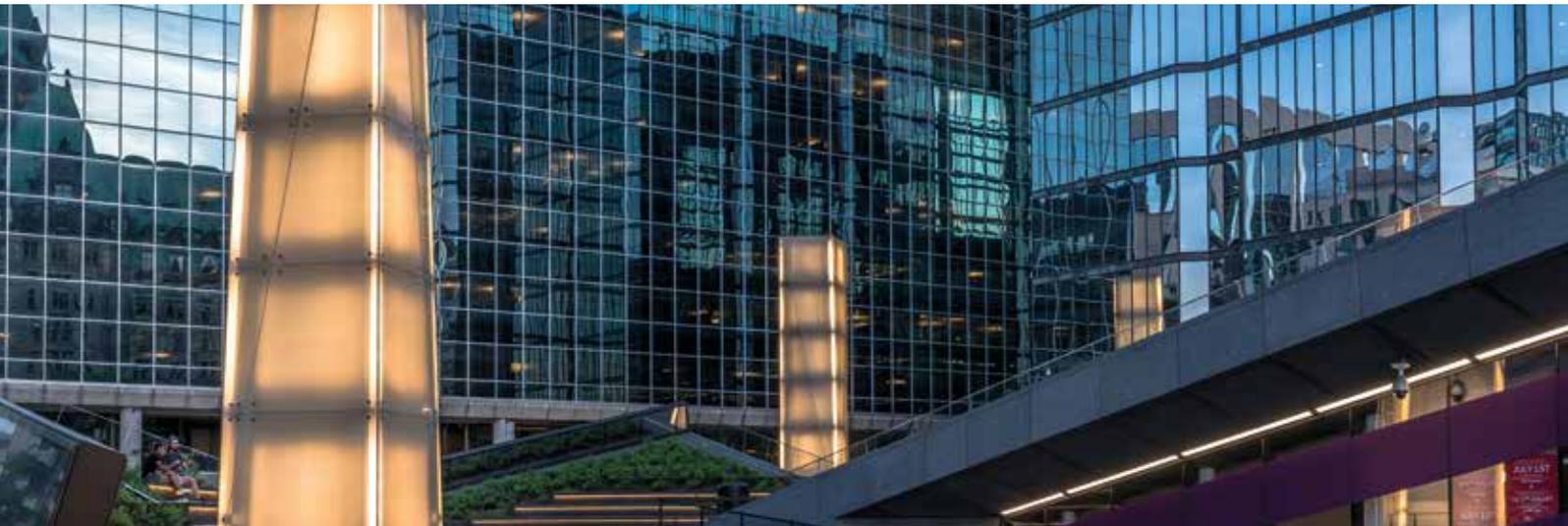
ALTEN is supporting a major European player in developing and integrating solutions to detect intrusions and sophisticated malware, in the strategic field of national cybersecurity (IT infrastructure belonging to governments, defense, security and national organisations and infrastructure).

ALTEN is helping to integrate these cybersecurity solutions in:

- Network architecture: Configuring the end client's network access layers, integrating new security layers to protect access to the IS and performing certification tests.
- Software development: Providing scripts to integrate SoC software on servers, and secure this equipment with respect to ANSSI (French National Cybersecurity Agency) standards (OS Hardening).

ALTEN engineers support the client throughout the product life cycle (specification, development, prototyping, integration and documentation), acting as a source of proposals on subjects such as partitioning data, which multiplies analytical capacity in very little time.





Banking cybersecurity centre: Red Team vs Blue Team

The financial sector is the primary target of cyberattacks worldwide. Today, ALTEN is securing the entire IT system of a large finance and investment bank in North America.

Initially, the client needs to correct a large number of vulnerabilities to be compliant with the regulations. ALTEN brought together a multi-specialist cybersecurity team in less than a month, to complete the project within expected lead times.

ALTEN proposed the implementation of a cybersecurity service centre to guarantee the continuity of an optimal level of cybersecurity, instead of taking costly steps to bring the bank into compliance every 3-4 years.

- The Red Team, comprising penetration-testers (ethical hackers), adopts an offensive approach to attempt to hack the bank's information systems.

- The faults detected are then addressed by the Blue Team which analyses them. The resolution recommendations (short, medium or long term) are then distributed to the departments concerned.

SECURITY

To face changes such as the increase in passengers or the multiplication of online banking transactions, companies must develop comprehensive solutions to guarantee the security of spaces and secure identification of individuals.

With its technical expertise (embedded system, signal processing, application development, etc.) and its digital skills (AI, Big Data, Cloud, etc.), ALTEN is an essential partner for the development of space control systems and biometric identification systems.



Designing speed control systems

ALTEN is taking part in the design of a new generation automatic radar. It is able to monitor 8 lanes simultaneously and identify vehicles that are breaking the law (not wearing a seatbelt, overtaking on the inside).

Furthermore, the team of ALTEN engineers is developing the software system for the offence processing centre. It centralises and processes all the information from the radars spread across the country.

Development of the C2 system for air space security

ALTEN is supporting a leading manufacturer of military electronic technologies with the deployment and integration of one of the largest information systems in the world. It enables interoperability between allied countries in the processing of air space security information. Within the military installations spread across Europe, ALTEN's engineers are working, in particular, on:

- Systems engineering and administration of network systems
- Development of the software and applications
- System validation and management of requirements

Today, ALTEN is helping overhaul this system so that the forces in alliance countries have a modernised IT platform and communication protocols.





Adaptation of the PNR system for the international market

Holding booking-related information that is contained in files created by air companies for each flight, the PNR (Passenger Name Record) data processing system would enable the police authorities to identify suspects who had previously been unknown to their departments.

ALTEN "customises" this product for its clients on the international market. With its strong expertise in digital technology, the ALTEN service centre works throughout the development cycle (specification, development, integration and support) to:

- Make the product compatible with all types of client database
- Customise the interface (HMI) according to the end user's requests
- Develop new functionality
- Automate the system's deployment and its interoperability with information systems' client.

DIGITAL TRANSFORMATION

The new digital technologies (IoT, AI, etc.) are today being adopted on a massive scale in the defense & security sector. They improve knowledge of the combat and command units' situations, optimise the availability of combat vehicles and accelerate the development and manufacture of new products.

ALTEN is supporting its clients, both in developing products enhanced by digital technology and with digitalising company processes.



Development of applications for a connected infantry tablet

In order to integrate infantry within the battle space digitalisation project, ALTEN is supporting a global leader in electronic defense systems in developing a connected touchscreen tablet with an intuitive interface.

It provides precious information (friend/foe situation, navigation) to the offboard soldier. Due to its historical collaboration with the client in developing mission systems software, the ALTEN service centre is working on:

- Software development
- Implementation of cybersecurity
- Integration and validation



ALTEN LABS

ALTEN Labs provide an environment to develop our expertise on cutting-edge technologies and test their applicability on our industrial projects.

True source of inspiration and learning, the ALTEN Labs foster digital innovation by implementing multi-functional teams mixing our digital engineers and our business engineers.



RENNES

- Smart Systems Security (Blockchain, Cybersecurity, AI Safety)
- Network and connected objects (IoT, Multimedia, Calculation System)
- Advanced testing (Robotisation, Automation, Artificial Intelligence)

PARIS REGION

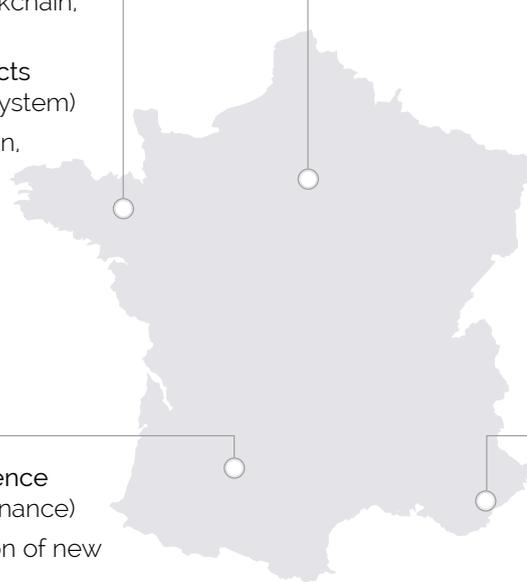
- Smart & autonomous systems (Physical and Algorithmic Modelling, Onboard Systems, Artificial Intelligence, Image Processing, Sensors and Signal Processing)
- Testing and Robotic process automation (RPA)
- Connected objects (IoT)

TOULOUSE

- Big Data and Business intelligence (Industry 4.0, Predictive Maintenance)
- Digital UX/UI (AR/VR, Definition of new Product Functionality)
- Digital continuity (Experimenting with new uses for 3DEXPERIENCE PLM)

SOPHIA ANTIPOLIS

- Big Data and AI (Automated Processing of Heterogeneous Data, Behavioural Prediction)





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