

Innovation - Civil Aerospace - Defence Aerospace - Transportation - Defence - Security

Innovation at the heart of the Thales strategy



Research-driven innovation is an integral part of Thales’s identity. Young engineers now rank Thales in the top three most attractive employers in the world.



©Thales

MARKET DATASHEET

R&D, THE KEY TO GROWTH

Thales employs over 25,000 researchers and engineers, and in 2016 invested more than €797 million in self-funded research and development.

A significant portion of this budget is devoted to upstream research, conducted both at Thales Research & Technology (TRT) laboratories and the company’s centres of expertise, in order to develop new technologies, new system and product concepts and new engineering tools and methods.

Designing and developing the mission-critical information systems of tomorrow calls for comprehensive expertise in a wide range of increasingly sophisticated technologies.

Thales expertise spans four key technologies:

- > Hardware: electronics, electromagnetics, optonics, acoustics, radiofrequency techniques and heat stresses
- > Software: processing, real-time embedded systems, distributed systems, service-oriented architectures, model-driven engineering and cybersecurity
- > Information and cognitive sciences: big data, autonomous systems, synthetic environments, human factors and artificial intelligence
- > Systems: systems architecture, methodology, tooling processes and evaluation

LOCAL INNOVATION ECOSYSTEMS

In all its countries of operation, Thales seeks to build partnerships within innovation ecosystems, with academic institutions, design centres and high-tech firms for joint innovation on applications, business models and technologies. Innovation succeeds when creative forces and disruptive technology come together to meet a real-life customer need. Ideally, this process leads to the development of ‘dream products’ that capture significant market share and consolidate Thales’s leadership in its core areas of business.

Pursuing the open innovation policy in place at Thales for more than 15 years, the company is now expanding its partnership network to consolidate its strong local presence and raise its profile in emerging countries.

In 2017, Thales created its new worldwide hub dedicated to AI in Canada. Named CortAIx, it gathers 50 experts in charge of injecting AI in all of the Group’s solutions.



The I-Swarm laboratory at Thales’s Mérignac facility © E. de Malglaive – CAPA Pictures 559

Teaming with the world’s top universities

To develop the disruptive technologies of the future, Thales is actively developing ties with the research and higher education community.

Through its international network of corporate laboratories in France, the United Kingdom, the Netherlands, Singapore and Canada, Thales maintains close relations with the academic world and has formed more than 50 partnerships with universities and public research institutes.

In France, Thales has numerous strategic partnerships, for example with the École Polytechnique, Telecom Paris Tech and Université Pierre et Marie Curie. In the United Kingdom, the Thales research centre has close ties with major universities, including Cambridge, Bristol and Southampton. In Canada, the Group regularly works with the University of Toronto, McGill University, Laval University and the École Polytechnique de Montréal. Recently, Thales joined the prestigious Institute for Data Valorisation (IVADO), which brings together industry professionals and academic researchers to develop expertise in big data. In India, the company has formed partnerships with the Indian Institutes of Technology in Delhi and Bombay.

The most advanced form of partnership is the joint laboratory, such as those operated by

KEY FIGURES

- €797 million invested in R&D in 2016
- 25,000 staff involved in Thales’s technical operations, from research to engineering
- Five research centres in France, the United Kingdom, the Netherlands, Singapore and Canada
- 20 innovation hubs in Europe, North America, Asia and Australia
- 20 joint laboratories with partner research institutes around the world
- 50 cooperation agreements with universities and public research bodies in Europe, the United States and Asia
- A portfolio of 15,000 patents.



Thales’s Palaiseau research facility with CNRS for physics and the CEA for smart video analytics.

Training also forms part of this overall strategy of linking the company with the academic world, and Thales supports around 200 PhD students worldwide.

Partnerships with SMEs and startups

Thales has adopted a Responsible Supplier Relations Charter to support SMEs and is a signatory to the SME Pact in France to encourage best practices in sourcing and procurement. In addition, the company is pursuing a policy of active partnership and open innovation with SMEs and startups to drive business success. These mutually beneficial relationships play an important role in seeding new technologies and the development of new services and business models. In just two years, Thales has analysed over 300 startups and carried out 25 real-life case studies in conjunction with company operating units in avionics, optronics and cybersecurity.

Co-innovating with customers

To ensure customers are an integral part of the innovation loop, Thales is progressively

deploying innovation hubs around the world to foster new collaborative design approaches combining the latest simulation, visualisation and rapid prototyping technologies. The role of these Thales innovation hubs is to pinpoint new operational requirements, devise new solutions and test new applications and use cases. Rather than simply adapting existing products to local markets, the objective is to differentiate Thales from its competitors by offering distinctive value propositions for customers and end users. This requires constant innovation to develop new solutions to the specific operational needs of each sector.

In France, the innovation hub at Thales’s Mérignac campus near Bordeaux played an instrumental role in the development of Avionics 2020, the aircraft cockpit of the future. There are now two Thales innovation hubs in Asia: in Singapore, the company’s first multidisciplinary hub outside Europe, focuses on maritime surveillance, smart cities and defence, while the Hong Kong hub is dedicated to ground transportation. Thales’s very latest innovation hub, created in Portugal in partnership with the Instituto Superior Técnico, specialises in transportation and security.

INCUBATORS AND ACCELERATORS

- > Thales is a founding member of Starburst, a startup accelerator that specialises in aerospace. Created in Paris in 2012, Starburst has expanded to Munich and Singapore, and is now building its presence in America and Germany.
- > Thales has also formed an innovation team in Boston at Media Lab, the research hub at the prestigious Massachusetts Institute of Technology (MIT).

INDUSTRIAL PROPERTY

Thales supports its R&D activities with a dynamic approach to intellectual property management. In terms of the number of patents granted for innovations, Thales is on a par with most of its competitors. The large number of patent applications in recent years reflects Thales’s commitment to innovation and its ability to translate research results into competitive advantages. The Thales patent portfolio, which includes more than 15,000 patents, is constantly adapted to the requirements of our operating units, particularly to preserve their market share. Thales was in the world’s Top 100 innovators ranked by Clarivate Analytics (formerly Thomson Reuters) in 2012, 2013, 2015 and 2016.

PALAISEAU FACILITY

Palaiseau is one of Thales’s five corporate research centres. It is strategically located at the heart of the Paris-Saclay science and technology cluster to facilitate open innovation with the academic research community. Some 500 people from Thales’s operating units work alongside academic and industry partners, as well as significant numbers of PhD students,

at Palaiseau.

Prestigious academic partnerships

The Palaiseau facility has created several prestigious research laboratories with academic partners. These include the Joint Physics Unit, founded with the French scientific research centre CNRS by Albert Fert, Nobel Prize in Physics in 2007, the Vision Lab dedicated to video analytics for security applications and the Formal Lab, working on formal methods, both with the atomic energy commission CEA, and the NanoCarb laboratory, focusing on graphene components with the École Polytechnique engineering school. Thales has set up joint laboratories with the École Centrale, Telecom Paris Tech and Université Pierre et Marie Curie in Paris. More recently, Thales and the École Polytechnique signed a cooperation agreement to develop a revolutionary laser technology under the X-Can research programme.

Elsewhere in France, Thales has signed framework agreements with Paul Sabatier University in Toulouse, the XLIM research institute in Limoges and the IEMN electronics, microelectronics and nanotechnology institute



in Lille.

III-V Lab leadership in semiconductors

Thales has also formed strategic technology partnerships with a number of other industry stakeholders. The III-V Lab, now a mainstay of European research, is an industrial laboratory dedicated to advanced III-V semiconductor technologies. Current partners Thales, Nokia and CEA (LETI) are continuing to develop these technologies for future applications in optics, optronics and radiofrequency sensors. With its 120 researchers (40% from Thales, 40% from Nokia and 20% from CEA), the III-V Lab is helping secure access to critical technologies through its work with joint ventures such as UMS (Thales/Airbus) on radiofrequency applications and Sofradir (Thales/Safran) on infrared sensors. The III-V Lab is also helping incubate startups in the Saclay research and high-tech ecosystem.

Press contact

Thales, Media Relations Corporate and Innovation

Victoire Chartier

+33 (0)1 57 77 90 22

victoire.chartier@thalesgroup.com

