

OME Overview



The logo consists of two overlapping white hexagons on a dark background. The text "THALES GROUP" is centered within the hexagons in a white, bold, sans-serif font.

**THALES
GROUP**

The logo features a white hexagon containing the text "LAS" in a white, bold, sans-serif font. The hexagon is positioned over a circular image of a city and beach, which is part of a larger globe graphic.

LAS

The logo features a white hexagon containing the text "OME" in a white, bold, sans-serif font. The hexagon is positioned over a circular image of a city and beach, which is part of a larger globe graphic.

OME



THALES GROUP

Overview

Over
80,000
employees



68 
Countries
of operation

1 Bn € 
self-funded R&D*

* Does not include externally financed R&D

19 sales in 2018
bn € 

Our Customers' Big Ambitions Make the World Go Round



GOVERNMENTS



INSTITUTIONS



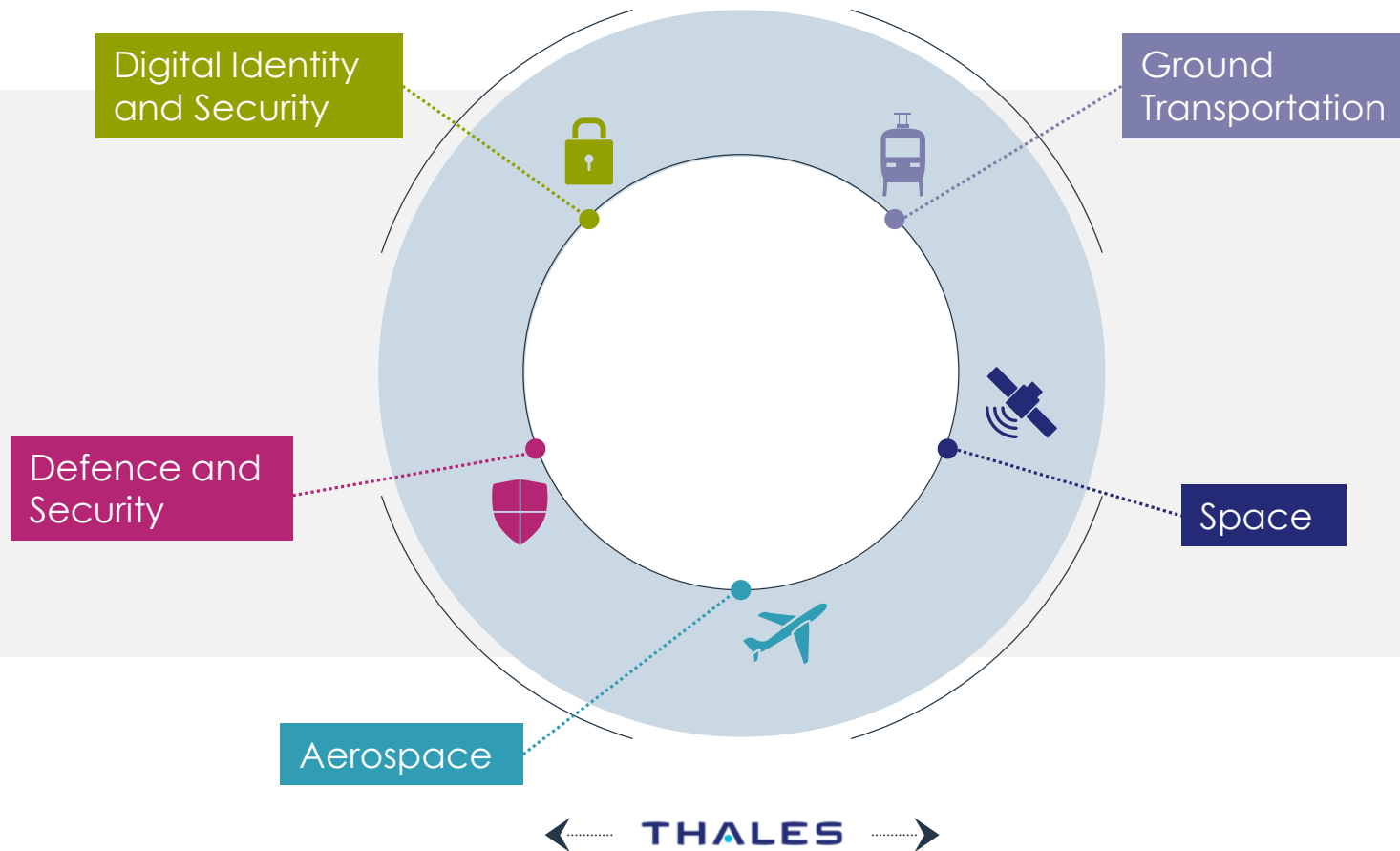
CITIES



COMPANIES



From the Bottom of the Oceans... to the Depths of Space & Cyberspace



Thales's Mission

**Sensing
& data gathering**



**Data transmission
& storage**



**Data processing
& decision making**



Digital Identity and Security



Defence and Security



Aerospace



Space



Ground Transportation

**We help customers master decisive moments by providing
the right information at the right moment**

Key Digital Technologies



Thales: A Research and Development Powerhouse



Albert FERT



Scientific director of the CNRS/Thales joint physics unit and winner of the **2007 Nobel prize in physics**.



6 times winner

2012, 2013, 2015,
2016, 2017, **2018**



TOP 100
GLOBAL
INNOVATORS



Expertise in a uniquely broad range of technical domains, **from science to systems**, applied across businesses.



An extensive intellectual property portfolio of **20,500 patents**.

INNOVATE FOR PEOPLE

Education

“ Helping future generations face the challenges, jobs and skills of tomorrow. ”

FOCUS

STEM education.
Classroom innovation.

BENEFICIARIES

10,000 young school
children & teachers per
year.



Over
60 projects
worldwide
supported since 2015,
focusing on two major
challenges



Humanitarian disasters

“ Reducing the vulnerability of the more fragile and less prepared populations. ”

FOCUS

Natural disaster risk prevention
& reduction. Preparation
of emergency
intervention teams.

BENEFICIARIES

Thousands of people
in high-risk areas.
Humanitarian teams.





LAS

Land & Air Systems Activities



Customers



Governments



Airports



Armed Forces



**Air Traffic
Service
Providers**



**OEMs and Prime
Contractors**



**> 11,500
employees**



24 countries

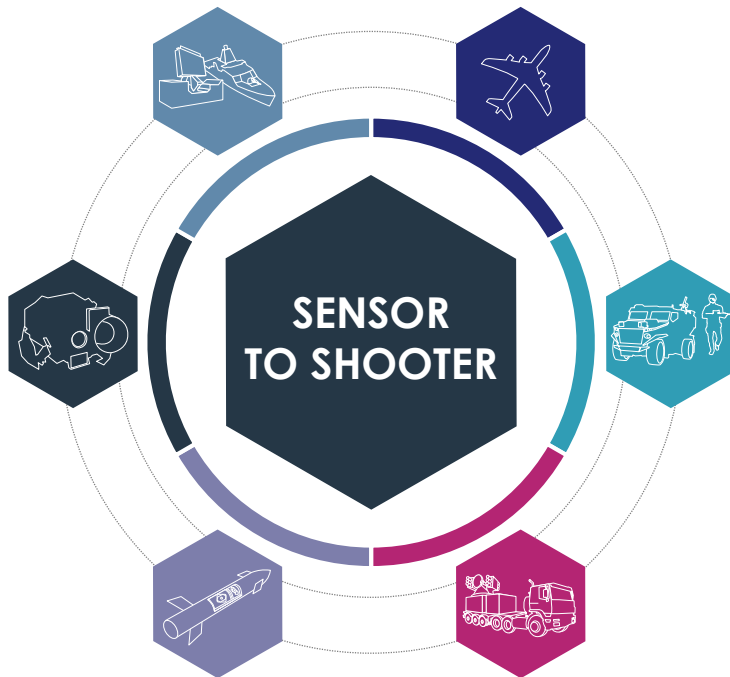
Land & Air Systems Activities

SURFACE RADAR

- Ground & naval surveillance radars
- Primary & secondary ATM radars
- Fire control radars
- Coastal radars

OPTRONICS & MISSILE ELECTRONICS

- Land, airborne and naval optronics systems
- Vehicle and soldier cameras
- Scientific and industrial laser
- Radiofrequency (RF) seekers
- Proximity fuzing
- Electronic Safe and Arm Devices (ESAD)



AIR TRAFFIC MANAGEMENT

- Air traffic control systems
- Navigation aids
- Satellite navigation and surveillance
- Airport solutions

VEHICLES & TACTICAL SYSTEMS

- Mortar and rocket systems
- Full range of ammunitions
- Ammunition fuzes
- Combat protected vehicle

INTEGRATED AIRSPACE-PROTECTION SYSTEMS

- Air & missile defence systems
- Fixed and deployable air C4I
- Air defence weapons systems
- Missiles

With its unique 'sensor to effector' expertise Land & Air Systems helps you master critical systems



OME

Optronics & Missile Electronics' Mission

Help our customers **to see more clearly, understand more deeply, and control more precisely.**

For over **130 years**, we have proudly led the development of optronics for military, scientific and commercial use.

Optronics expands the limits of humans capabilities

We help

- forces to find **the right information** at **the right time** to make **the right decision**
- scientists to look into **the furthest reaches** of our universe
- film-makers to **capture the perfect image...**



OPTRONICS & MISSILE ELECTRONICS: INTERNATIONAL FOOTPRINT



11

Thales sites
+ 3 joint ventures



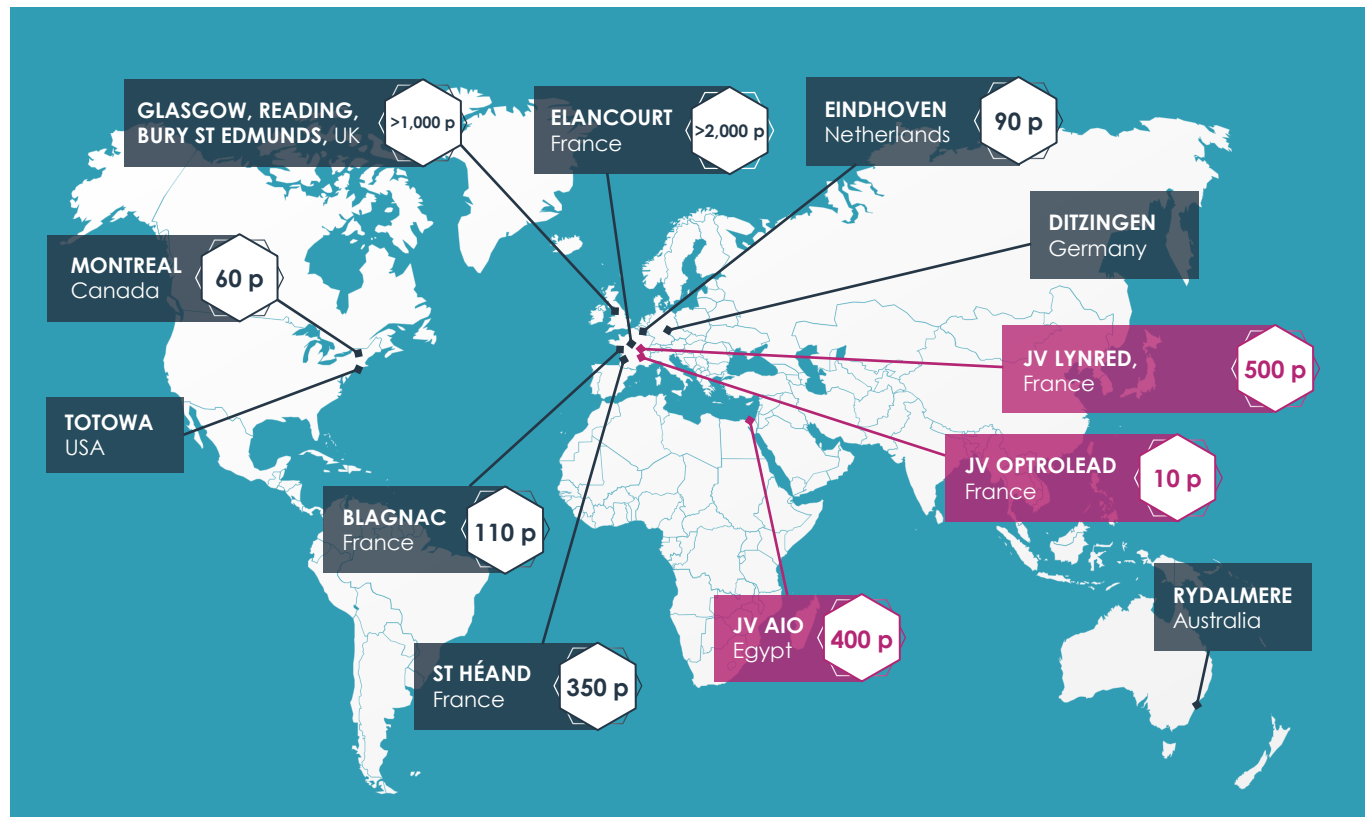
7

countries



> 4,500

employees



SERVICES
AND SUPPORT
FOR MISSION
SUCCESS

MASTERING
CRITICAL
TECHNOLOGIES

CIVIL

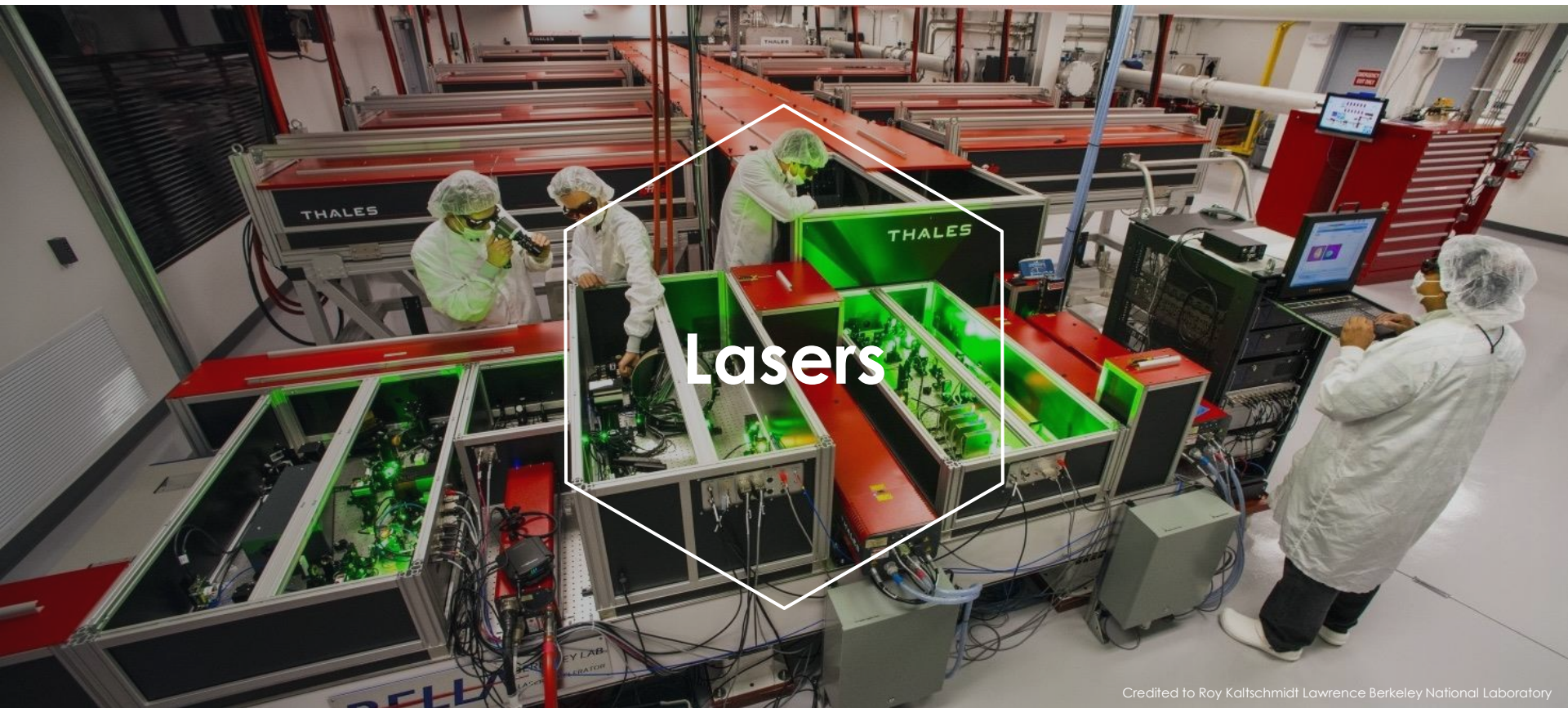


Lasers



Cinema
Optics

SUPPORT & SERVICES



Credited to Roy Kaltshmidt Lawrence Berkeley National Laboratory

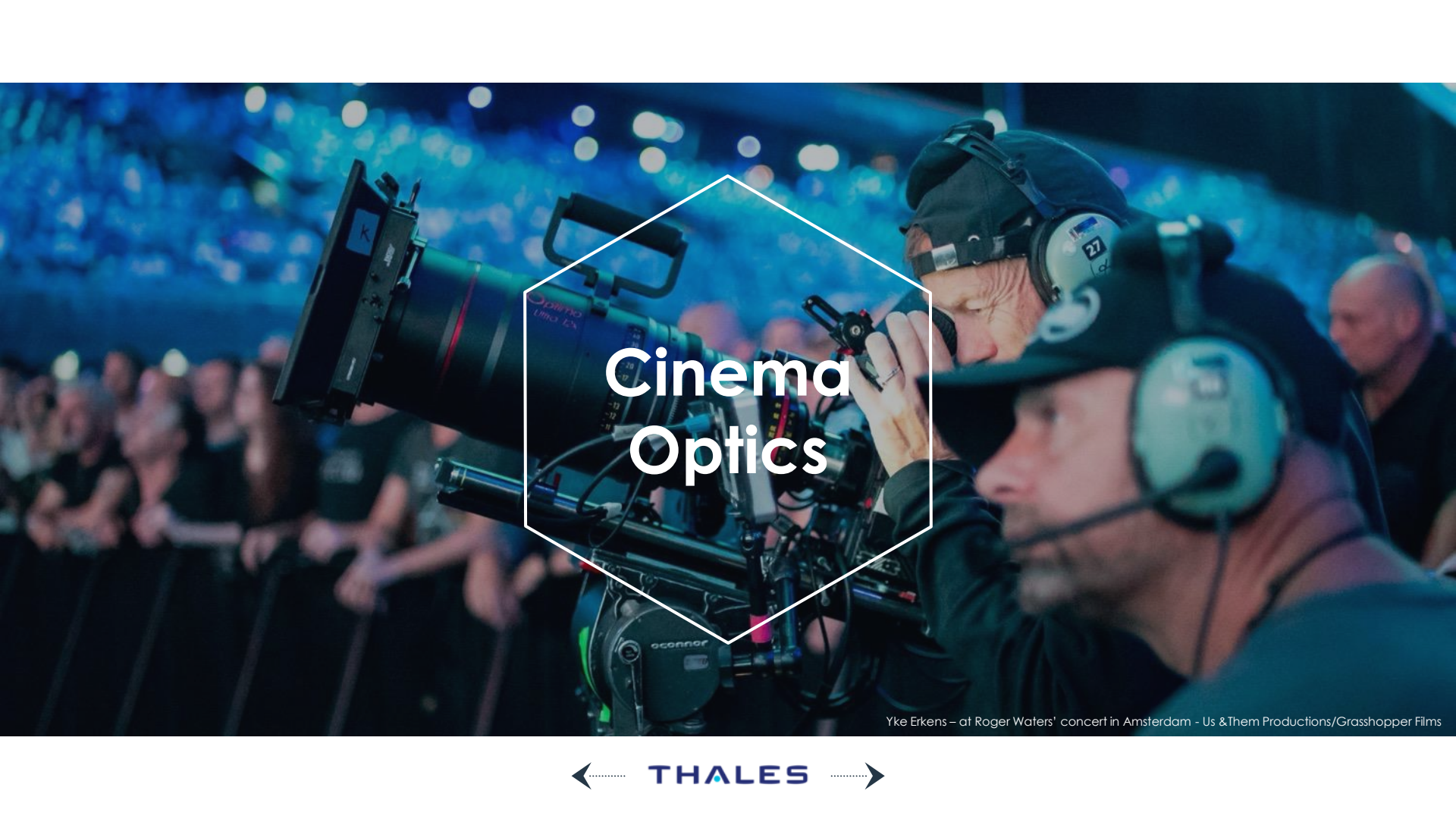
Lasers for Scientific, Industrial & Spatial applications

A world leader in high-power solid-state laser systems

- Over **30 years of laser expertise**
- **World record 1 petawatt (PW) laser** with the BELLA system (USA)
World record 10 PW with ELI-NP system (Romania) with one beam (up to 20 PW with 2 beams)
- Laser solutions for **industrial processes** and new **medical applications**
- **World's only company** to send operational laser to Mars (with CNES and NASA)
- Long-standing laser research partnership between Thales and Gérard Mourou, winner of 2018 **Nobel Prize in Physics**

Gérard Mourou
2018 Nobel Prize
in Physics





Cinema Optics

Yke Erkens – at Roger Waters' concert in Amsterdam - Us & Them Productions/Grasshopper Films

High-end Angénieux cinema optics for a wide range of productions

- Over **80 years of expertise**
- Angénieux brand **globally recognised for excellence**
- Angénieux lenses used for **feature films, series, commercials, documentaries and music videos**
- **Pierre Angenieux Excellens awards** to recognise world-class cinematographers

angénieux®



SERVICES
AND SUPPORT
FOR MISSION
SUCCESS

MASTERING
CRITICAL
TECHNOLOGIES

DEFENCE & SECURITY

©Elise Foucaud/ECPAD/Défense

©Eric Raz

Augmented Collaborative Combat - Overview

Mastering the imagery chain in airland engagements: soldier optronics, vehicle optronics and airborne capabilities:

- From imaging to augmented perception
- From raw data to relevant information and critical decision support
- Focusing the right effects on the right target and terrain at the right moment

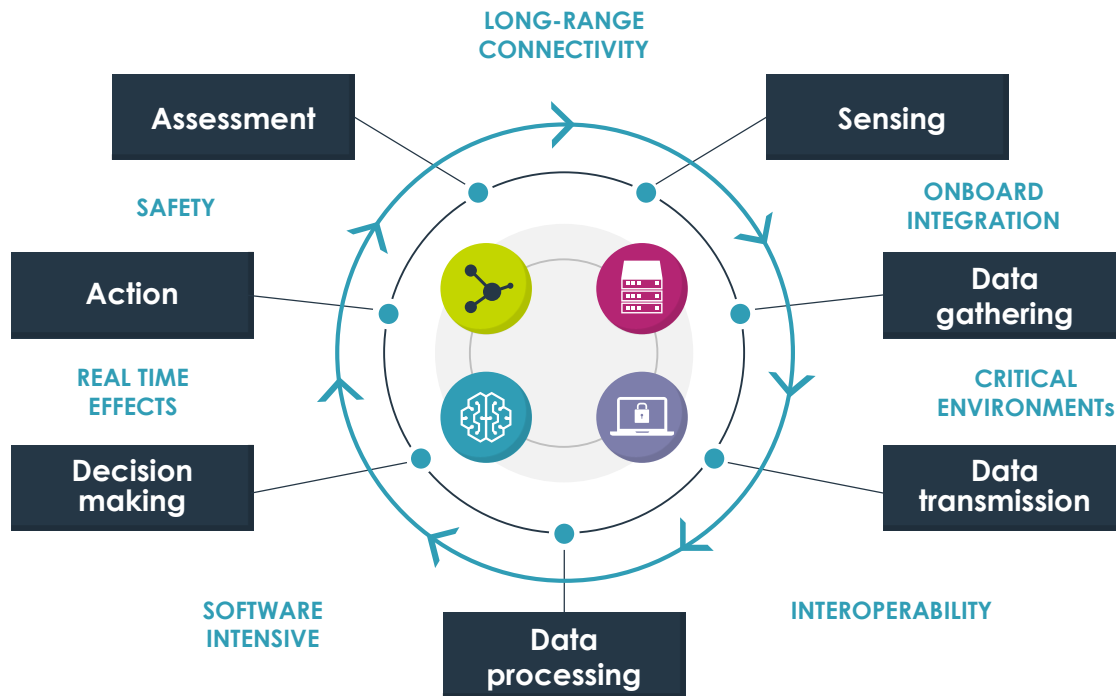


Augmented Collaborative Combat - Capabilities

Innovative solutions to prepare dismounted soldiers for collaborative combat, combining world-class optronics for any platform with network expertise spanning any Thales or legacy communication system



Accelerating the OODA loop*



* Observe, Orient, Decide, Act

By reducing the decision time, improving the precision and the effectiveness of customers' actions



Land

Airborne

Missile
Electronics

Naval

Cryogenics

SUPPORT & SERVICES



Land

©Elise Foucaud/ECPAD/Défense



The Augmented Soldier – Seeing Further, Fighting Smarter

Enhanced perception for tactical superiority

- **#1** worldwide with more than **15,000** Sophie imagers in service in **55 countries**
- **#1** in Europe with digital-ready surveillance **UAVs**
- **#1** in Europe for **night vision goggles** with over **100,000** units in service worldwide
- **Soldier Digital Factory**: accelerating the tempo of operations through augmented collaborative combat

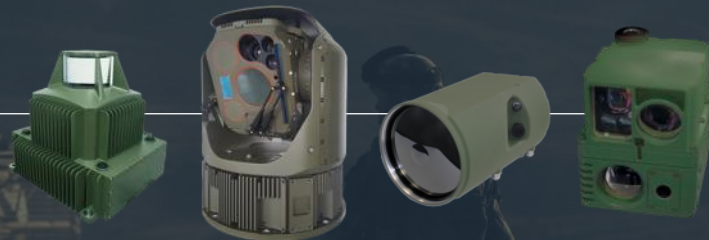


Observation • Geo-location
Orientation of effectors
Lethality • Mobility

The Augmented Vehicle – Seeing Further, Fighting Smarter

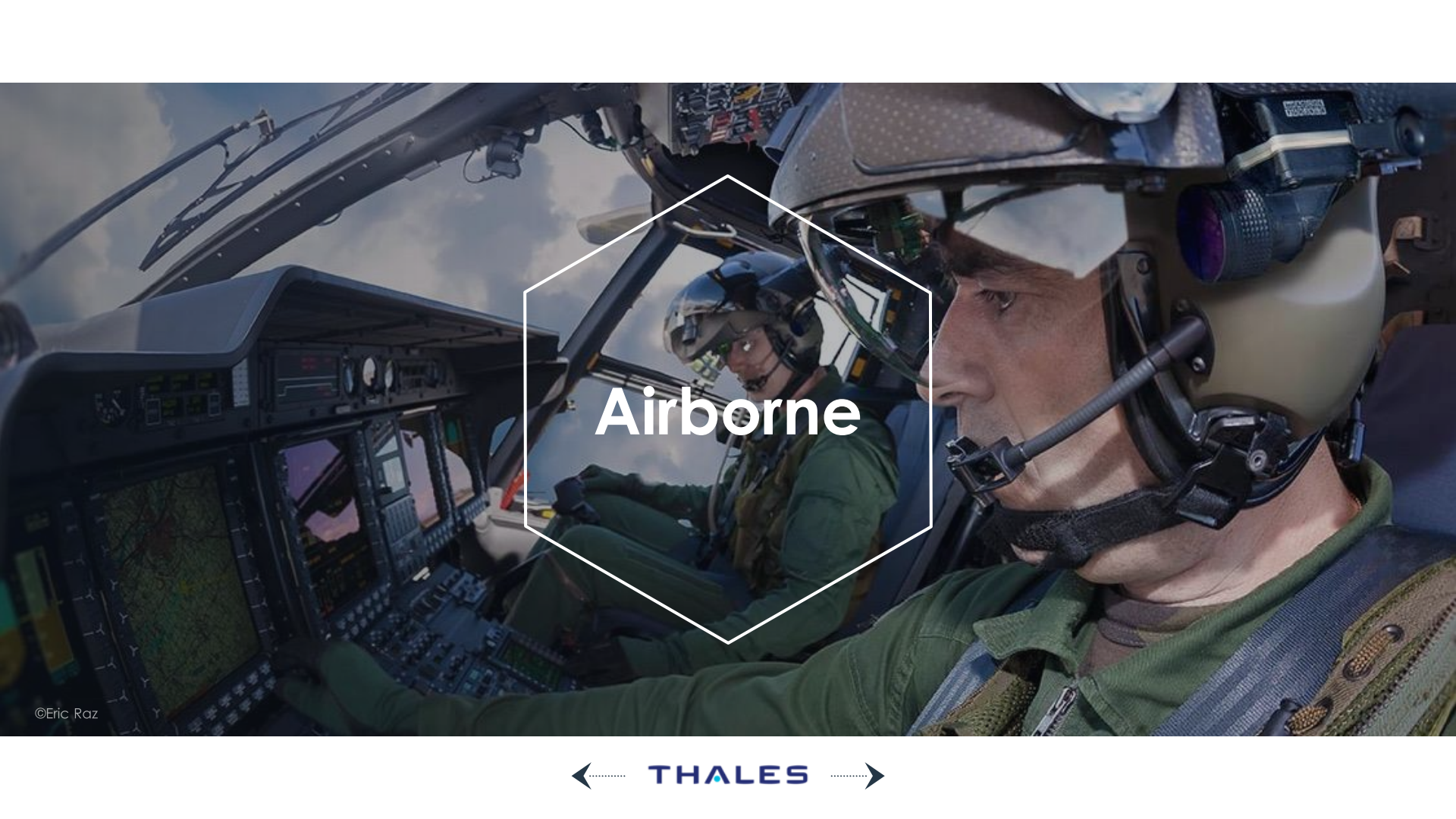
Enhanced perception for tactical superiority

- Complete range of **thermal imagers and sighting systems** for all platforms and turrets
- Preferred global supplier of **cooled and uncooled infra-red sensing devices**: more than 14,000 Catherine, 1,500 Kate & 2,000 TIM thermal imagers in service
- **Leading supplier in UK and export markets**: BGTI 600 armoured vehicles, Nexter VBCI, BAE CV90, FNSS 8x8



Acquisition • Identification
Neutralisation • Self-protection





Airborne

©Eric Raz



The European leader in Airborne Optronics

- *From intelligence gathering to threat neutralisation*
- *More complete situational awareness*
- *Enhanced protection of assets*
- Integrated optronic equipment on more than **30 types of aircraft**, including Rafale, Eurofighter Typhoon and Airbus A400M.
- **Unique situational awareness** for combat aircraft pilots and ground forces



Talios pod with TrUE AI
is for image recognition:

300 times faster/more efficient

than an operator



Missile Electronics

European leader in missile seekers and proximity fuzes

- Over **100,000 units** in service more than **50 countries**
- **RF seekers and proximity fuzes** for all types of engagements
- **Unique expertise in Europe:** over 40 years of operational experience with high-end systems



**Supremacy of air,
sea and land forces**

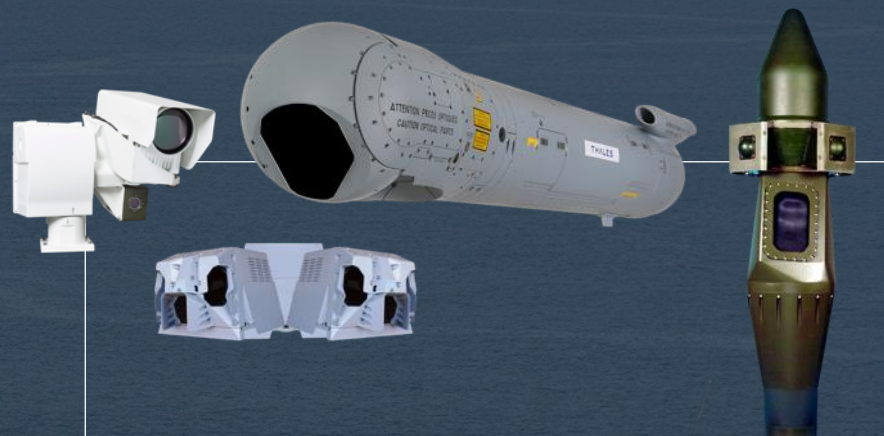


Naval

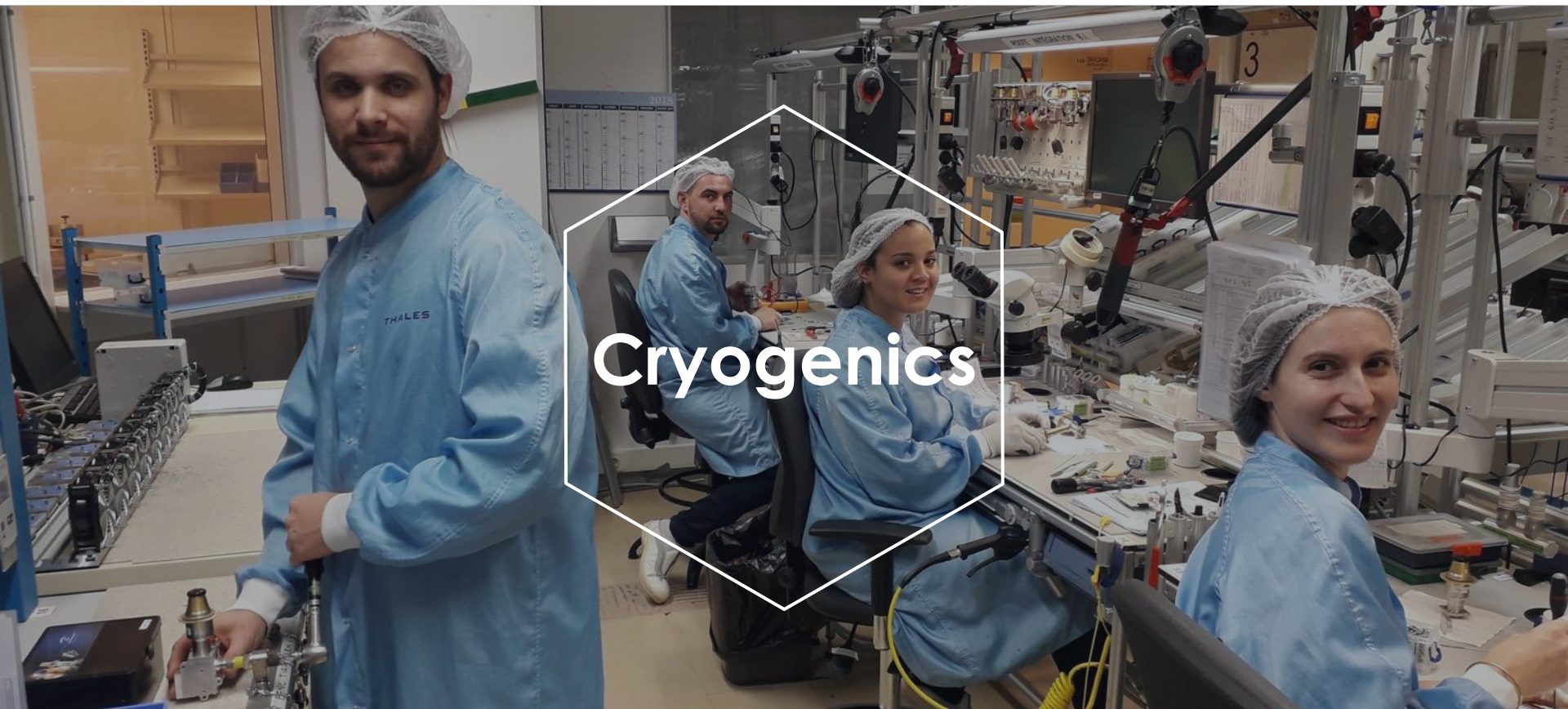
Eyes On and Under the Sea

Dedicated optronic solutions for maritime operations

- Optronic equipment integrated with combat systems of frigates and aircraft carriers
- **Optronic masts & periscopes for submarines**
in service in 11 countries – sole supplier to UK Royal Navy since 1917
- Optronic pods and turrets for maritime surveillance, search and track systems for **naval air operations**



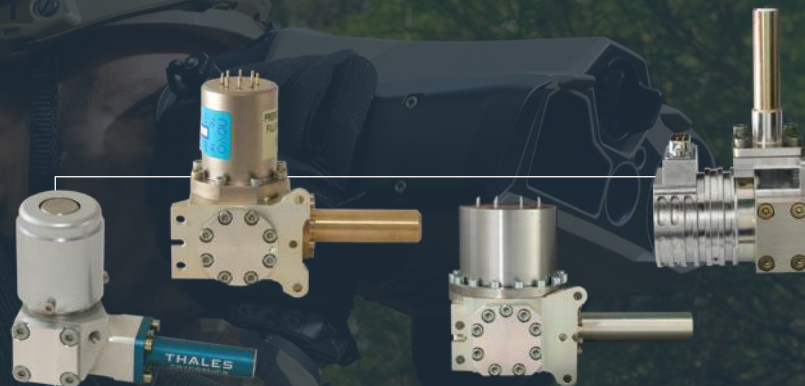
Above water • Underwater
Marine & coastal surveillance



Cryogenics

Miniature cryocoolers for infra-red detectors

- **World leader** in cryocoolers for infra-red sensors (130°C to -200°C)
- From initial development to full production
- Serving **military and civil** markets
- **SOFRADIR** and **ULIS** merged to form **LYNRED**



**A range of compact
monobloc cryocoolers**



Support & Services

Services and Support for our Customers' Mission Success

Innovative service solutions to guarantee performance and availability

- **Innovative digital support solutions** (predictive maintenance, fleet management and virtual reality training)
- Enhanced fleet **availability and operational readiness**
- **Cost-effective long-term solutions**
- **Customers** in more than **50 countries**



- **24/7 Customer care centre**
- **Spares, repairs, training, obsolescence management**
- **Test and repair benches and tooling for local maintenance centres**
- **Service Level Agreements**
- **Performance Based Contracts**
- **Operation of maintenance centres and/or systems**



Mastering Critical Technologies

From design to customer service

Optronics

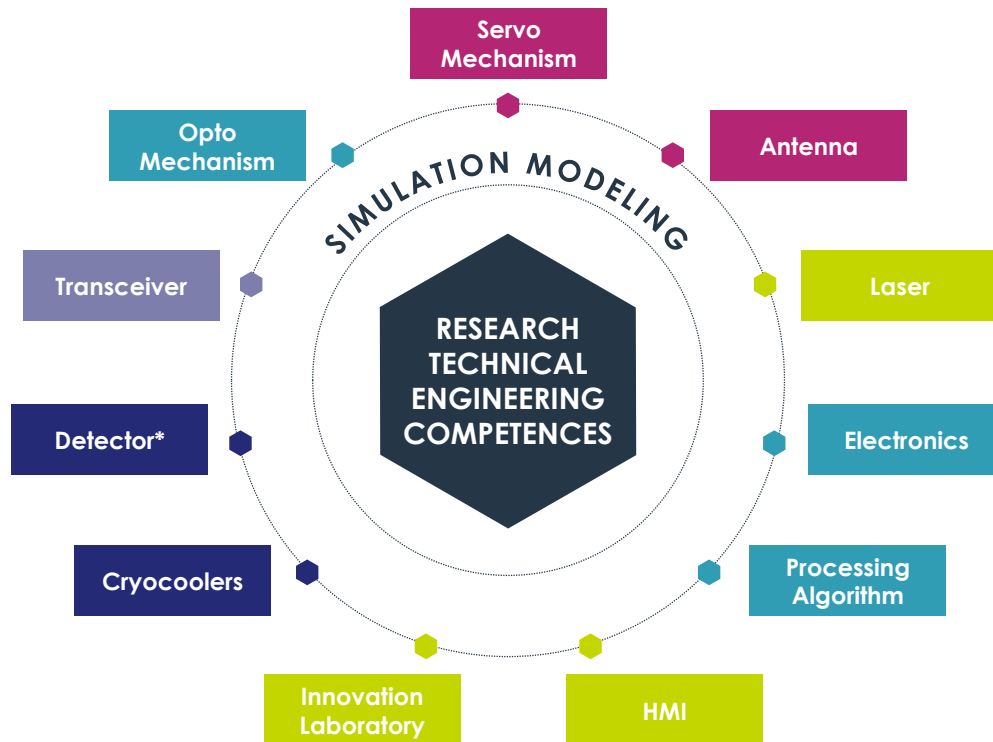
- **Land optronics**
Thermal imagers, night vision goggles, thermal weapon sights, tactical UAVs, gunner and commander sights, surveillance systems
- **Naval optronics**
Submarine periscopes and optronic masts
- **Airborne optronics**
Targeting and reconnaissance, navigation, IRST, self-protection systems

Components

- Laser rangefinders
- Laser target designators
- Cryogenic coolers

Missile Electronics

- Missile seekers
- Proximity fuzes



High power lasers

- **Solid-state laser** systems for scientific research and industrial applications

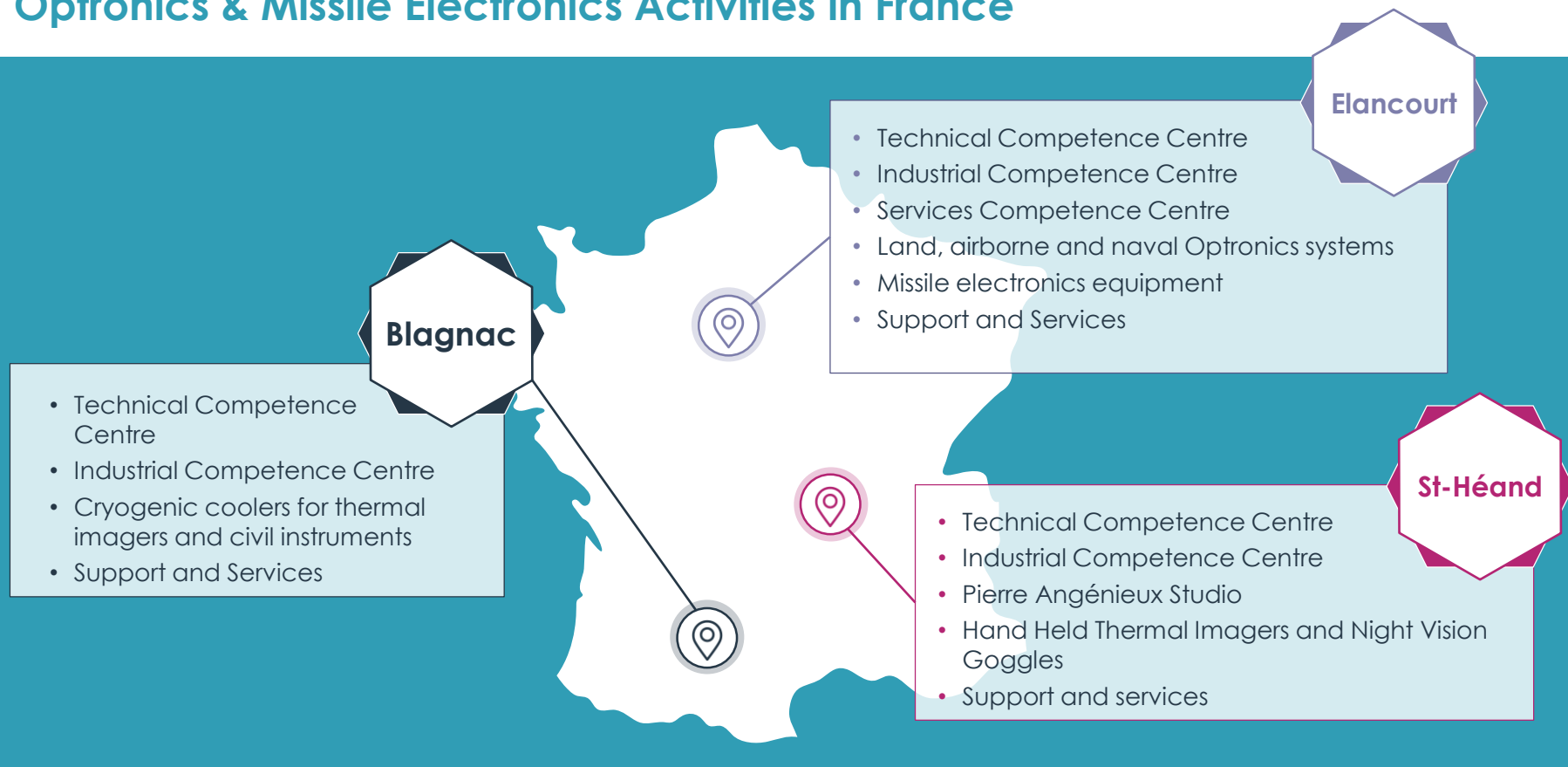
Zooms

- Zoom lenses for cinema

Support and services

- Dedicated services from design to delivery, with guaranteed equipment reliability and operational availability, fleet management and operational support

Optronics & Missile Electronics Activities in France



Optronics & Missile Electronics Activities in the UK

Glasgow

- Technical Competence Centre
- Industrial Competence Centre
- Services Competence Centre
- Land and Naval Optronics

Bury St. Edmunds

- Technical Competence Centre
- Airborne Image exploitation

Reading

- Technical Competence Centre
- Industrial Competence Centre
- Missile electronics
- Airborne IR Threat Warning