

LEONARDO ELECTRONICS

Airborne electronic warfare capability



 **LEONARDO**

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Over the past 80 years, Leonardo has developed world-class capabilities in Cyber and Electro Magnetic Activities (CEMA) and Electronic Warfare (EW) equipment and services.

This publication outlines the breadth and depth of these capabilities, setting out our customer value proposition, including how we are supporting our global partners to stay ahead of evolving threats in an ever-changing world.



AT THE HEART OF NATIONAL ELECTRONIC WARFARE

World-class protection against complex threats

Leonardo offers world-leading EW and CEMA capabilities that:

- Protect people, platforms and infrastructure
- Deliver the skills that operators need through state-of-the-art training
- Provide sustainable through life support.

We provide the intelligent protection for many advanced military platforms, enabling freedom of operation, complete situational awareness and cyber/CEMA resilience, which together deliver superiority in the battlespace.

We are a leading EW partner with decades of expertise in developing, fielding and supporting cutting-edge EW technologies, by applying our expertise across the electromagnetic spectrum, enabling operations in the most contested global environments.

Our technology is intrinsic to the capability of many of the world's leading defence platforms. On Eurofighter Typhoon, we lead the EURODASS consortium that manufactures the Praetorian EW system – the awareness and defence package that keeps pilots and aircraft safe from multiple threats.

As a lead industry partner in GCAP (Global Combat Air Programme), we are developing the next generation of EW capabilities alongside our international partners for a future combat air system, including the integrated sensor and effector suites, information fusion across and beyond the platform, as well as associated communication and cyber technologies.

We support partner nations and customers as part of Team Pellonia - a collaboration between the UK Ministry of Defence and EW industry.

At the heart of this capability is Leonardo's Modular Advanced Platform Protection System (MAPPS) providing the flexibility from single sensor solutions through to fully integrated Air Platform Protection Systems and Services.

We fully recognise that capability sustainment and enhancements are vital to all end users. In addition to our hardware and integration solutions, we pride ourselves on providing both through life support and comprehensive training packages in the UK and worldwide. These solutions are delivered in partnership with our customer and end user communities through both traditional and innovative commercial models, to meet individual nation requirements.

As we look to the future with growing requirements for multi-domain operations and the delivery of information advantage, we are investing and innovating to develop tomorrow's EW and CEMA technologies that will help the UK and partner nations stay ahead of complex threats.



Our partnered capability delivers a comprehensive package of equipment, integration, training and other services including:

Integrated EW sensors and systems

- World leading integrated and modular platform protection solutions
- Modular Advanced Platform Protection System (MAPPS): The next generation multi-spectral, Integrated Defensive Aids System (IDAS)
- MAPPS integrates radar warning, digital ESM and ELINT sensors, IR sensors warning systems and countermeasures, RF countermeasure dispensers and active deployable RF countermeasures
- Built around a modular architecture utilising a core MAPPS controller at their heart
- A reconfigurable solution enabling customers to tailor their mission needs through a modular approach and enhance capabilities over time

Operational and Through Life Support Solutions

- Sustainable through life support solutions to deliver an assured EW and Cyber system capability
- A comprehensive package of EW and CEMA training (from the fundamentals to the specifics of operational equipment and its use)
- A suite of test equipment to stimulate the DASS systems (pre-operational tasking)
- Localisation, offset and other innovative partnering solutions to enable sovereign sustainment of the users' EW and CEMA capabilities
- Collaboration with military and industrial partners to deliver through life sustainment and enhancements across the operational lifetime

We would welcome the opportunity to discuss your EW and CEMA needs and work together to deliver a comprehensive, cost effective and sustainable solution to your EW and CEMA requirements.

OUR CUSTOMER VALUE PROPOSITION

Delivering successful long-term capabilities requires not only world-leading technologies, training and support services, but also local partnerships and global support, all combining to ensure enduring capability for our valued worldwide customers and partners.



The value that we bring to customers is underpinned by four central pillars:



Protecting people and platforms

Leonardo designs, develops, integrates and delivers world-leading and operationally proven Electronic Warfare and CEMA solutions that keep people and platforms safe from harm by staying ahead of rapidly evolving threats.



A trusted partner

Leonardo draws on decades of expertise and successful partnerships, having forged enduring relationships with UK Armed Forces and international military partners alike. Through these shared experiences and challenges, we have developed a comprehensive portfolio of training, mission data exploitation and through life support services.



Delivering in-country value

We share our technological expertise with partner nations to encourage sustainable development of local industry, job creation, and economic prosperity, recognising that enduring local partnerships are vital to delivering sovereign capabilities.



Global presence

We use Leonardo's global reach to support end-users and customers, wherever they operate in the world. We do this through a responsive support network and access to our deep technical and sector knowledge.

PROTECTING PEOPLE AND PLATFORMS

Modular air platform protection systems (MAPPS)

At the heart of our EW capabilities is Leonardo's Modular Advanced Platform Protection System (MAPPS). It provides Electronic Warfare survivability for aircraft and aircrew, combining reliable and accurate situational awareness with next-generation protection measures.

MAPPS is a complete multi-spectral, Integrated Defensive Aids System (IDAS) capable of protecting rotary wing, transport, VIP and Uncrewed Aircraft System (UAS) types operating in contested and challenging environments.

MAPPS is a 'system of systems' that fuses a range of sensors and effectors, integrated via Leonardo's smart defensive aids system computer – the MAPPS Controller. MAPPS can detect and defeat multiple weapons systems that pose a threat to platforms, including surface-to-air missiles, air-to-air missiles, guided and unguided artillery.

Providing threat warning across the electromagnetic spectrum, MAPPS works by identifying threats and friendly systems and presenting them to the crew in a prioritised display. It can then deploy fully autonomous countermeasures to protect both crew and aircraft.

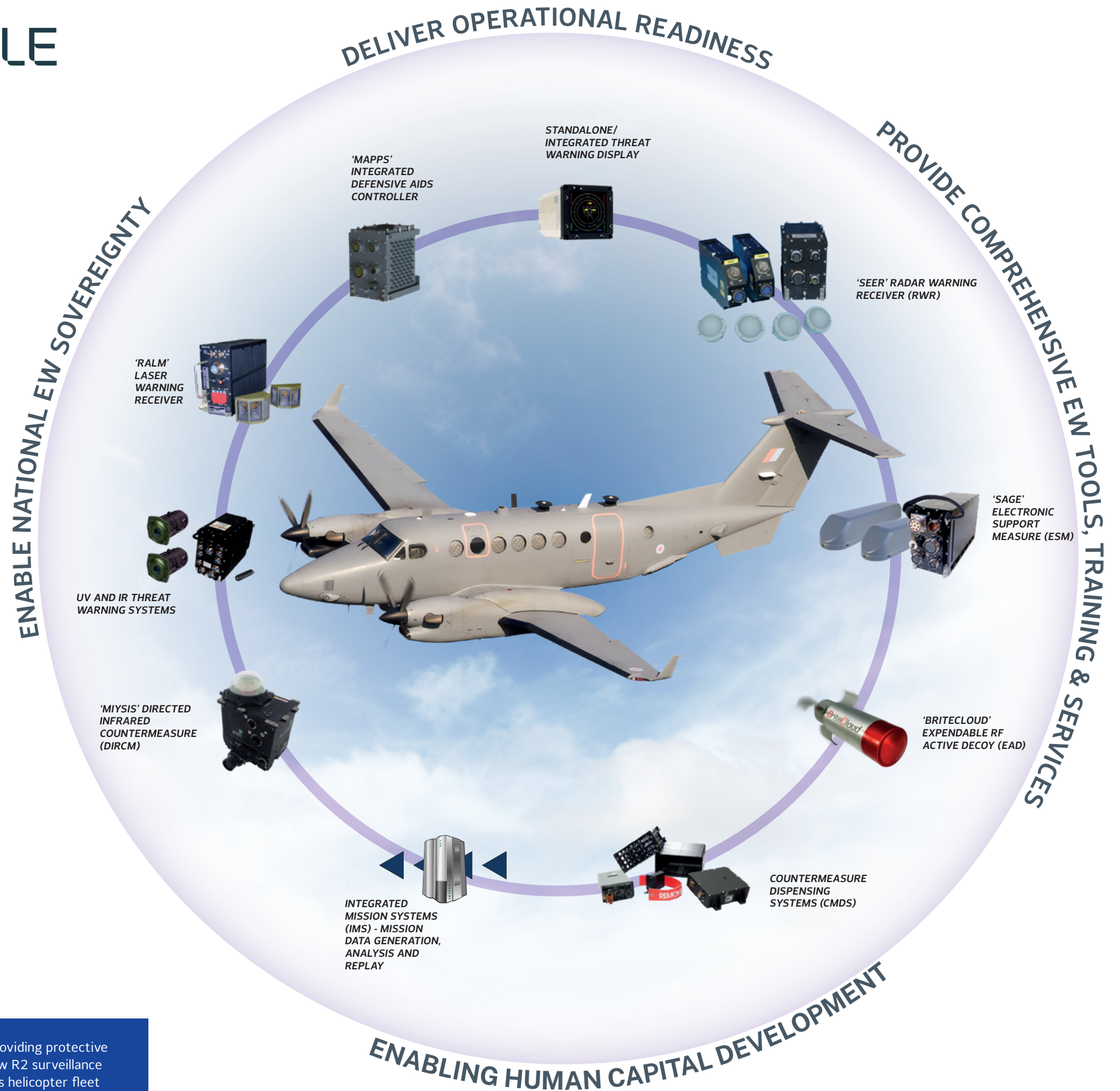
National integrated electronic warfare operational support (EWOS)

Leonardo provides a full range of EW tools, training and services to support the provision, management and updates to the vital mission data to support the on board EW equipments. These EW services extend to enable our overseas partners to deliver national led EWOS solutions.

Leonardo works across multi domain EW capabilities delivering integrated EWOS solutions built around the national EW centre. These services extend to include EW and COMINT databases, IT, cyber security, mission planning, training and operational support as well as software and hardware in the loop testing, playback and mission data updates. These integrated services are developed in a phased way to enable a low risk step by step transition to fully led national EWOS solutions.

The combination of world leading MAPPS and EWOS solutions are designed by Leonardo to deliver national operational advantage in partnership, in the congested EW environment.

We are the UK's onshore provider of Air Platform Protection (APP) capabilities, providing protective equipment for many UK Armed Forces aircraft including for RAF Typhoons, Shadow R2 surveillance aircraft, E-7 Wedgetail airborne early warning aircraft and the majority of the UK's helicopter fleet including the AW159 Wildcat, AW101 Merlin and Apache AH-64E.



A TRUSTED PARTNER

Leonardo is a committed long-term partner to the UK and international armed forces, with more than 50 years of expertise in providing advanced Electronic Warfare capabilities to counter evolving threats.

We recognise that enduring partnerships play a vital role in ensuring the safety and security of people, platforms and infrastructure. Leonardo's continuing investment in capability development is supporting nations to field the most advanced EW and CEMA solutions and services.



Key benefits of partnering with Leonardo

Exceptional through-life support

- A proven pedigree in cost-effective, through-life management to ensure the highest availability levels
- Unrivalled capability to design, manufacture, integrate, support and enhance EW (and associated) technologies, tailored to specific end-user requirements

Comprehensive training and services

- A complete spectrum of layered training spearheaded by Leonardo's dedicated Training Academy
- Specialist requirements and training needs analysis to tailor the most appropriate solutions to an individual user need
- Comprehensive suite of EW, CEMA, Electro-Optical Infrared (EOIR) and other courses for UK and international customers, delivered both on site in UK and in-country
- Blended learning techniques combined with the ability to model and simulate threat environments, providing flexible training support that reduces time and cost
- Innovative contracting models through offset and localisation providing the user the most appropriate route to a long term sustainable partnership

Constant technology upgrades

- Spiral development of capability enabling end-users to stay ahead of evolving threats
- Cost-effective capability enhancements that avoid unnecessary replacement of equipment
- Proven record of investment in systems, services and training solutions to maintain world leading capabilities to the benefit of our partners around the world

Enduring relationships

- A long-term partnership approach built around the needs of the end-user
- The full breadth of Leonardo's expertise in EW and CEMA services and equipment

DELIVERING IN-COUNTRY VALUE

Leonardo recognises that nations expect more from military acquisition programmes than simply the supply of equipment and training services. We are fully committed to enabling countries to build their own indigenous capability through flexible offset and localisation arrangements that support technology and knowledge transfer and boost wider economic prosperity.

These partnerships are tailored to the specific needs of individual end-user countries and can include:

- Co-production/licensed production
- Joint development
- Investments
- Technology and knowledge transfer, including training
- Maintenance, Repair and Overhaul
- In-country purchases and sub-contracts
- Research and Development
- Direct and Indirect offset
- Other activities such as sales promotion

The value that we deliver in country is broadly split into two categories – military capability and economic prosperity.



Military Capability

- Technology and knowledge transfer delivered to end-user forces, military/government institutions, via academia or military colleges in the form of training, equipment and intellectual property. The aim is to equip the end-user with capabilities to use the product – knowledge that can then be applied to future products in the EW and CEMA domains.
- Sovereign capability to enable end-users to become self-sufficient, typically through projects that deliver new levels of capability whether via investments, Maintenance, Repair and Overhaul (MRO) activities, academia partnerships or technology and knowledge transfer.

Economic Prosperity

- Economic benefits achieved through projects directly linked to the acquisition programme, or to broader defence and non-defence related initiatives. This fosters technological development which can then be transferred into other related sectors.
- Supporting the broader prosperity agenda through our in-country presence, supply chain commitments and R&D projects. This helps to create employment opportunities, develop the skills base and sustain local industry.

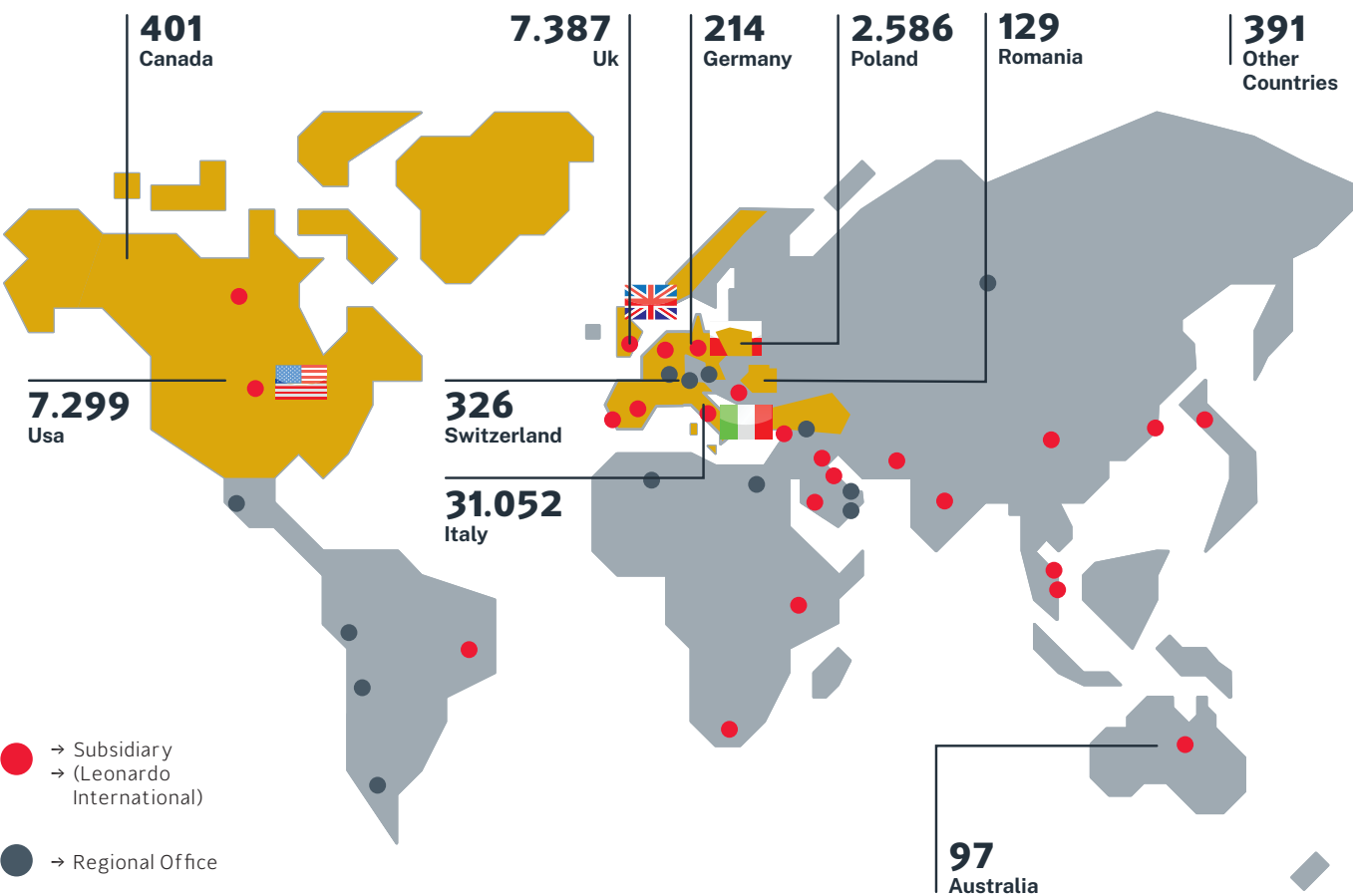
GLOBAL PRESENCE

With an industrial and commercial presence in more than 40 countries worldwide, strengthened by strategic partnerships and joint ventures, Leonardo has the global reach to deliver world-class capability and support to end-users and customers wherever they operate in the world.

We know that end-users need to be able to call on capability support which is why we have built a responsive in-country support network to bring reach back, MRO activities closer to the point of use.

By increasing supportability, minimising turnaround times and reducing through-life costs, we enable end-users to achieve mission success.

We also draw on our global presence to benefit commercial customers, enabling them to tap into the expertise of our people and worldwide network to share intelligence, insights and capability.



In 2021 Leonardo entered into a new global Strategic Partnering Arrangement (SPA) with the Royal Air Force, Defence Equipment & Support (DE&S) and the Defence Science and Technology Laboratory (Dstl) to develop next-generation air survivability equipment for both UK military aircraft and partners around the world.

Working alongside industry partners, the armed forces and the UK Ministry of Defence, we will ensure that armed forces have access to advanced technologies and services that protect against today's threats and the emerging threats of tomorrow. This partnership will enable our partner nations to work with Leonardo and UK Government to evolve enduring EW and CEMA partnerships for decades to come.



GCAP
The international collaborative programme between the UK, Italy and Japan to deliver a next generation combat aircraft.



F35 JSF
Latest generation network-enabled fighter with stealth features.



Eurodrone
Medium Altitude Long Endurance remotely piloted aircraft for global ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance) missions.



Next generation civil tiltrotor
Research project for development of a new generation tiltrotor, equipped with new technologies and new aircraft architecture permitting a 50% reduction in CO₂ emissions.



Eurofighter Typhoon
The world's most advanced swing-role combat aircraft, offering agile performance, interoperability and unrivalled flexibility.



SESAR
European research programme for transforming air traffic management and making it more modular, automated, interoperable and focused on the flow of flights.



AW159
Developed to meet the needs of military operators worldwide, with dedicated mission systems for land and naval operations.



FREMM
The most important naval military programme ever developed at the European level, carried out in cooperation between France and Italy.

OUR FUTURE AMBITIONS

“We know that constant advances in EW and CEMA technology and services will be required to combat increasingly sophisticated threats in the coming years. Leonardo is committed to investing in the next-generation capabilities that will enable armed forces to detect, identify and defeat threats and to keep people and platforms safe.

Leonardo’s ambition is to be the partner-of-choice for all aspects of multi-domain EW and CEMA sectors. To achieve this we will combine our deep technical expertise and global presence with world-class technology and flexible training and support solutions, built around customer requirements.

Drawing on more than half a century of expertise, we will ensure that the UK maintains the state-of-the-art onshore EW capability that is essential to national security while developing strong international partnerships that enable nations to protect their people and assets with the latest technology.”

Iain Bancroft
SVP, Electronic Warfare





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