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Defence and Security

Isdefe is the Spanish Administration's in-house technical service provider in the field of Defence and Security and, as such, provides services to the ministries of Defence, Interior and the rest of the General State Administration. Likewise, it makes its knowledge and experience available to the administrations of other allied countries and international public bodies, and it is involved in initiatives of interest to Defence and Security, working, among others, for the European Commission, the European Defence Agency (EDA), the European Border and Coast Guard Agency (Frontex), the European Space and Satellite Navigation Agencies (ESA and GSA) and the North Atlantic Treaty Organization (NATO).





■ Defence Planning

The strategic consultancy services and capacity planning methodology developed by Isdefe support the strategic military planning process of both the Spanish Ministry of Defence and the European Defence Agency (EDA).

Ministry of Defence / Secretariat of State for Defence / DGAM / SDG for Planning, Technology and Research (SDGPLATIN)

Isdefe has provided support with resource planning corresponding to the implementation of the National Defence Planning cycle, including the identification and oversight of the needs associated with the Military Capabilities Objective (OCM) in support of the Joint Chiefs of Staff, the planning of weapons and matériel resources, the research and development needed to obtain capabilities, and the programming of the matériel means necessary for the armed forces in coming years.

Within the activities related to the European Defence Fund (EDF), Isdefe has provided support to the European Commission in defining the topics of interest for the development of work programmes. It also participated in the analysis and reviews of the drafts of the work programme for the year 2021, as well as of the proposals presented by the national companies, in order to determine Spain's contribution to these proposals.

**Ministry of Defence / Defence General Staff (EMAD) /Joint
Defence General Staff (EMACON)**

Isdefe participated in the Military Planning corresponding to the implementation of the National Defence Planning cycle, supporting the identification of the capacities needed by the Armed Forces that are detailed in the Military Capabilities Objective (OCM). Isdefe supported the Joint Defence Staff in identifying and developing national contributions to NATO and EU plans.

The activities carried out by Isdefe include support to the Division of Force Development (DIVDEF) in the definition and development of operational concepts, in particular those related to joint electromagnetic operations, the role of the armed forces in the grey zone, joint force actions in the cognitive field, and multi-domain operations of the joint force.

Isdefe also provided support in the management of resources associated with infrastructure, as part of the national activity in the NSIP (NATO Security Investment Program) for the development and improvement of operational infrastructures, through pooled funds contributed by NATO member countries.

Ministry of Defence / Air Force (AF) / Headquarters/General Staff of the AF (EMA)

Support in the planning, control and monitoring of the resource needs of the Air Force (AF) at the economic, personnel and infrastructure level, as well as in the planning of their availability and subsequent control of the actual execution. This support is provided in the Military Staff, as well as in the MAPER and the DAE.

Likewise, support is provided to plan the means available to respond to NATO and EU needs and commitments, as well as in the implementation of digital transformation projects of the AF.

Collaboration in the management and implementation of the BACSI project (Intelligent Sustainable Connected Air Base), with support from the managers of the Functional Areas that comprise it, to identify and secure the funding needed to develop sub-projects.

Participation in the planning and monitoring of the pillars that constitute the FCAS programme with the other member countries in the programme, as well as in the prioritisation of procurement programmes of the various weapons systems (RPAS, Falcon programme, etc.) based on the assigned budget, in coordination with the other agencies involved.

Collaboration with the Working Groups to implement the SC2N-EA system and its evolution for integration into the SC2N joint operational responsibility of the EMAD.

European Union / European Defence Agency (EDA)

Support services to the EDA in various activities related to defence planning. These include support in defining the long-term military capabilities needed in the EU as part of the Capability Development Plan (CDP).

The service also includes the identification of existing capabilities in European countries, in support of the priorities derived from the Strategic Context Cases (SCC), as well as the identification of challenges and possible action measures to promote cooperation between countries in the field of defence.

Isdefe collaborates with the Agency in other activities related to defence planning such as: Analysis and integration of the documentation associated with the CDP, analysis of the security strategies and defence policies of Member Countries (DPOL database of the EDA), and Test & Evaluation Gap Analysis.

Isdefe also supports various activities related to defence planning, including: Analysis of the energy demand of systems and facilities for the provision of the "Defence Energy Suite".





■ Command and control networks and systems

We provide engineering and consultancy services, at the strategic, operational and tactical levels, to the Ministry of Defence and the NATO Communications and Information Agency (NCIA), for the development of large information and communications (ICS) and command and control systems, both for the military and for law enforcement agencies.

Ministry of Defence / Secretary of State for Defence / DG of Armament and Matériel (DGAM) / SDG of Programmes

The **European Strategic Command and Control** programme office, which Isdefe supports, has been transferred to the European Defence Agency to procure the system. Isdefe has continued to provide its services through the Technical Committee and the Management Group.

DGAM is participating in the phases of the process to obtain material resources, in support of the following programmes/projects:

- » MC3 Plan (Modernization of deployable CIS Systems of the Army and Marine Corps).
- » Joint Tactical Radio System (SCRT).
- » TETRAPOL Communications Systems.

Isdefe also provided wide-ranging support to platform programmes that rely on communications equipment, and technical support to the FMN (Federated Mission Networks) Procurement Group of the DGAM.

Ministry of Defence / Secretariat of State for Defence / Centre for Systems and ICT (CESTIC)

CESTIC provides corporate information and communications services to the Ministry of Defence, through the I3D (Comprehensive Defence Information Infrastructure). Isdefe participates in the planning, management and monitoring of the necessary projects. And also in technical aspects to define and evaluate NATO architectures and software tools, implementation of ICT infrastructure, management of the operation of systems and services, and information security.

Ministry of Defence / Defence Staff (EMAD) / Operations Command (MOPS)

Isdefe participates in the management of information and knowledge, and collaborates with the General Staff in the Operations Command.

Ministry of Defence/Defence General Staff (EMAD)/Armed Forces Intelligence Centre (CIFAS)

Support services to manage knowledge and information, managing intelligence information systems projects.

In the cartography unit, we worked on the operation, maintenance and evolution of the National Geospatial Warehouse of the Ministry of Defence, and on Spain's participation in various multinational digital mapping joint development programmes.

Work continues on advancing the CIFAS operating environments (SICONDEF and BICES), as well as on providing top-level support and incident resolution to facilitate CIFAS' participation in national and NATO exercises.

Ministry of Defence /Defence General Staff (EMAD) /Joint Cyberspace Command (MCCE)

In the Joint Cyberspace Command, we work on defining needs in information and telecommunications services, and on governing their management, in collaboration with CESTIC. Likewise, we support Spain's participation in NATO and EU forums on Command, Control and Communication (C3) issues.

Services to support frequency management and orbit-spectrum integration. At the Tactical Data Link Management Centre, we participate in issues involving technology and the evolution of NATO standards, and equipping data links. Isdefe also works on managing tactical data link networks for operations and exercises, and on the preparation and execution of joint interoperability exercises.

Ministry of Defence / Army (ET) / Headquarters / JCISAT

Work to define the target architecture of the Army Logistics Base (AO BLET) with the NAF v4 methodology: View of Concepts and View of Architecture Metadata with Modeling through a standard tool, as per CESTIC guidelines and the operational concept of the base.

Participation in system tests using 5G technology in collaboration with other agencies and the Navy.

Assistance to Working Groups involving the interoperability of data for the start-up of the ET GIC centres, in close collaboration with the EME, and providing technical support to define data standards. Participation in the strategy and implementation of the Data Management Centre and the Emerging Technologies Centre.

Support in the configuration and deployment of the SC2NET Command and Control System for integration into SC2N, and in certifying that it meets the requirements of the Federation according to Spiral 2 of the FMN standard.

Support services to define national data interoperability standards, participating in the international forum of the MIP Programme and in the exercise of CWIX demonstrations, enhancing the use of data exchange mechanisms through the Tactical Data Interface (TDI), applicable to vehicle platforms and weapon systems.

Ministry of Defence / Navy / Headquarters/Navy General Staff (EMA) / JCIS

Collaboration with the Navy in the configuration and deployment of the node for the SC2-FN Command and Control System, validating compliance with the Federation requirements according to Spiral 2 of the FMN standard.

Ministry of Defence / Army (ET) /Force Support/Army Logistics Support Command (MALE) / Engineering Office of the ET Logistics Support Command (JIMALE)

We collaborate with the Army Logistics Support Command (MALE) in the processes of modernizing ground tactical systems, including communications networks and command and control systems, such as the GESCOMET v4S system, to adapt it to the 8*8 vehicle (Dragon). Organization of tests and demonstrations of micro and mini RPAS systems, adapting the new proposal to incorporate the use of counter-RPAS already in service in Army units.

Ministry of Defence /Air Force (EA) / Force Support / Air Force Logistics Support Command (MALOG)

Isdefe has developed a process analysis project for MALOG using the Business Process Model methodology, and has presented a document with proposals for organisational improvements.

In the area of air support, Isdefe has assisted in every area of matériel management: initial procurement (IP); maintenance and supply management; matériel cataloguing; transport; requirements calculation; procurement management; electronic data interchange (EDI) for different Air Force fleets and also for their onboard armament; definition and monitoring of the deployment kits necessary for different missions; and it has provided advice to prepare, monitor and control budgets.

Technical support in different programmes: C3 contract for Eurofighter maintenance and in the negotiation of phase 2 of this contract, collaborating with OP-EF2000 to define the material needs for the new Halcon programme; A400M, in the management of engine material and ground support equipment; NH90, in the maintenance area as well as in the initial procurement and management of material as part of a new joint maintenance concept with other Armies; Pilatus PC-21 trainer, Isdefe is participating in the commissioning of the system in relation to the management of material; Euromale, Isdefe is takes part in meetings related to the future management of its maintenance programme.

Isdefe directed and participated in the COFFA (Certificate of Final Financial Acceptance) audit process, as per the NSIP programme procedures for the projects executed by the MALOG in EVAs 9 (Motril), and it prepared the JFAI (Joint Final Acceptance Inspection) to close the ACCS programme replicated in ARS-Torrejón, following Spain's decision to abandon it.

Preparation of the Product Specifications for the Modernisation Programme of the Air Command and Control Centers of GRUNOMAC and GRUALERCON, within the OP in DGAM.

Support services to the Technical Directorate of the Programme Offices for the acquisition of Lanza LRR radars, as well as in the programme to incorporate MODE 5 and S in the SIMCA (Air Command and Control System).

In coordination with the EMA, Isdefe participated in the review of feasibility documents for the Air and Space Surveillance, Command and Control systems, such as the one that will be installed in the COVE (Centre for Operations and Space Surveillance), as well as in 'Counter UAS' (SUCAUL) systems.



■ Platform Procurement and Maintenance Programmes

We provide technical consulting services in the field of planning, economy/finance, technology and maintenance throughout the life cycle of the aerial, land and naval platform programmes, including those piloted remotely, to ensure an effective and comprehensive solution.

Ministry of Defence / Secretariat of State for Defence (SEDEF) / DG of Armament and Matériel (DGAM) / SDG of Programmes

Technical support to the SDG of Programmes in obtaining the ISO 9001:2015 certification from AENOR for the Quality Management System of the Sub-Directorate General, which guarantees a quality service, in terms of the management of large programmes.

Area of Land Programmes

Isdefe continues to support the POs of the Land Systems Office: **Pizarro, Ammunition and VCR 8x8**. In the OP VCR 8x8, Isdefe monitors the tests for the major groups under the Technological Programmes and the 'Demonstrators' base product of the production. Participation in the preparation of production dossiers. In the Ammunition programmes, Isdefe participated in the Working Groups (WG) to draft the Feasibility Documents (FD) of the programs for the Modernisation of Anti-Aircraft and Anti-Missile Defence.

Rotary Wing Aerial Programmes Area

Collaboration with the Programme Offices of the Rotary Wing Systems Command: **Chinook, NH-90 and TIGRE**. For the NH90 Programme, Isdefe accepted some units for the Air Force at the Albacete Air Base (Los Llanos), in addition to monitoring the contract for the remaining configurations and for auxiliary equipment such as simulators, SAME banks and the Full Digital electronic warfare system that will be integrated into the STD3 and MSPT configurations.

In the Tigre Programme, Isdefe has taken part in all the activities stemming from Germany's decision not to continue in the programme and its impact on the management documentation and specifications for the contract to evolve the platform towards the MKIII model.



Fixed Wing Programmes Area

Support to the POs of the Fixed Wing Systems Command: **EF2000, A400M, UAS**, and future Air Programs, including the **MRTT (Multirole Tanker Transport)** and the **FCAS (Future Combat Air System)**.

For the EF2000 PO, Isdefe aided in the development of the FD for the Falcon programme, which will acquire at least 20 additional units that will replace the current F18A. It also took part in the review of the designs of the first common electronic scanning radar designed by HENDSOLT.

In the A400M Programme, Isdefe collaborated in the process of accepting the aircraft planned for this year, which was completed in December. Isdefe organised the Programme Board Meeting, held at its facilities on 16 November and focused on the Future Engine Support Contract.

In the UAS Programs, Isdefe took part in the Working Groups for the start of the Euromale programme, and in preparing and analysing the initial flights of the MQ-9 Predator B System.

In the MRTT (Multi-Role Tanker Transport) programme, Isdefe evaluated the technical documentation of the aircraft sourced from Iberia for the future certification process of the aircraft, and it collaborated in drafting the transfer and acceptance documents acknowledging ownership of the aircraft.

Naval Programmes Area

Isdefe continued providing support to the Programme Offices of the Naval Systems Command: **F-110, S-80 and BAM IS.**

In the F-110 Programme, Isdefe provides monitoring and control of the ship's design phase for the future approval of the CDR (Critical Design Review), in addition to the monitoring the implementation of the Technology Programmes that will allow the development and integration of the systems in the ship, in particular those associated with the radar.

In the BAM-IS Programme, Isdefe is involved in the preparation of the Contract Specification and in the identification. Isdefe participated in the acceptance and closure of the programme to acquire the Logistics Transport Vessel (BTL).



For the S-80 Programme, Isdefe monitored the construction of the first unit of this model, the S-81 (Isaac Peral).

Technical assistance for the creation and development of a new programme specialised in cyber-defence through the definition of the new Cyberspace Combat Platform (SCOMCE).

Ministry of Defence / Secretariat of State for Defence (SEDEF) / DG for Armament and Matériel (DGAM) / SDG for Defence Inspection, Regulation and Industrial Strategy (SDGINREID)

In December 2021, the Isdefe team put into operation the new version of SICAD, adapted to the new information exchange protocol with the NATO Cataloguing System, both in Spain and in the other user countries (Arabia, Belgium, Colombia, Peru and Poland). As a result of the work done, a support request was received from the National Cataloguing Office of Canada due to the problems it was having migrating its system.

Signing of an agreement between DGAM and Isdefe which empowers the latter to sign an agreement with the Ministry of Defence of Peru to maintain the SICAD for the next 3 years.

Work has started on a new version of SICAD's second-step management module so they can all

exclusively use this NATO catalogue management tool, thus advancing in the process of streamlining their logistics tools. This required the development of a new interface between SIDAE (the economic management tool of the Ministry of Defence) and SICAD for the transfer of data from material procurement records.

Isdefe continued to support and participate in the NATO working groups on cataloguing: Strategy and Budget Group, AC/135 Steering Group and Technical Commission.

Quality Engineering Unit

Technical support and advice to certify new companies, as well as to maintain and renew the certification. Technical support and collaboration in teaching the Quality Assurance Manager course.

Weapons and Explosives Unit

Technical support and collaboration in the authorisation of facilities for the manufacture of weapons of war, risk classification of munitions of war, certifications of weapons, cataloguing of explosives, and others derived from the application of the Regulations on Arms and Explosives.

REACH Laboratories and Exemption Unit

Collaboration with the unit to minimise the impact of the application in defence of REACH, CLP, WFD and other European chemical regulations on the procurement of supplies for the Armed Forces (CLP - Regulation on classification, labelling and packaging of substances and mixtures, WFD: Waste Directive).

Industrial Safety Area

In 2021, Isdefe continued to provide support to maintain the processes that guarantee compliance with the Information Security Regulations held by companies (SEGINFOEMP) of the Ministry of Defence, as well as compliance with the Regulations of the National Authority for the Protection of Classified Information (ANPIC) relating to the HPS, HSEM, HSES processes, and in particular those linked to "Industrial Security" (NS06).



Airworthiness Support Division

Technical support to the Military Airworthiness Authority in the performance of its tasks (evaluations, audits, issuance of certificates, recognitions, procedures, etc.).

Ministry of Defence / Secretariat of State for Defence (SEDEF) / DG of Armament and Matériel (DGAM) / SDG of Procurement of Armament and Matériel

Support for the procurement of products and services in the field of **Special Modernisation Programmes (SMPs)**, both national and international, International:

- » EF2000: start of the procedures for the future acquisition of 20 new aircraft as part of the FALCON project, and the negotiations of the next phases of the maintenance contracts.
- » A400M: contractual activities related to the establishment of future Global Support Step 3 (GSS3) and TP400 engine support contracts.

In addition, the spending ceilings have been raised in the EF2000 Programmes, both for their improvement and for the acquisition of the HALCON, FCAS and TIGRE MKIII project in order to undertake new commitments.

National contracts:

- » Contractual signature of the mission equipment for the NH90 Phase II,
- » Rescheduling of the annuities initially approved in the Council of Ministers for the supply of 348 VCR 8x8, in order to adapt the payment milestones to the actual programme timeline.
- » Contract No 1 of the Framework Agreement for the Life-Cycle Analysis (LCA) Start-up Phase for the S-80 submarines, which contemplates the provision of services included in the aforementioned framework agreement and the establishment of the LCA support technical office.

NH90 Joint Maintenance Office

ISDEFE started providing support to the NH90 Joint Maintenance Office, with the aim of enhancing the effectiveness and efficiency derived from joint maintenance management.

Ministry of Defence / Army (ET) / Logistics Support Command (MALE)

In the field of land maintenance, Isdefe participated in the design of the **Army Logistics Base (BLET)**: supporting in the design of the urbanisation and logistics and non-logistics buildings, in the development of the Objective Architecture of Systems in collaboration with JCISAT and CESTIC, the civilian and military personnel staffing was defined, and progress was made in the design of the different technological solutions to be implemented, based on the development of pilot innovation projects.

In addition, work on the transition plan has begun, which will allow transitioning from the current location to that of the future BLET, addressing, among others, aspects related to personnel, knowledge management, material means (equipment, tools, etc.), legal and contracting aspects, etc.

Isdefe also participated in the integration of a commercial transport optimiser in the Army's Logistics Management System and in the implementation of a new transport concept in the MALE that aims to optimise the balance between preparation shipments vs logistics and military vs civilian transports.

Progress has also been made in the application of Artificial Intelligence techniques in warehouse stocking to improve the reliability of the Army's inventory.

As part of the support provided to the MALE, the project to streamline the MALE logistics system was continued with various actions, including the launch within ATLANTE of a new module for managing the needs of the MALE six years out (ENS6) and testing with RPA (Robotic Process Automation) software that will allow automating repetitive tasks involved in logistics applications.

Ministry of Defence / Army (ET) / Army Logistics Support Command (MALE) / Engineering Office of the Army's Logistics Support Command (JIMALE)

Isdefe supports the MALE Engineering Command in consulting activities for the different systems to be acquired or upgraded: anti-aircraft artillery, field artillery, manned and unmanned land and air platforms, jammers, electronic warfare stations, etc. Likewise, Isdefe is continuing to collaborate in innovative projects and to provide technical support in the testing of autonomous systems for the Force35 project in order to obtain prototypes of future weapon systems.

Predictive lifecycle models have been developed using BI and AI (Business Intelligence and Artificial Intelligence) solutions.



In support of JIMALE, Isdefe began providing support for the SILPRE predictive logistics programme, as a continuation of the predictive maintenance projects carried out in previous years. In addition, Isdefe supported the optimisation of the life cycle support of the 8x8 vehicle, as a step prior to the creation of the Support and Life Cycle Office for said vehicle.

Ministry of Defence / Navy / Logistics Support Command (JAL)

Platforms Branch

Support with updating the Navy's doctrine related to Logistics Support and its coordination with Naval Programmes, providing engineering support with the life cycle of the S80 and the F110 frigate systems.

The architectures of the on-board CIS were determined for security accreditation by the National Cryptological Centre (CCN)

Directorate of Engineering and Construction (DIC). Cost Assessment Section

Some of the most prominent support provided in this area included:

- » The economic monitoring of the S-80 and Saudi Corvette Programmes, relying on the earned value methodology.
- » Market studies linked to the future acquisition of the Navy's ocean mapping vessels, as well as the replacement of its units and some of the transport units.
- » Activities to close out financially the ownership regime account of assets transferred from the Navy to Navantia, considering the last actions on the status of the works still pending closure and the work of updating the inventory of assets transferred.
- » Revision/updating of the Agreement signed between the MoD and Navantia, as well as its Supplementary Rules, to extend it in 2022.

Saudi Corvette Programme

Isdefe continued to provide support with the tasks of the Construction Inspection Support Team (ICO) in the La Carraca Arsenal, part of a job signed in 2019, including the sea trials during 2020 for delivery of the first unit in early 2022. With the remaining units, and depending on their progress, the inspections and tests of the different systems that compose them are ongoing.

Other engineering, monitoring and cost work is carried out in collaboration with the Directorate of Engineering and Shipbuilding (JAL). The programme will be completed in early 2024.

Submarine Technical Certification Office

Safety audits have continued for the S80 (under construction) and S70 (undergoing works to extend its operational life) programmes.

The support to this office includes the completion of the design certificate for the S80 series, in accordance with the requirements defined in the Submarine Technical Certification Manual.

Advancing with the Programme, and in view of the sea trials of the S-81P in 2022, Isdefe collaborated to define the criteria and points to be reviewed in preparation for the work to provisionally certify that unit.

Ministry of Defence / Air Force / Logistics Support Command (MALOG)

Collaboration in the monitoring and implementation of the dossiers to procure the support equipment for the EF2000 and A400M fleets. Also in those related to the EF2000 engine for maintenance and management of serviceables.

Ministry of Defence / Air Force (AF) / Headquarters / General Staff of the Air Force (EMA)

Preparation of the logistical support strategy and to transfer technology to the AF in the Pilatus programme, related to the training aircraft.

Collaboration with the different Working Groups (WGs) to exploit information received from MQ-9 (Reaper) and strategy for its secure transmission, as well as participation in the WGs associated with Euromale following the Spanish government's approval to acquire 12 systems.

Safety and Feasibility Studies for aerial operations with RPAS Systems that take place in airspace under the responsibility of the AF.

Ministry of Defence / Defence General Staff (EMAD) / Military Emergencies Unit (EMU)

In support of the J4 Logistics Section, Isdefe continued to support the outsourcing of maintenance and spare parts purchases.

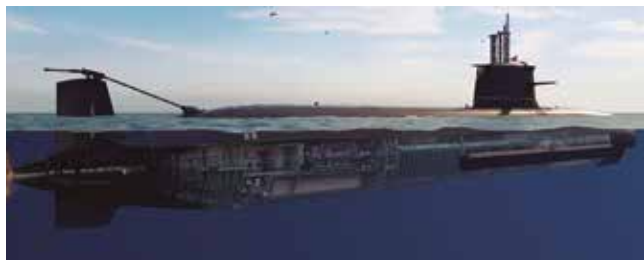
Support services to implement predictive maintenance in light vehicles based on on-board solutions that rely on IoT technology.

Technical support to define the Integrated Logistics Support (ILS) of the new acquisitions as part of the EMU Vital Plan, within the framework of the Annual Operations Plan.

Continued support with the maintenance of the EMU logistics information system (SIGLUME).

Navantia S-80

Collaboration with Navantia in the S-80 Submarine Programme, in the Cartagena shipyard, in various tasks related to the Verification of Operational Requirements, support with the "Safety Programme", preparation of technical documentation and training for the plankowners of the S81.





■ Technology centres

We provide multidisciplinary work teams in defence research, development and experimentation centres, which have the necessary knowledge and experience for scientific-technical and management settings, which is required to carry out activities in the aeronautical and space fields and in technologies related to nuclear, radiological, biological and chemical defence.

Ministry of Defence / Secretariat of State for Defence / National Institute of Aerospace Technology (INTA)

Isdefe continued to provide support to the National Institute of Aerospace Technology (INTA) in the Subdirectorates responsible for research and development projects, although it also engaged in activities in the Centre for Metrology and Calibration, and in the Department of Information and Communication Technologies.

Sub-Directorate General of Aeronautical Systems

Some of the most prominent support provided in this area included:

- » Certification and qualification of: RPAS, combat helicopters and aircraft, transport and in-flight refuelling. Of note is the approval of the MCRI F22 for the certification of systems with multicore processors, and the approval of the CM02 modifications to the Eurofighter and CM08 for the Air Force's F-18.
- » Development, operation and maintenance of Unmanned Aerial Platforms, RPAS Milano ALO (in collaboration with Boeing), and DIANA target aircraft.
- » Support in the flight characterisation activities of missiles and other projectiles at the "El Arenosillo" Experiment Centre (ECOWAS).

- » Support in various national and international projects to research protective aeronautical coatings, such as GENERA, HELADA, EMEP, RAISELIFE, PHOBIC2ICE, SENTINEL 6 and ATHENA.
- » Conduct of degassing tests and spectrometric and systematic analyses of oils, lubricants and fuels for the Air Force and the aeronautical industry.
- » Participation in the trial of the European project HYCARUS to power aircraft using fuel cells.

Sub-Directorate General for Land Systems

- » Participation in the 50th Proficiency Test to maintain the designation as a laboratory certified by the Organisation for the Prohibition of Chemical Weapons (OPCW), and participation in the External Quality Assurance Exercise, organised by the Robert Koch Institute.
- » Support carrying out testing and certification activities of land vehicles (cars, trucks, motorcycles, quadricycles and agricultural vehicles) in the areas of active safety, passive safety and certification of powertrains.
- » Support in the acquisition programme of the 8x8 vehicle (TESS VCR8X8 Dragon) for the Spanish army, support in the determination of the acceptance and rejection criteria chosen.
- » Support services to carry out tests and studies of different jamming systems.
- » Technical assistance for the development of Evalink 16 and 22 software tools for tactical link communications.
- » Support for the operation of the Torregorda Centre for the verification and approval of shells and mortars for the defence industry.



Sub-Directorate General of Naval Systems

- » Support to the Testing Department for the instrumentation of models, and their corresponding trials in the test channels and open waters for the industry.
- » Support to the Cybersecurity Laboratory, which reports to the Cybersecurity and Communications Department of the La Marañosa Technological Institute (ITM), in tasks to analyse the security of the source code and vulnerabilities of applications developed by the DGAM.



■ Supply Chain Logistics and Systems

We provide engineering, consulting and support services to improve the efficiency and oversight of the logistics systems of the Armed Forces, providing solutions for the supply chain and for managing logistics centers, and knowledge and support for processes of the NATO Cataloging System.

Ministry of Defence / Navy / Logistics Support Command (JAL)

Isdefe's support included various actions:

- » Preparation of the Guides that develop the doctrine of Logistic Support for the Navy.
- » Participation as representatives of the Navy in NATO Working Group AC/327 LCMG WG1 (NATO Programme Processes), which is updating the ALP-10 standard.
- » Support monitoring the execution in Arsenal, notably the actions and inspections to repair the "Turia" minesweeper.
- » Technical assistance with the 5th overhaul of the submarine Galerna, which will allow the life of the submarine to be extended past its theoretical design cycle.
- » Collaboration with the Navy and the design authority of the submarine, Naval Group, to achieve the objective of guaranteeing the safety of the submarine after the 5th overhaul of the S-71, which will allow extending the current operating cycle of S-74 by one year over its original design.
- » Advice on the preparation of specifications to meet the maintenance demand for all Navy units. Of note is the support provided to be able to sign the framework agreements for docks and motors, which are essential to maintaining the Navy fleet.

Continued support for the evolution of the Navy's logistics information system. The following milestones are particularly noteworthy:

- » Support in the monitoring and management of the project to migrate the supply module (SIGMA WEB) to the GALIA technological environment, so that it can be merged into a single logistics application (SIL).
- » Support to the Centre to Monitor and Analyse Navy Data (CESADAR) to develop a new Artificial Intelligence algorithm for its ATAVIA (rules-based) and SOPRENE (machine-learning-based) systems, as well as providing training courses.
- » Initiation of the GRIAL innovation programme in collaboration with the Cartagena Arsenal and the University of La Coruña, to apply predictive maintenance (Artificial Intelligence) to determine what spare parts a ship must carry on board during an operation.
- » Development of a prototype called CERT-Chain to Manage the Re-Entry Control Process of Boundary Elements of the S80 submarine through the application of Blockchain technology.
- » Collaboration in the specification and validation of the interfaces of the digital twin of the F110 with the Navy's logistics system.
- » Preparation of different scorecards to support decision-making in the JAL.

A project has been initiated to support the definition and modelling of JAL logistics processes, aimed at providing input information to the ARGO project led by CESTIC.

Ministry of the Interior / National Police

Isdefe has continued to collaborate with the National Police wardrobe service to provide logistics and textile consultancy services.



In the logistics consulting part, a new logistics model has been established, and warehouse processes have been defined, modernised and automated. The functional requirements for implementing a warehouse management system have also been defined.

In the textile part, improvements have been incorporated into new garments, and the technical specifications for current and future garments have been revised and updated.



■ Intelligence and electronic warfare systems

Collaboration with military and law enforcement agencies in engineering and electronic warfare systems, as well as in the conceptualisation and testing of systems to inhibit, disrupt or intercept unauthorised communications, in order to support strategic, operational and tactical commands in the performance of their missions.

Ministry of Defence / Secretariat of State for Defence (SEDEF) / DG of Armament and Matériel (DGAM)

Activities associated with the completion of the different subsystems of the SANTIAGO Programme and the design of the new SANTIAGO Phase II Programme, especially in ACINT to receive data from the S-80, and in innovation projects of COMINT, CESMO, AFPYD and MYC.

Actions were carried out in the plan to transition SANTIAGO from phase I to phase II, to resolve obsolete elements in the COMINT SCATER-ZL and SCAN subsystems, and support was given to contracting the renewal of the SCATER-ZS COMINT Subsystem and the Working Group to update the Transition Plan with new needs.

Ministry of Defence / Defence General Staff (EMAD) / Armed Forces Intelligence Centre (CIFAS)

Isdefe engaged in consulting and technical assistance activities for the SIGINT Section (Signal Intelligence) of CIFAS. Isdefe provided support with the acquisition and exploitation of electromagnetic signals, and with the maintenance and development of means for their acquisition.

Ministry of Defence /Defence General Staff (EMAD) /Joint Cyberspace Command (MCCE)

Consultancy services and technical assistance to the "Telecommunications and Electronic Warfare Office" of the MCCE in the areas of support for the operation and maintenance of joint EW/SIGINT systems.

Ministry of the Interior / Secretary of State for Security / SDG of Information and Communications Systems (SGSICS)

In the civil field, in 2021 Isdefe continued to provide technical assistance services to the Ministry of the Interior in the field of the Legal Interception System of Telecommunications and Data Storage, both to support the oversight of the activities associated with the operation of the service, and to manage the transition of the new functionalities and platforms.

Ministry of the Interior / Technology Security Centre (CETSE)

Support was given to specify the requirements for deploying the global network of SIGLO-CD counter-drone systems, the first phase of which is aimed at protecting certain State institutions by detecting and neutralising threats related to the illegal use of drones.

Isdefe provides technical support services for innovation activities. These services range from providing support with the implementation of national and European innovation initiatives, coordinating the Community of Security Users (CoU Spain), technology foresight work, and monitoring innovation programmes and tenders (H2020, Horizon Europe, Digital Europe Programme, etc.).





■ Security in information systems and critical infrastructures

This section brings together the activities carried out in the field of information security and critical infrastructures, both for the Ministry of Defence and for other Ministries.

Ministry of Defence /Defence General Staff (EMAD) /Joint Cyberspace Command (MCCE)

Engineering and technical assistance for the Joint Cyber Defence Command (MCCD) in the areas of cyber defence to obtain defence, operational and response capabilities in order to conduct military operations in cyberspace. The scope of technical assistance includes the Operations Zone, where Isdefe engineers participate with the military contingent sent by the MCCE to carry out cyber defence activities (audits and CIS security inspections).

One of the strategic lines of collaboration is Isdefe's technical support to the NATO Cooperative Cyber Defence Centre of Excellence (CCDCoE), participating in the organisation of high-impact international cyber exercises such as LockedShields and CrossedSwords, provision of international courses and development of reports and studies on Red Team.

Collaboration in implementing the NATO Federated Mission Network (FMN) concept in the Spanish Armed Forces. Participation in different national and international panels and working groups, and in the design and deployment of the Interoperability Laboratory. Assistance in the planning and execution of different national and NATO exercises, most notably the National Validation, Verification and Confirmation Exercise (V2CN), the Steadfast Cobalt series and Coalition Warrior Interoperability eXploration.

Ministry of Defence / National Intelligence Centre (CNI) / National Cryptological Centre (CCN)

Support to the CCN Certification Body for activities carried out within the scope of the National ICT Security Assessment and Certification Scheme (ENECSTIC):

- » Certification of ICT security products.
- » Accreditation of evaluation laboratories of the Scheme.

Support to the Department of Projects and Technologies of the CCN to prepare the catalogue of STIC products (CPSTIC) qualified for use in the scope of the ENS:

- » Product qualification and development of new ICT families.
- » Internal evaluation tests of ICT security products.
- » Preparation of procedures for the safe use of products and other CCN-STIC guides.
- » Review of LINCE evaluations.

Ministry of Defence / Army (ET) / CIS Headquarters (JCISAT)

Advice to the Subdirectorate of Cyberspace and Electromagnetic Activities (SUBCEMA) in the review of security documentation, preparation of Inspection Reports for national classified systems and preparation of security and technical configuration documentation for stand-alone computers that process NATIONAL and NATO/EU classified information.

Cabinet of the Presidency of the Government / Department of National Security (DSN)

Isdefe provided specialised consultancy services to the Department of National Security (DSN) of the Cabinet of the Presidency of the Government, in anticipation of the future development of the project to digitise the **National Security System (SSN)**.

The provision of these specialised technical services made it possible to assess the current status of the configuration of the Information and Communications Systems in use in the DSN; and to define the Global, Information and Telecommunications Architecture of the SSN for the future development of the process to digitise said system.



Ministry of the Presidency and Relations with the Courts and Democratic Heritage / National Heritage

Isdefe provided specialised consultancy and technical assistance services to the Department of National Security (DSN) of the Cabinet of the Presidency of the Government, in anticipation of the future development of the project to digitise the National Security System (SSN).

The provision of these specialised technical services made it possible to assess the current status of the configuration of the Information and Communications Systems in use in the DSN; and to define the Global, Information and Telecommunications Architecture of the SSN for the future development of the process to digitise said system.

Ministry of Transport, Mobility and Urban Agenda / State Ports

Support to optimise the national port security system: definition of safety regulatory criteria, implementation and dissemination actions, control of compliance with maritime security regulations, and support in the definition of systems that facilitate the control and supervision of port security regulations.

Support services to Port Authorities for the application of the regulations and to remedy any observations made by the European Commission in its inspections.

Support and maintenance activities for the tools needed to facilitate the control and supervision of State Ports.





■ Strategic Infrastructures

We provide support services for managing strategic infrastructures, such as naval bases, police stations and airports, which are essential for the normal functioning of a country. Technical support services in planning, design and project management for this type of special facility, applying the duality of engineering both to the military and the civilian field.

Ministry of Defence (DIGENIN) / Navy / Force Support / Logistics Support Headquarters (JAL)

In 2021, Isdefe continued its activity involving the conceptualisation, feasibility studies, design and support for the execution of infrastructure projects related to Defence and Security.

During this period, Isdefe worked on the Infrastructure Programmes of the S-80 Submarine, as well as on the infrastructures required for the new NH-90 helicopters.

Ministry of the Interior / Secretary of State for Security (SES)

During the year, Isdefe continued to collaborate on improving the infrastructure of the border fences of the autonomous cities of Ceuta and Melilla.



■ Border Surveillance and Control Systems

Isdefe provides strategic and highly technical consultancy services in the field of border surveillance and control, where it integrates detection systems, command, control and communication resources, and systems to stop and identify potential threats in maritime and land border areas.

Ministry of the Interior / Secretariat of State for Security (SES) / SDG of Information and Communications Systems for Security (SGSICS)

Isdefe's activity within the Sub-Directorate General of Information and Communications Systems for Security (SGSICS) was related to the implementation of technological systems for border control.

Technical support with the definition of cases leading to the national implementation of the European EES (Entry-Exit System) and ETIAS (European Travel Information and Authorisation System) systems. Isdefe also continued to support the management of developments in the framework of the Passenger Name Records (PNR) system, as well as the development of the Schengen Information System (SIS).



■ Technological and industrial management

We collaborate in the development of Spain's industrial capacity through the support we provide to define technological-industrial plans and policies, manage industrial cooperation, analyse industrial capacities, implement technological surveillance and competitive intelligence systems and promote platforms for innovation.

Ministry of Defence / Secretariat of State for Defence / DG for Armament and Matériel (DGAM) / SDG for Defence Inspection, Regulation and Industrial Strategy (SDGINREID)

Isdefe supported SDGINREID in:

- » Analysis, definition and monitoring of industrial plans associated with weapons acquisition programmes, both national and cooperative.
- » Industrial analysis of European Defence Fund projects.
- » Analysis of the industrial aspects of the NGWS/FCAS (Next Generation Weapon System/ Future Combat Air System) Programme.

Collaboration in the preparation of the Annual Report on the National Defence Industry, as well as in the preparation of sector industrial reports. In-depth analysis and knowledge of the industrial capacities of the national Defence Industrial and Technological Base (BITD).

Support in the preparation of the new Defence Industrial Strategy, which is currently in the definition phase.

Isdefe also helped SDGINREID to carry out its tasks associated with the different working groups of European bodies related to industrial issues and aspects.

Ministry of Defence / Secretariat of State for Defence / DG of Armament and Matériel (DGAM) /
SDG of International Relations (SDGREINT)

Collaboration with SDGREINT in its three main areas of activity:

- » Internationalisation of Spain's defence industry (institutional support, bilateral meetings, reissue of the Catalogue of the Spanish Defence Industry).
- » International cooperation in armaments through multilateral forums (NATO, LoI, EDA, OCCAR, EU), with special support to the EDAP Permanent Secretariat.
- » Control of foreign trade in arms and foreign investment in defence.

Ministry of Defence / Secretariat of State for Defence / DGAM
/ SDG for Planning, Technology and Innovation (SDGPLATIN)

In 2021, Isdefe continued providing support to the **Defence Technology Observation and Foresight System (SOPT)**. In particular, the Defence Technology and Innovation Strategy (ETID 2021-2027) began to be implemented, supporting from the technological perspective the new defence planning cycle, promoting synergies with the European Defence Fund and the different instruments of the Spanish Strategy for Science, Technology and Innovation for the period 2021-2027.

In relation to international initiatives and programmes related to innovation, in addition to activities related to the **NATO Science and Technology Organization (STO)** and bilateral cooperation initiatives with other countries, those related to European cooperation in defence innovation were particularly relevant, given their increasing importance. The implementation of the European Defence Fund has involved an analysis of its work programmes and evaluation criteria, in order to facilitate the incorporation of national proposals into European funding in the field of research of said European Defence Fund.



European Union / European Defence Agency (EDA)

Provision of services to the European Defence Agency in different fields.

Technological area:

- » The ANDES project, to define a European collaborative framework to promote and apply dual-use technologies. Focused on the identification and definition of instruments to transfer technology between the civil, defence and space technology-industrial sectors.
- » Support in the definition, execution and analysis of the EDA Foresight 2021 exercise to explore and evaluate potential future scenarios from the European and defence point of view. The exercise, carried out over a period of two months, was attended by 150 experts with multidisciplinary profiles and served to contribute to the Agency's technological, industrial and military capacity planning processes.

Industrial scope:

- » Provision of services to analyse Key Strategic Activities (KSAs), defence industrial areas that are particularly relevant to safeguard and develop the strategic autonomy of the European Union. The analysis seeks to determine the existing industrial capacities in European industry, ascertain their dependencies and weaknesses, positioning at the international level, etc.
- » Support with the study and analysis of the implications of the ITAR and EAR export control regulations. In particular, how they affect both the European defence industry and its programmes.



Image: www.eda.europa.eu



■ Crisis and Emergency Management Systems

We offer technical support to national and international organisations in the management of special situations, through consultancy to military and civil protection organisations, for the development of crisis control and management centers, with special relevance to command and control and communications systems, as well as organisational and management aspects.

Ministry of the Interior / Secretariat of State for Security / SDG of Information and Communications Systems for Security (SGSICS)

In 2021, Isdefe's work in the field of the State Emergency Digital Radiocommunication System (SIRDEE) focused on preparing the new service contract, which goes into effect in 2022, as well as on the supervision of the works contained in the current contract, including the search for solutions to evolve the communications network towards LTE technology.

Ministry of Defence / Military Emergencies Unit (UME)

Isdefe continues to assist the Military Emergency Unit with the CIS systems it uses: Fixed and deployable CIS systems, SIMGE (Integrated Emergency Management System), RENEM (National Emergency Network), Collaborative Portal and collaborative tools on Sharepoint. Participation in the definition of the evolution of the UME's CIS systems.