



OUR SECTORS

Defence and Security Sector

2021

Isdefe (Ingeniería de Sistemas para la Defensa de España, SA, SME, MP), is a State Public Sector company, created in 1985 and attached to the Ministry of Defence, being the National Institute of Aerospace Technology (INTA), which owns all the shares of its capital stock.

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 places its knowledge and experience at the disposal of the administrations of other allied countries and of international public organisations, with a presence 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 EU Agency for the Space Programme (GSA) and Satellite Navigation (ESA), and the North Atlantic Treaty Organisation (NATO).





Defence Planning

The strategic consulting services and the 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 / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / General Subdirector of Planning, Technology and Research (SGPLATIN)

Consulting and engineering services in Resource Planning corresponding to the implementation of the **National Defence Planning** cycle:

- Identification / management of the needs derived from the Military Capabilities Objective (OCM) in support of the Joint Chiefs of Staff, including support for the definition of the prioritisation criteria for proposals.
- Planning of the resources of Armament and Material and Research and Development necessary to obtain the capabilities.
- Programming of the material resources (systems and infrastructures) necessary for the Armed Forces for the coming years.
- Identification of those military needs that can be promoted or financed through European initiatives (including PESCO or EDF).

Support in the monitoring and control of R&D programs of strategic value for national defence, among others the Technological Programmes associated with the F-110 frigate and the NGWS/ FCAS Programme (Next Generation Weapon System / Future Combat Air System).



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

Technical support in Military Planning corresponding to the implementation of the National Defence Planning cycle, supporting the identification of the necessary capacities for the armed forces that are detailed in the Military Capabilities Objective (OCM).

The support provided to the MINISDEF to the digital transformation process includes activities for the analysis and definition of the processes of the Defence Staff (EMAD) and support for the EMACON Force Development Division (DIVDEF), in the definition and development of the concepts of Cooperative Network Confrontation and Joint Electromagnetic Operations.

Participation in the review and update of NATO doctrine documentation associated with Counterinsurgency.



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

Support in the BACSI Project (Connected-Sustainable and Interconnected Air Base), as the nucleus and origin of the EA transformation programme in connectivity and sustainability, with the start-up of the project and participation in the preparation of the Master Plan, as well as the design of the management model for its planning.

Support in the planning, control and monitoring of the EA's resource needs at an economic, personnel and infrastructure level, as well as the planning of their availability and subsequent control of the actual execution. This support is provided in the General Staff, as well as in MAPER and the DAE.

Participation in the planning of available means to respond to NATO and EU needs and commitments.

European Union / European Defence Agency (EDA)

Technical support services of the European Defence Agency in various activities related to defence planning:

- Analysis and integration of documentation, WEB tool design associated with the Capability Development Plan (CDP).
- Development of Strategic Context Cases (SCC) in which the status of capabilities and future lines of action derived from CDP priorities are determined.
- Analysis of the security strategies and defence policies of the Member Countries for the Defence Policy Database (DPOL) of the EDA.
- Analysis of the European evaluation and evaluation capabilities (Test & Evaluation Gap Analysis) and determination of needs derived from the CDP.



Command and control networks and systems

We provide engineering and consulting 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 Telecommunications (CIS) and Command and Control systems, both in the military sphere, and that of Spain's Law Enforcement.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG of Planning, Technology and Research (SDGPLATIN)

Technical assistance to the European Strategic Command and Control programme office, to provide the EU Military Staff with its own means for the strategic conduct of European Union operations and missions. The project, led by Spain within the European Union's PESCO (Permanent Structured Cooperation) framework, has been awarded to an industrial consortium led by a Spanish company (INDRA).

It continues to lead the working group for the preparation of the Viability Document (DDV) of the joint Intelligence, Surveillance and Reconnaissance (JISR) capacity of the Armed Forces, especially with the completion of the harmonisation of the General Staff Requirements, consolidation of the feasibility studies, update of the planning for the implementation and start of the cost estimates.



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Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SGPROGRAMAS

DGAM has participated in the process phases of obtaining material resources, supporting the following programmes/projects:

- MC3 Plan (Modernisation of deployable CIS Systems of the ET and Marine Corps).
- Joint Tactical Radio System (SCRT).
- TETRAPOL Communications Systems.
- Communications Teams for Special Operations.

Cooperation in the process of hiring the combatant's radio for the area of operations and follow-up of the record.

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

Support for technical and economic planning, development of technological architectures, and demand management through Specific JEMAD-SEDEF Agreements.

Participation in the design and evaluation of technical architectures of ICT systems, and in the management of NATO and EU services. Our work contributes to the development of Defence digital infrastructures (I3D), and to the modernisation of the developments of corporate information systems by CESTIC. We also support the management and control of the ICT services provided to the Armed Forces and the structure of the Ministry of Defence by CESTIC, and to the information security operations of the I3D.

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

Technical support in the management of knowledge and information, and collaborative work for the functions of the General Staff in the Operations Command.

The J4A (Operational Logistics) section has been supported for participation in national and NATO exercises, in interoperability with other systems. In the Intelligence Section (J2), we have collaborated in the implementation of the JISR Interoperability capacity related to the SAPIIEM systems in the MOPS, as well as in the support and training necessary to allow the use of the systems in national and NATO exercises.

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

Technical support for knowledge and information management, and collaborative work, through the management of intelligence information systems projects.

In the cartography unit, we work on the operation, maintenance and evolution of the National Geospatial Data Warehouse, and we participate in multinational programmes for the joint preparation of digital cartography.



It continues to support the maintenance of the JISR Interoperability capacity related to SAPIEM systems in the CIFAS operating environments (SICONDEF and BICES), as well as providing first-level support and in the resolution of incidents for the participation of CIFAS in national exercises and NATO in which it participates.

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

At the MCCE, work has been done on the definition and technical management of the needs in information and telecommunications systems, and participation in the NATO and EU forums on issues of Command, Control and Consultations (C3).

Provision of engineering services for frequency management and orbit-spectrum integration. At the Tactical Data Links Management Centre, we participate in technology issues and the evolution of NATO standards, Data Links teams, combined interoperability exercises, and in the management of link networks.

Collaboration with the Support Headquarters for the implementation and improvement of digital infrastructures in the EMAD Retamares Base.

Ministry of Defence / ET / Headquarters / JCISAT

Study of new technologies for Deployable CIS and participation in tests associated with the adaptation of the Army to the future operational environment (Experimental Brigade, BRIEX2035).

Development of architectures for deployable CIS, analyzing CESTIC guidelines, participating in system tests, developing possible military applications of 5G and studying new technological capabilities in these CIS systems.



Image: Ministry of Defence / BRIEX 2035

Definition of national data interoperability standards by participating in the international forum of the MIP Programme and in the CWIX demonstration exercise, promoting the use of data exchange mechanisms through the Tactical Data Interface (IDT), applicable to vehicle platforms and weapons systems.

Participation in NATO and national working groups for the implementation of FMN in spiral 2, with practical use the V2CN20 exercise.

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

Collaboration with MALE in the modernisation processes of tactical land systems, including communication networks and command and control systems. The MALE Engineering Department is supported in the specification, development monitoring, verification and validation of new versions of C2 systems, particularly the BMS – ET.



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

Strategic support in the program and in the management of funds from **the NATO Security Investment Programme (NSIP)** for the implementation of the “Air Command and Control System” (ACCS), in the entity Torrejon Combined Air Operations Centre (CAOC TJ), located in the Torrejón Air Base and part of the fixed component of the NCS.

Following the designation of MALOG/SEVIMCA as DGAM's delegated Programme Office for the modernisation of the GRUNOMAC and GRUALERCON Air Command and Control Centres, the Programme Management Directive and Product Specifications have been drawn up.

In coordination with the EMA, it has carried out the planning of the migration programmes to EoIP technology of the Air Command and Control System, as well as the deployable component participating in the start-up of a pilot project to integrate the SIMCA network of the EA with the future I3D in deployment by CESTIC. Participation in the management of the Implementation Plan of the Command and Control System (SC2N) in the EA segment for its integration in the future SC2N-EMAD.

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

In the civil sphere, during 2020 it has collaborated with the Subdirectorate General of Information Systems and Communications for Security of the Ministry of the Interior in its management and supervision of the current telecommunications services of the National Police and Civil Guard through of the Programme Office of the Unified Communications Service (OPSUC).

Said service includes all the communications (landline, mobile, IP, etc.) required by Spain's Law Enforcement in fulfillment of their mission of safeguarding the rights and freedoms of citizens.

NSPA (NATO / NATO Support and Procurement Agency)

Within NATO's Alliance Future Surveillance and Control (AFSC) programme, Isdefe has reviewed the SOW (Statement of Work) for the NSPA to launch the bidding for feasibility studies, to find technical solutions for AFSC systems.

NATO / Communications and Information Agency (NCIA)

Portfolio management services, programmes and NATO projects for the NCIA agency, for the implementation of information and communications systems of the Alliance at its facilities in The Hague. Contribution to the definition of a framework agreement with non-profit governmental organisations (Not-For-Profit Framework), which will allow Isdefe to receive commissions for the management of programmes that require independence from any commercial or industrial interests.

Technical assistance in its Security Operations Centre in the configuration, optimisation and enhancement of the security monitoring and incident management tool for NATO networks (CLASS/UNCLASS).



Platform Acquisition and Sustainment Programmes

We provide technical consulting services in the field of planning, economic-financial, technological and sustainability throughout the life cycle of aerial, land and naval platform programmes, including remotely piloted ones, guaranteeing an effective and comprehensive solution.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG of Programs

Land Programmes Area:

Support continues for the Land Systems Headquarters Programme Offices: Pizarro, Ammunition and 8x8 VCR. Of particular note in the OP VCR 8x8 are the follow-up of the tests under the Technological Programmes at the main groups level, and the 'Demostradores', base product of the production. Monitoring of the Launch Phases and Conceptual Design of the Manufacturing Supply contract for the 1st Section of 348 Vehicles.

Rotary Wing Air Programmes Area:

Collaboration with the Rotary Wing Systems Headquarters Programme Offices: NH-90, TIGRE and Chinook, highlighting the monitoring of the helicopter acquisition contract in its various configurations and auxiliary equipment in the NH90

Programme, and the analysis of the future evolution of Helicopter to MKIII for the Tigre Programme.

Fixed Wing Programmes Area:

Support given to the Headquarters of Fixed Wing Systems Programme Offices: EF2000, A400M, UAS, and future Air Programmes.

For the EF2000 Programme Office, support has been provided in the Falcon program, which will acquire at least 20 additional units, in addition to defining the requirements for the first common electronic scanning radar.



For the A400M Programme, we collaborated in the acceptance process of the ninth aircraft in the Spanish fleet, completed in December 2020, and being the first production aircraft to include the CHT (Cargo Hold Fuel Tanks) element in its configuration.

Collaboration in the activities to sign the contract for the new Trainer Aircraft with Pilatus Aircraft LTD in January for the acquisition of an integrated pilot training system (24 aircrafts, simulators and a logistics package). Participation in the preparation of the necessary documentation for the launch of the MRTT (Multi Role Tanker Transport) Programme with the aim of obtaining in-flight refueling and strategic air transport capacity.

Naval Programmes Area:

Support given to the Programme Offices of the Naval Systems Headquarters: F-110, S-80, BAM, highlighting for the F-110 Programme, the monitoring and control of the ship design phase and monitoring of the execution of the Technological Programmes (PROTEC).

In the BAM Programme, there has been participation in the BAM Intervention and Rescue Contract Specification (BAM-IS).

For the S-80 Programmes, of note are the follow-up to the construction of the first element of the S-81P series and the alternatives of the air independent propulsion system (AIP).

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG GESPRO

- Support given to the management of the Tigre Helicopter Programme in JSAER-AR and Air Armament Programmes.
- Technical consulting services for the development and continuous improvement of processes, methodologies and tools for the comprehensive management of weapons and material programmes and in the development of a quality management system for the SDG PROGRAMS according to the ISO 9001:2015 standard.
- Support given to the Land Systems Headquarters in the management of the SISCAP (Foot Combatant Information System) programme and in the management of the Framework Agreement for the acquisition of 1.5-ton all-terrain armored vehicles, as well as in the preparation of the Viability Documents (DDV) and the Reports Prior to the SEDEF's Order to Proceed for land systems.





Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG INREID

Quality Engineering Unit:

- Technical support and advice for the certification of new companies, as well as for the maintenance and renewal of the certification.
- Technical support and collaboration for the delivery of the RAC course.
- Technical assistance for participation in the Joint Committee on Defence and Defence Industries (CMDIN) and for the AEC Committee on Defence Industries and Services.

Weapons and Explosives Unit:

Technical support and collaboration in the authorisation of facilities for the manufacture of weapons of war:

- Hazard classification of war ammunition.
- Weapons certifications.
- Cataloguing of explosives.

Laboratories and REACH Exemption Unit:

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

Industrial Safety Area:

Support for the maintenance of the processes that guarantee compliance with the Information Security Regulations held by companies (SEGINFOEMP) of the Ministry of Defence, compliance with the Regulations of the National Authority for the Protection of Classified Information (ANPIC) relative to the HPS, HSEM, HSES processes, and in particular to that related to "Industrial Safety" (NS06).

Industrial Inspections Area. Official Quality Assurance:

European Space Agency Launcher Programme: Support for the fulfilment, signing and consequent execution of the contract between DGAM and ESA for carrying out the Official Quality Assurance Activities of the development and production of the Ariane 5 and Ariane 6, and Vega and Vega-C launchers in Spanish manufacturers.

Airbus Getafe: Support has continued to be given to the Official Quality Assurance activities in the MRTT aircraft, specifically to the programmes:

- FAFR (Forces Armées Françaises).
- MMF (Multinational MRTT Fleet).
- Retrofit Singapore (GOS).



Image: www.esa.int / J. Huart, 2012



Airworthiness Support Division:

Technical support to the international collaboration activities of the Defence Aviation Authority, among which the following of are particular note:

- Collaboration with the Dutch aviation authority for the MRTT and MFF (Multinational MRTT Fleet) programme.
- In the National Programmes regarding airworthiness, mainly CH 47F, SIRTAP, NH 90, TIGRE.
- In the working groups of the European Defence Agency (EDA) for the issuance of military airworthiness regulations.
- In establishing the military airworthiness authority in the United Arab Emirates.



Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG for Armament and Material Procurement

Support for the contracting of products and services in the area of **Special Modernisation Programmes (PEMs)**, both national and international, highlighting for the EF2000, the delivery of the last production aircraft corresponding to Tranche 3A and the negotiation of the claims of the industry for not hiring Tranche 3B.

Technical support for consensus on the Capacity Plan for the next 10 years (2021-2030), at the Secretaries of State for Defence level of the four member countries.

In the area of the A400M, it has participated in the contracting for maintenance complementary to the Global Support Step2, as well as in initializing the negotiations for the establishment of the Future Support Engine Contract.

In relation to national contracts, of note is the contractual signing of the supply of 8x8-wheel combat vehicles and the termination resolution for compliance with the Missile Spike programme.



Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG for Armament and Material Procurement

Support to the Budget Office (OPRE) in the financial management of the Special Modernisation Programmes, from the approval of the cost, by Agreement of the Council of Ministers, to its imputation to National Accounts based on the rate of reception of the weapons systems and its financial closing.

Management control analysing the economic and contractual information that gives rise to financing profiles.

Support for the management of Chapter 2 (current expenditure) of the budget in the analysis of the needs of the different budget services as well as the preparation, based on the prioritisation criteria framed within the strategic axes of Defence, of the prioritised list of needs (LIP) and Operation Programming.



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

Progress has been made in predictive maintenance solutions based on IoT technologies for armored vehicles, and predictive life cycle models have been developed applying BI and AI (Business Intelligence and Artificial Intelligence) solutions.

Predictive maintenance models and solutions have been defined for Oil Analysis.

The Additive Manufacturing implementation project continued in MALE/ET, as part of Operation Balmis, as well as in the European Defence Agency (EDA), participating in various multinational working groups.

Isdefe has provided technical support for the maintenance of the airworthiness of the HA-28 Tigre and HT-29 NH90GSPA Weapons systems, at the Engineering Headquarters of the Helicopter Maintenance Centre and Park (PCMHEL).



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

Technical support to the MALE Engineering Headquarters in consulting activities for the different systems to be acquired or to evolve: anti-aircraft artillery, field artillery, manned and unmanned ground and aerial platforms, jammers, electronic warfare stations, etc. Strengthening of collaboration with R&D projects and technical support in the Fuerza 35 experimentation of autonomous systems in order to obtain prototypes of future weapons systems.

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

In the area of **Land Support**, we have participated in the design of the **Logistics Base** of the ET:

- Definition of logistics and support processes
- Specification of the needs and requirements of information systems
- Technologies based on Industry 4.0 and the personnel necessary for its operation.
- Definition and support for the implementation of technological R&D projects as part of the pilot test.

Transport optimisation project in the Army, through the implementation of a market application that will be integrated with the logistics management system of the ET.

Support in the MALE logistics information system rationalisation project.

Technical support for the development of a prototype for massive and unstructured information storage.

Use of data analytics tools and methodologies in various areas, such as analysis of workforce capacity, operational availability. Predictive analysis of ammunition tests close to expiration.





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

- **Platform Branch:** updating of the Navy doctrine regarding Logistics Support and its coordination with the Naval Programmes, providing engineering support in the life cycle.
- **Systems Branch:** support in the BRE1TA programme (BRASS Enhancement 1 Technical Architecture).
- **Support in monitoring the execution in Arsenals.**
- **Specialised support in service contracting models via NSPA.**
- **DIC Cost Evaluation Section:**
 - Isdefe's collaboration has been limited to two special Armament Programmes:
 - S-80- Economic monitoring supported by earned value methodologies.
 - F-110- With the support of the Programme Office as part of the Working Group for the implementation of the programme monitoring model by EVM.
 - Start of the revision/update work of the Agreement signed between MINISDEF and Navantia, as well as its Complementary Rules, for its extension in 2021.
- **Saudi Arabia Corvettes Programme:**
 - Support in the inspection tasks of the Construction Inspection Support Team (ICO) at the Arsenal de La Carraca of the order signed in 2019, highlighting the following activities:
 - Coordination of FAT and HAT test protocols.
 - Coordination and management of protocol points with Navantia personnel.
 - Attendance at FAT and HAT tests.
 - On-site inspections of blocks of the different corvettes in the San Fernando and Puerto Real shipyards.
 - Inspections of different systems on board related to: electricity, auxiliary equipment, propulsion, communications, sensors, combat system, networks, navigation, etc.
- Other engineering, monitoring and cost works are carried out in collaboration with the Naval Construction Department at JAL. The programme will conclude in early 2024.





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Submarine Technical Certification Office:

- Fulfilment of compliance verification work for the class design certification for the S80 series in 2021, according to the requirements defined in the Submarine Technical Certification Manual.
- Definition of the criteria and points to be reviewed for the work for the provisional certification necessary for the S80 class sea trials.
- Carrying out of a face-to-face safety audit of the S80 (under construction) and S70 programmes (in works that extend their operational life). The remote audit that began, that was simultaneously applied to the two aforementioned programmes, is established with a view to the certification for sea trials in the S80 series and for the end-of-work report of the S70 series.



Image: Spanish Navy / SubmarinoS80

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

Within the framework of Air Support, support has been given in the supply and management of material for different weapons systems of the Air Force.

For the new fleets, support has been given to the management of contract C3 to sustain the Eurofighter, and the negotiation of phase 2 of this contract has been participated in. For the A400M, there has been collaboration in the management of engine material and ground support equipment. For the NH90, there has been collaboration in the initial supply area and in material management. For the rest of the fleets, support is given to their maintenance in the areas of supply, maintenance management and in-service engineering.

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

Preparation of the General Staff Requirements (REM) documents following the Instruction of the SEDEF for the acquisition of capabilities, in the Lanza Radars Modernisation programmes and the implementation of the SSA Capacity (Space Situational Awareness) in the COVE (Space Surveillance Operations Centre), framed by the S3T programme (Spanish Space Surveillance and Tracking).

Management of the agreement for the Assignment, use and maintenance of the Space Surveillance Radar (S3TSR) from the CDTI to the MINISDEF-EA, and in the drafting of the Public Domain Use Change Act (Acta de Mutación Demanial).



Ministry of Defence / Defence Staff (EMAD) / Military Emergency Unit (UME)

Technical support to the Balmis operation as support to the Logistics section, J4 of the Headquarters of the UME, carrying out numerous studies and analyses to support decision-making in the field of sustainability.

We continue with the process of outsourcing maintenance and purchasing of spare parts.

Support for the implementation of predictive maintenance in light vehicles based on IoT solutions.

Definition of Integrated Logistics Support (ILS) for new acquisitions within the UME Life Plan.

Implementation of the S1000D regulation.



Image: Flickr UME

Navantia S-80

Isdefe's collaboration in the S-80 Submarine Programme, in various tasks related to the Verification of Operational Requirements, Support for the "Safety Programme" and the preparation of technical documentation at the Cartagena shipyard. Additionally, simulator training for the keel crew of the S81.

NATO / Support and Procurement Agency (NSPA)

Technical support to the AFSC Programme (*Alliance Future Surveillance and Control Capability*).



Technology Centres

We supply multidisciplinary work teams in defence research centres, development and experimentation centres, which have the knowledge and experience necessary for scientific-technical and management environments, 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 / Secretary of State for Defence (SEDEF) / National Institute Aerospace Technology (INTA)

Technical support to INTA in the Subdirectorates responsible for research and development projects: General Subdirectorates of Aeronautical Systems and Land Systems, although work has also been done in the Centre for Meteorology and Calibration and in the Department of Information Technologies and Communications.

Subdirectorate General for Aeronautical Systems:

- Certification and qualification of: RPAS, helicopters and combat aircraft, transport and in-flight refueling, highlighting the certification of the medical configuration of the A330 MMF programme, revision 15 of the Technical Certificate of C-295 MW TS03 CA-01 phase 2 (Canada) and the Technical Certificates of the EF2000 IPA9, ISPA3 and P2EB.
- Development, operation and maintenance of Unmanned Aerial Platforms, RPAS SIVA, Milano or ALO (in collaboration with Boeing), and DIANA target aircraft.
- Maintenance and tests on a turbojet bench for the certification of civil aeronautical engines and studies of emissions into the environment: Rolls-Royce Trent -900, Trent-XWB and Trent -1000.
- Support in the activities of characterisation of the flight of missiles and other projectiles at the “El Arenosillo” Experimentation Centre (CEDEA).
- Support in various national and international projects for the investigation of protective aeronautical coatings, such as GENERA, HELADA, EMEP, RAISELIFE or PHOBIC2ICE, SENTINEL 6 or ATHENA.



- Carrying out degassing and spectrometric and systematic analysis tests of oils, lubricants and fuels to serve the Air Force and the aeronautical industry.
- Participation in a trial of the European HYCARUS project for powering aircraft fuel cells.

Subdirectorate General for Land Systems:

- Development of software for testing of Link16 and Link22 tactical links, to make the link between the PATRIOT weapons system and the BMD operations centre, or the LINPRO national data processor on board ships.
- Support for the operation of the Torregorda Centre for the verification and homologation of howitzers and mortars for the Defence sector industry.
- Participation in the “Atila” pilot project, which aimed to test the effectiveness of UV light in the fight against coronavirus. Part of Operation Balmis of the Ministry of Defence.

- Participation in the development of a new textile material for military clothing, both for underwear and for outerwear.
- Support in 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.

Consulting and engineering services to the Cybersecurity Laboratory, dependent on the Cybersecurity and Communications Area of the La Marañosa Technological Institute (ITM), in tasks of source code security analysis and application vulnerabilities developed by the DGAM.

Technical support for the change of the communication protocol from cataloguing tools to SICAD software.

International consulting, participating in AC / 135 meetings and giving support to the different SICAD user countries.





Logistics and Supply Chain Systems

Ministry of Defence / NAVY / Logistics Support Headquarters (JAL)

The project for the new Navy Logistics Information System has continued, in which Isdefe is participating in the definition and monitoring office.

A new support activity has been started for **CESADAR (Centre for Supervision and Analysis of the Navy)** in the Cartagena arsenal related to the application of artificial intelligence and big data, in the early detection of breakdowns and predictive maintenance of ships.

Ministry of Defence / Defence Staff (EMAD) / Military Emergency Unit (UME)

The development of a new version of the Logistics System of the UME (SIGLUME) continues, having started the process of implementation in operation in December.

Ministry of the Interior / National Police

New collaboration with the clothing service of the National Police to provide logistics and textile consulting services.

In the logistics consulting part, a new logistics model has been established, new operating processes have been defined and they have been modelled using BPMN notation.

The functional requirements for the implementation of a warehouse management system have also been defined.

New work methods and support have been established in the preparation of technical specifications for current and future garments.



Intelligence systems and electronic warfare

We provide engineering, consulting and support services to improve the efficiency and control of the logistics systems of the Armed Forces, providing solutions in the supply chain and in the management of logistics centres, and knowledge and support in the processes of the NATO System of Cataloguing.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM)

Monitoring of the guarantee of the different subsystems of the SANTIAGO Programme and the definition of the new SANTIAGO Phase II Programme.

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

During 2020 Isdefe has provided technical assistance services to the Ministry of the Interior in the field of the Legal Interception System of Telecommunications and Data Conservation, both to support the supervision of activities associated with the operation of the service and for the management of the transition of new functionalities and platforms.



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Ministry of the Interior / Secretary of State for Security / SDG for Planning and Management of Infrastructures and Means for Security (SDGPGIMS)

Support to the Sub-Directorate, as the National Authority responsible for the Internal Security Fund, in the monitoring and control of projects and new developments in the field of integrated border management, police cooperation and the common visa policy.

Interior Ministry / Security Technology Centre (CETSE)

Provision of technical support services for research activities within the CETSE area, these services range from supporting the promotion of national and European RD&I initiatives, to coordinating the Community of Security Users (CoU Spain), and support for ongoing innovative projects, such as the GLOBAL-CD system for the detection and neutralisation of drones or innovative Artificial Intelligence tools promoted by the CETSE.





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 other Ministries.

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

- Engineering and technical assistance to the MCCE in the areas of cyber defence, supporting the MCCE's plans to obtain defence, operation and response capabilities for the development of military Operations in Cyberspace. Technical assistance that encompasses the Operations area, where ISDEFE engineers are part of the military contingent sent by the MCCE to carry out Cyber Defence activities (CIS Security audits and inspections).
- Support services in operations derived from COVID, Operation Balmis and Baluarte, supporting the protection of the networks of the military Hospitals of Gomez Ulla and Zaragoza.
- Isdefe's collaboration with the NATO Cooperative Cyber Defence Centre of Excellence (CCDCoE), participating in the organisation of high-impact international cyber exercises such as **LockedShields and CrossedSwords**, execution of international courses and development of reports and studies on Red Team.
- Support in the implementation in the Spanish Armed Forces of the NATO Federated Mission Network (FMN) Concept. Participation in different panels and working groups, national and international, and in the design and deployment of the interoperability Laboratory.
- Assistance to the planning and execution of different national and NATO exercises, among which the National Validation, Verification and Confirmation Exercise (V2CN), the Steadfast Cobalt series and the Coalition Warrior Interoperability eXploration are of particular note.



2. OUR SECTORS

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

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

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

Support to the Department of Projects and Technologies of the CCN for the elaboration of 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.

Ministry of Defence / ET / CIS Headquarters (JCISAT)

Advice to the **Sub-Directorate of Activities in Cyberspace and Electromagnetic (SUBCEMA)** in the review of security documentation, preparation of Inspection Reports of national classified systems and preparation of security documentation and technical configuration of Isolated Computers that handle NATIONAL and NATO/EU classified information. Tutoring of the virtual classroom of Cyber Defence Awareness of the Army.

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

Advisory and support service in security systems, applicable to security infrastructures, anti-intrusion security systems, perimeter security systems, CCTV systems, security management systems, access control systems, fire protection systems, inspection equipment (metal detectors and scanners), in the different locations and dependencies of the National Heritage.

Technical support in the Security Systems Audit Plan.

Preparation of the projects and specifications necessary for the improvement of the security systems in the Royal Palace of Madrid, El Pardo, El Escorial, Valle de los Caídos, Aranjuez, La Granja, Las Huelgas, Tordesillas and Yuste.

Ministry of Transport, Mobility and Urban Agenda / State Ports

Support in port security matters to move towards comprehensive security, optimising both public-public collaboration with Spain's Law Enforcement, with companies that carry out commercial activities in the service area of ports of general interest.

- Support in the definition of normative safety criteria, actions of: definition of systems, implementation, dissemination, and control of compliance with the maritime security standard.
- Support to Port Authorities for the provision and maintenance of tools that facilitate the task of control and supervision of port facilities and ports subject to maritime security regulations.



European Union / European Defence Agency (EDA)

Study of state of the art technologies and threats applicable to Cyber Defence, with the aim of identifying and proposing projects that contribute to the improvement of military capabilities in the domain of Cyber Defence within the framework of the European Union.





Strategic Infrastructures

We provide support services for the management of strategic infrastructures such as naval bases, police centres or airports, that are essential for the normal operation of a country. Technical support services in planning, design and facultative management of these types of special facilities, applying the duality of engineering to both the military and civil spheres.

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

Continuation of the activity during 2020 in the conceptualisation, feasibility studies, design and support for the execution of infrastructure projects related to Defence and Security.
Technical support in the Infrastructure Programmes of the Submarine S-80, as well as in the infrastructures required for the Maritime Action Vessels in the Cartagena Arsenal.

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

Design and execution of projects to improve the border fences of Ceuta and Melilla, as well as the execution of a Police Station in the city of Seville.



Border Surveillance and Control Systems

Isdefe provides strategic and technical consulting services, with a high technological component in border surveillance and control, where it integrates detection systems, command and control communication means, and developments for the detention and identification of possible threats in maritime and terrestrial border areas.

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

Consulting and support services for the implementation of **technological systems for border control**. Said systems include both tools for automated border control (ABC systems, Automated Border Control), and the establishment of integrated systems for video surveillance, license plate recognition or facial biometrics.

Technical support for the **national deployment of the European PNR (Passenger Name Records) systems**, EES (Entry-Exit System) and ETIAS (European Travel Information and Authorisation System).

Support in the definition and implementation of the new management system for international protection applications (such as asylum or refugee status), in terms of digital transformation which, in addition to the implementation of new systems, aims to re-engineer and integrate the existing e-government applications.



Technological and industrial management

We collaborate in the development of national industrial capacity through our support for the formulation of technological-industrial plans and policies, the management of industrial cooperation, the analysis of industrial capacities, the implementation of technological surveillance systems and competitive intelligence and the promotion of platforms for innovation.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG of Inspection, Regulation and Defence Industrial Strategy (SGD INREID)

Isdefe continues to provide support in the analysis and monitoring of the **industrial plans and studies for various programmes**, some of which are nationally funded, others are candidates for funding under the European Defence Fund or in cooperation with NATO.

Participation in the preparation of the **Annual Report on the National Defence Industry** and the preparation of sector reports. Further analysis of the industrial capacities of the national Defence Industrial and Technological Base (BITD).

Technical consulting activities related to the **NGWS / FCAS** (Next Generation Weapon System / Future Combat Air System) programme, in collaboration with SDG PLATIN:

- Technological aspects in the different phases of the Concept Study (JCS) programme.
- In the programme's Industrial Monitoring Office (OSI): analysis of the industrial aspects of the offers prepared by the leaders of the "pillar" (each of the large systems into which the program is divided) and of national industrial capacities to ensure the objective of returning national industrial participation in the Programme.



Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG of International Relations (SDGREINT)

It continues to collaborate with the SDG REINT in its three main areas of activity:

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



Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / SDG for Planning, Technology and Innovation (SDGPLATIN)

Preparation of the new version 2021-2027 of **the Defence Technology and Innovation Strategy (ETID)** (published in 2021). ETID will direct the department's RD&I policy over the next few years, aligning it with the new defence planning cycle, with the principles of the new Spanish Strategy for Science, Technology and Innovation for the period 2021- 2027 and with the latest technological advances.

In international R&D cooperation, in addition to activities related to the **NATO Science and Technology Organisation (STO)** and bilateral initiatives with other countries, those relating to **European defence R&D cooperation** have been particularly relevant.

Support in the management and evaluation of the MINISDEF Programme, **Coincidente 2020**.



2. OUR SECTORS

European Union / European Defence Agency (EDA)

Isdefe has established itself as a reference “partner” of the EDA, where it has continued to provide services in the technological field in:

- Technological prioritisation, **OSRA project**, to define, identify and prioritise the technological objectives of the Member States. With OSRA, the Agency consolidates itself as a key actor for the topics of the future European Defence Funds managed by the Commission.
- Technological future planning, **project Foresight**, four-year framework contract to forecast the state of the art in relevant technological areas of the defence sector through sessions with European experts.

In the industrial field, Isdefe was awarded a contract in 2019 that has been developed in 2020, to develop the Key Strategic Activities (KSAs), which will identify different defence industrial areas that are particularly relevant to safeguard and develop the strategic autonomy of the European Union.



Image: M.Moira / Shutterstock



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 control and crisis management centres, with special relevance to command and control and communications systems, in addition to organisational and management aspects.

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

During 2020, the work carried out in the field of the **State Emergency Digital Radiocommunications System (SIRDEE)** has focused on the preparation of the new service contract that will come into force in January 2022, as well as on the supervision of the work included in the current contract, including the search for solutions for the evolution of the communications network towards LTE technology.

Ministry of Defence / Military Emergency Unit (UME)

Technical support in the CIS systems in operation in the Military Emergency Unit: Fixed and deployable CIS systems, SIMGE (Integrated Emergency Management System), RENEM (National Emergency Network), Collaborate Portal and collaborative tools on Sharepoint.

Isdefe is also participating in the defining the evolution of the UME's CIS systems.

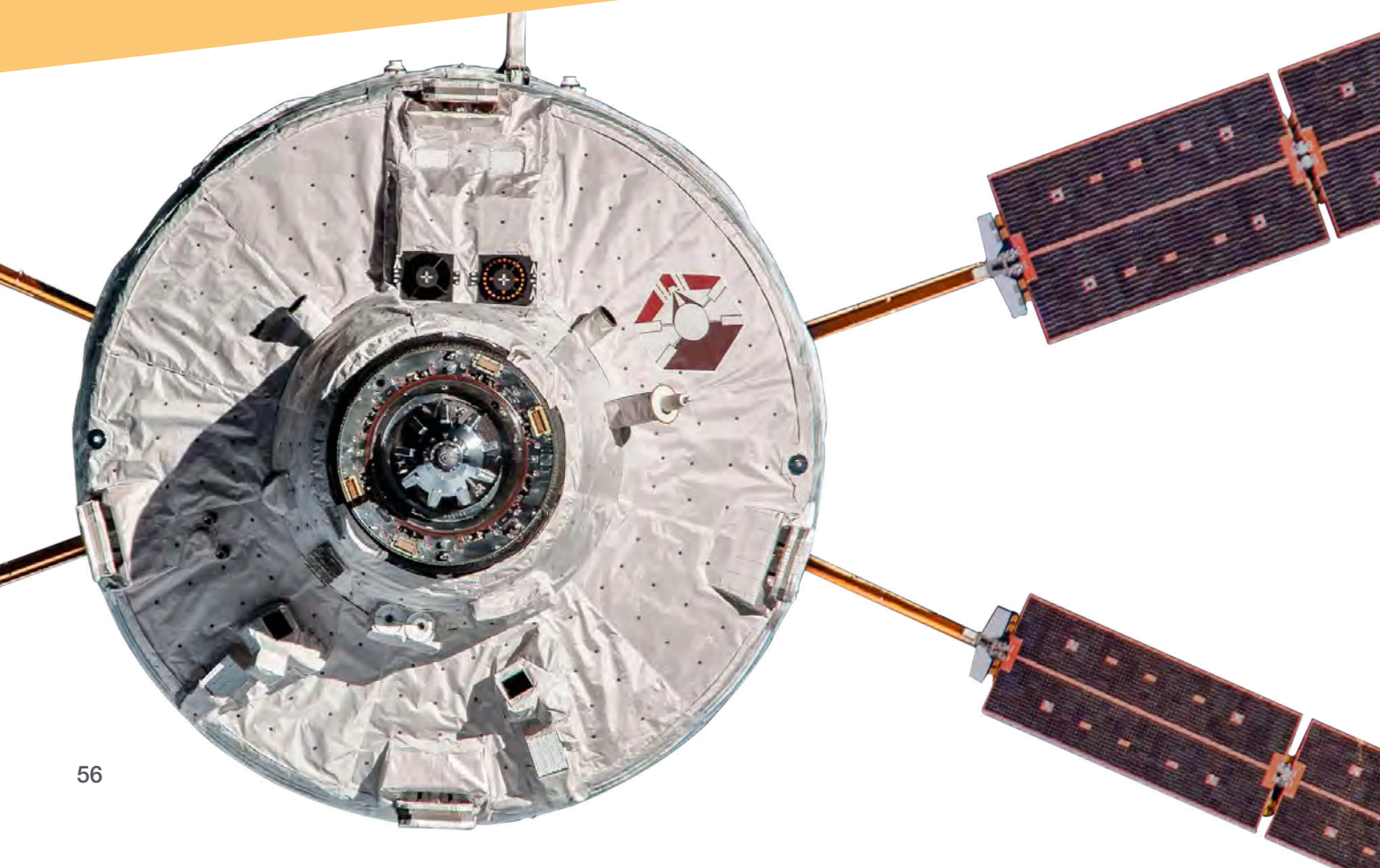


Space Sector

2.2

Isdefe develops specialised engineering and technical support activities in the space sector, in the field of navigation and satellite communications, earth observation and Space Situational Awareness (SSA) for the Spanish administration, the European Commission and various international space agencies.

It also carries out management, operation and maintenance activities of the space communication centres and complexes in Spain, both for the National Institute of Aerospace Technology (INTA), as well as for the European Space Agency (ESA) and the North American agency National Aeronautics and Space Administration (NASA).





Space stations and infrastructures

We provide engineering services and technical support for satellite communications and monitoring, and for space exploration missions from space stations in Spain. We also manage the operations and maintenance of space complexes.

Ministry of Defence / Secretary of State for Defence (SEDEF) / National Technical Institute Aerospace (INTA)

INTA Torrejón Spatial Infrastructures:

Comprehensive support to all the activity carried out from the **CEIT (INTA Torrejón Space Centre)**. Multidisciplinary team with specialists in Ground Segment, Control Centre, Mission Analysis and contribution to the search for new business opportunities with INTA. Success of the CHEOPS mission.

Collaboration with ESA and Swedish and Norwegian national agencies for the use of the INTA Station Network. Despite the pandemic situation, critical activity has continued and all PAZ services have been secured.

INTA Maspalomas Spatial Infrastructures:

Operation and Maintenance of the **CEC (Canary Islands Space Centre)**. Close collaboration with the CEIT to give INTA complete support in its Network of Earth Stations. The CEC has become the 24x7 operation centre for all INTA stations. Even in a pandemic situation, the station's activity and the 24x7 service have been maintained.



Ministry of Defence / Secretary of State for Defence (SEDEF) / National Institute Aerospace Technology (INTA) / NASA

Implementation of an action plan for the **management of the COVID-19 pandemic** at the Station. Throughout all the months of lockdown, with extreme restrictions on mobility and in totally uncertain health conditions, it has been possible to maintain the operation and maintenance service of the Station without interruption H24. This fact has been recognised by NASA **with the presentation of the 2020 NASA Group Achievement Award in a virtual ceremony.**

In these severe conditions, the daily support service to NASA missions has been maintained, and in particular the critical support to three L1s should be highlighted:

- The launch of the UAE EMM probe to Mars.
- The launch of NASA's MARS 2020 probe including the Perseverance robot and the Ingenuity helicopter.
- The “touch & go” manoeuvres of NASA's Osiris Rex probe to the Bennu asteroid to collect samples.

Maintenance of facilities and equipment, for updating and improving the antennas systems of the DSN network: DSS54 antenna and DAED project of two new DSS56 and DSS53 antennas.

Technical support in the maintenance of the facilities of the Station that has required an additional effort due to the application of COVID protection measures.



Image: www.inta.es / New Antenna in Robledo de Chavela



Ministry of Defence / Secretary of State for Defence (SEDEF) / National Aerospace Technical Institute (INTA) / Astrobiology Centre (CAB)

Astrophysics and Space Sciences:

Technical support to the CAB of INTA and ESA in the XMM mission at ESAC. Possible collaborations with public scientific research organisations underway.

During the pandemic and the months of lockdown, the service has been provided with a quality that is highly valued by the client.

European Union / ESA

Cebreros Spatial Infrastructures:

Technical support at Cebreros, which has become the reference station for ESA's deep space network. Multiple upgrades to the station as a pilot prior to deployment to the rest of ESA's deep space network.

SMOS project:

Specialised technical services for the continuity of the contract. In 2020, due to lockdown and the pandemic, many processes were redefined to be able to be developed remotely. The mission continued without incident and large data reprocessing campaigns were carried out.

Agreements with different companies to position Isdefe for the renewal of the Science framework contract at ESAC.

Security control services for space launcher and quality operations at the French Guiana Space Base, in KOUROU. The service has been provided on a nominal basis despite the pandemic.





2. OUR SECTORS

European Union / GALILEO

Implementation and process improvement activities for the instrument landing system, ILS, have been carried out, complying with the operational objectives established by the GSA.

European Union Agency for the Space Programme (EUSPA)

Support to the EU GNSS Security Accreditation Board (SAB) in the accreditation activities of the satellite navigation systems of the European Union (EU GNSS Systems):

- Independent audit of security documentation.
- System security technical tests.
- Open source analysis.
- Risk analysis.
- Development of safety standards.

European Union / European Union Satellite Centre (SatCen)

Information security consulting and accreditation of systems that handle classified information:

- Risk analysis.
- Analysis of security architectures.
- Secure configuration of information systems.
- Preparation of security documentation: SSRS, SecOPs, SISRS.
- Classified information system migration plans.





Satellite applications

We provide technical support in the field of development and implementation of new satellite communication and navigation applications. We offer technical support to scientific programmes in the space, earth observation, and space debris monitoring fields.

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

Isdefe continues to support INTA in the different GNSS (Global Navigation Satellite System) activities in which it participates. Participation in the three Galileo infrastructures in Spain: Competent PRS Authority (CPA), GNSS Service Centre (GSC) and Backup Galileo Security Monitoring Centre (GSMC). In particular, the Isdefe team supports INTA in the technical management of the development and deployment of the CPA infrastructure for managing the PRS service at a national level.

Ministry of Transport, Mobility and Urban Agenda / Administrator of Railway Infrastructures (ADIF)

The satellite communications management and control service continues to support the ADIF-RAM (formerly FEVE) metric gauge network railway tracking system.



2. OUR SECTORS

European Commission / European GNSS Agency (GSA)

Participation in the GSC operations team is maintained, which this year has put in place a new operating infrastructure. The GSC is the interface with user communities and supports the Open Service, Commercial Service, Search and Rescue (SAR) services of the Galileo Programme.



Image: www.esa.int / ESA - P. Carril

European Union / European Space Agency (ESA)

Technical advice for the **accreditation process of the future version of the Ground Control Segment of the Galileo system**, responsible for tracking, monitoring and control of all satellites in the constellation. Security analysis to define the future and evolution of the Galileo system, called Second Generation (G2G), which optimises the performance and benefits of the satellite such as its reliability, availability, continuity, precision and integrity.

Transport Sector

2.3

Isdefe provides engineering and consulting services aimed at the competent bodies in the field of regulation, supervision and provision of services related to transport in its different aspects, promoting the acquisition of new technological capabilities, the improvement of safety and the optimisation of operating procedures.





Traffic management

We provide technical consulting services to manage the implementation and operation of traffic management support systems, providing technical assistance to national authorities in the areas of regulation and supervision, provision of technical services and operational safety audits.

Ministry of Transport, Mobility and Urban Agenda / Secretary of State for Transport, Mobility and Urban Agenda / ENAIRE

In relation to **Air Traffic Management**, it has relied on:

- Specification and tests prior to commissioning the new version of the **Automatic Air Traffic Control System, SACTA 4.0**.
- Commissioning of **Air Navigation systems**
- Support to the **development plan for ENAIRE's network systems management centre (SYSRED)**.

Ministry of Transport, Mobility and Urban Agenda / Secretary of State for Transport, Mobility and Urban Agenda / General Directorate of Civil Aviation (DGAC)

Collaboration with the DGAC in **setting the sector's policy** through the strategies of airports, air navigation and air transport.



Technical support in the **regulatory development of the Single European Sky (SES)** and its implementation in national regulations, and in monitoring the **SESAR 3 European R&D programme**.

Technical support in the **Civil Secretariat of the Interministerial Commission between Defence and Transport, Mobility and Urban Agenda (CIDETMA)**

Adoption of agreements to improve the **flexible use of airspace (FUA)** with the development of:

- Principles for the exercise of the Functions related to the Flexible Use of Airspace.
- Modification of the Commission's Operating Rules.

Support to the **USOAP Programme office (Universal Safety Oversight Audit Programme)**, whose ultimate objective is to promote global aviation safety, through periodic audits of safety supervision systems in all of the International Civil Aviation Organisation (ICAO) member states.

Technical support in the development of:

- Studies on the evolution of operational safety indicators with a State scope, and a comparison with neighbouring European States.
- Studies on the progress of corrective actions.





2. OUR SECTORS

Ministry of Transport, Mobility and Urban Agenda / Secretary of State for Transport, Mobility and Urban Agenda / State Agency for Air Safety (AESA)

- Collaboration in inspection tasks for the supervision of operational safety regulations compliance by air navigation service providers, air transport operators and aeronautical personnel.
 - Regulatory control inspection for the continuous supervision of Air Traffic Service Providers (ATS).
 - Inspection of the Airspace Management Service (ASM), the Aeronautical Information Service (AIS) and the Airspace Design Service (ASD).
 - Certification and continuous supervision of Air Traffic Controller training organisations (ATCO).
 - Supervision of the measures taken by providers to guarantee the continuity of their service during the circumstances imposed by the COVID-19 situation.
 - Adaptation of the Inspection Plan to the situation derived from COVID-19.
- Carrying out consulting activities aimed at the continuous improvement of aviation safety, (review of future European regulations, supervision of technical documentation, management of international groups, etc.)
- Sending to the USOAP (Universal Safety Oversight Audit Programme) Programme Office the State responses to the Amendments of the ICAO (International Civil Aviation Organisation) Annexes and the response to the European Aviation Safety Agency (EASA) regarding the Compliance checklists of ICAO Annex 4 (Aeronautical Charts).





Transportation centres

We support the transport management and control centre authorities, both in the airport and port areas, in carrying out activities for the specification of information systems, verification, validation and certification of applications and equipment, support systems for decision-making, and contribution to the development and implementation of protection strategies for transportation systems and facilities.

Ministry of Transport, Mobility and Urban Agenda / Secretary of State for Transport, Mobility and Urban Agenda / AENA

Technical support in managing the life cycle of airport operations and security applications and ICT infrastructures, both in the specification and testing phases as well as in the control and supervision of their implementation and deployment in the airports of the network.

- During the pandemic, the Operational Recovery Group has been supported in the search for solutions to implement **portable biometric technology in passenger boarding**, analysis of solutions aimed at protecting the health of passengers and employees and providing the necessary confidence in them to enable their return to airports, taking advantage, as far as possible, of systems already deployed at airports.
- Homologation tests of all equipment (filter doors and self-boarding, kiosks and other devices) of the new Biometrics Framework Agreement.
- Specification and testing of Collaborative Decision Making (CDM) procedures in the Cooperative System of the Airport Environment (SCENA) as well as their integration with Enaire's Automatic Air Traffic Control System (SACTA).
- Support in the management of the Strategic Information Systems Plan.
- Support in managing the framework agreements that serve as the basis for the acquisition and installation of ICT infrastructure equipment, Data Processing Centre and airport security equipment, all for the entire airport network.



2. OUR SECTORS

- Support in the transfer of equipment and commissioning of the redundant Data Processing Centre in T4 of the Madrid / Barajas Airport.
- Support for the Information Systems Plan for the Northeast Brazil Airport Group.

Support in improving the efficiency of infrastructures and in the quality of the services provided.



Ministry of Transport, Mobility and Urban Agenda / Secretary of State for Transport, Mobility and Urban Agenda / DGAC and State Air Safety Agency (AESA)

Collaboration in the implementation of the **National Air Safety Programme (PNS)** in all airports of the national network, through:

- Fulfilment of audits, inspections, tests and drills at the different airports, to monitor compliance with the physical security programme of airport service providers.
- Development of the National Civil Aviation Training Plan (PNF) and in cybersecurity activities.

Review of the ICAO Risk Group (WGTR) documentation related to the update of the incidence of COVID 19 on the global AVSEC (aviation security) risk analysis.

Collaboration with the **State Agency for Aviation Safety (AESA)** in inspection tasks for the supervision of operational safety regulations compliance by airport managers and aeronautical personnel:

- Safety inspection of airports for public use.
- Continuous supervision of airport certification.
- Participation in the preparation of the Post-COVID Airport Safety Inspections Protocol.
- Inspections to Ground Assistance Service Agents (handling).
- Adaptation of the Ground Assistance Agent Inspection procedures for inspections carried out during the limitations resulting from COVID-19.

Consulting activities aimed at continuous improvement of airport environment security.





Advanced concepts

We participate in the development of new concepts and technologies in the transport operations environment, supporting the development and introduction of regulations, promoting multimodal operations, the implementation of transport operations based on satellite navigation (GNSS), and providing technical support for the integration of unmanned aerial systems (RPAS) in non-segregated airspace.

European Union / Single European Sky Joint Undertaking (SESAR-JU)

Participation as Linked Third Party of ENAIRE, in the following projects of Wave 2 of SESAR 2020:

- PJ04 Wave 2, Total Airport Management, for the development of concepts, tools and procedures that improve the predictability and resilience of airport operations and thereby improve the punctuality of flights in a safe and sustainable environment.
- PJ13 Wave 2, Enable RPAS Insertion in Controlled Airspace, to analyse the technical and operational capabilities of RPAS so that they can operate safely in Class A-C controlled airspace.

European Satellite Navigation Agency (GSA)

Various activities for the GSA to support programme management (Galileo and EGNOS) and strategic consulting. The work has been carried out in three areas of activity:

- GNSS and space-based applications for transportation.
- Remote activation service for emergency radio beacons for transportation.
- GNSS for Unmanned Aerial Vehicles (UAVs).

Public Administration Sector

2.4

Isdefe provides technical support and specialised consulting services to the General State Administration agencies, aimed at improving their capacity, efficiency and sustainability and supporting their digital transformation and technological modernisation processes to respond to the demands of society.

In the field of public service economic management, Isdefe provides support in the management of public funds, provides technical support for the definition and implementation of contracting strategies, price estimation and analysis, and development of analytical accounting models of cost.





Consultancy for the Improvement of the Administration

Isdefe provides engineering and consulting services for the improvement and modernisation of public administrations, in areas such as strategic consulting, process re-engineering and change management.

This section brings together the activities carried out within this area, both for the Ministry of the Interior and for other Ministries.

Ministry of the Interior / General Traffic Management (DGT)

Provision of specialised services in various strategic areas of the DGT, including the development of regulatory projects, the preparation of the new national road safety strategy, the study of the transformation of mobility, or the improvement in the management of the body itself.

Ministry of the Interior / Deputy Secretariat of the Interior / General Directorate of Traffic (DGT)

Carrying out technical support and advisory activities in the analysis and regulatory adaptation of data protection.

Ministry of Finance / General Directorate of Rationalisation and Centralisation of Procurement (DGRCC)

In 2020, the DGRCC was supported by providing technical support in centralised contracting activities related to the acquisition of personal computers, servers, storage systems, system and development and application software, telecommunications equipment and programmes for voice and data transmission, and printing equipment.



2. OUR SECTORS

Ministry of Labour and Social Economy / Civil Service of State Employment (SEPE)

Within the framework of technological projects and services, according to the 2019-2020 and 2021-2022 Strategic Plans, Engineering, Quality and Safety services have been provided aimed at modernising information systems to improve the services provided by the SEPE to citizens and other public bodies:

- **Programme and Services Office:** “Support for the planning, management, control and monitoring of all SEPE programmes, services and ICT projects”.
- **Safety and Quality Office** that provides consulting support in the field of Safety and Process Engineering, as well as the quality assurance of the information systems that provide services to citizens and management units.

Through the collaboration of both offices, support is provided to guarantee the fulfilment of the interoperability and information exchange needs between the SEPE systems and those of other Public Administrations and external organisations.

Ministry of Justice / General State Advocacy-Directorate of the State Legal Service

Carrying out technical support and advisory activities in the analysis and regulatory adaptation of data protection.

Ministry of Transport, Mobility and Urban Agenda / ADIF

Technical support to the Internal Audit Department, continuing with the review and improvement activities of the processes and control procedures of the maintenance contracts and the acquisition of spare parts.

Ministry of Ecological Transition and Demographic Challenge/ Deputy Secretariat for Ecological Transition and Demographic Challenge / General Directorate of Services

Technical assistance to the Information and Communications Systems and Technologies Division, in terms of adapting regulations to the national security scheme and setting up a security office.





Ministry of Science and Innovation / Technical General Secretariat

Support and advice in the analysis and adaptation of regulations on data protection and the National Security Scheme.



State Agencies / AESA / AEMPS

More than 10 years of consulting and technical assistance services aimed at defining and establishing the requirements of the management by objectives model, the implementation of the complete planning cycle, and the optimisation of management through re-engineering and automation of processes and procedures.

Technical support to AESA in:

- Preparation of the Multi-annual Strategic Plan 2021-23.
- Design and implementation of monitoring indicators.
- Review and update of its processes and procedures. Technical support to the AEMPS in:

- Strategic Plan of the Agency and its deployment in Annual Plans.
- Specific plans for the transformation and re-engineering of its most critical processes, carrying out control and monitoring of all plans and programmes through a Balanced Scorecard using indicators designed for this purpose.
- Design and adaptation of AEMPS to the Common Assessment Framework (CAF) as a total quality management tool, developed by and for the public sector and inspired by the Excellence Model of the European Foundation for Quality Management (EFQM).



Technological Modernisation and Digital Transformation

Isdefe provides support to public administrations for their digital transformation, providing solutions that promote the improvement and innovation of their services and their technological modernisation.

This area of activity includes the activities provided in this field, both for the Ministry of Defence and other Ministries.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Economic Affairs (DIGENECO)

Support in the identification, survey and modeling of management processes of the Deputy Secretariat of Defence, as part of the Ministry's Digital Transformation initiative.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Armament and Material (DGAM) / Management Body (ODIR)

Support in the identification, survey and modeling of management processes of the Deputy Secretariat of Defence, as part of the Ministry's Digital Transformation initiative.

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

Support in the identification, survey and modeling of management processes of the Deputy Secretariat of Defence, as part of the Ministry's Digital Transformation initiative.



Ministry of Defence / Deputy Secretariat of Defence / Technical General Secretariat

As part of the Ministry's Digital Transformation initiative, support has been provided in the identification, survey and modeling of management processes of the Deputy Secretariat of Defence.

Ministry of Universities / Spanish Service for the Internationalisation of Education (SEPIE)

Technical support in the definition and implementation of the electronic management system of public funds, intended for the EU programme to support education, training, youth and sport in Europe (Erasmus + 2014-2020), during 2020, work has been done on the adaptation of the system to the new Erasmus + programme 2021-2027 that is committed to diversity, ecology and digital transformation.



Ministry of Health / General Directorate of Public Health, Quality and Innovation

Provision of services in the evolution of the **Health Information System**, including the interoperability of the digital medical record and the electronic prescription between the Ministry and the Autonomous Communities. We also participate in the standardisation of the medical nomenclature of the National Health System, for the purposes of statistical consolidation and in improving the interoperability of clinical information at the European level.

Ministry of Transport, Mobility and Urban Agenda / ADIF

Technical support for the transversal transformation (processes, cultural change, operating models, etc.) of information systems, through the establishment of a **support office for management, coordination and digital transformation**, to:

- Centralise functional and financial information at the portfolio level of plans, programmes and projects.
- Minimise the number of unsuccessful projects, improving productivity and continuously increasing the delivery of value.
- Increase cost efficiency.
- Promote digital transformation and cultural change.
- Increase quality and safety in all areas of action.
- Improve information and knowledge, facilitating higher levels of understanding, communication and transparency.



2. OUR SECTORS

Ministry of Transport, Mobility and Urban Agenda / State Agency for Air Safety (AESA)

Technical support in:

- Planning and supervision cycle of the Information Systems and Technologies function, derived from the Information Systems and Technologies Strategic Plan.
- Project management related to the construction, start-up and maintenance of information systems and ICT services.
- Definition and methodological implementation of the Information Systems and Technologies function.
- Establishment of a new systems development management model applying agile methodologies (Lean, Scrum, etc.).
- Implementation of digital administration tools in administrative procedures.
- Design and maintenance of ICT infrastructures, in the implementation of software quality assurance, in the information security management system and with the General Data Protection Regulation.
- Support in the management of incident and service request processes, asset management and configuration management.

Ministry of Foreign Affairs, European Union and Cooperation / AECID

Support in its digital transformation, in the activities of identification of needs, coordination and supervision of solution providers, and improvement of the life cycle in terms of information systems and technologies.

- Action Plan for Digital Transformation of the Agency,
- Contributions in the Digital Cooperation Plan, and the Recovery, Transformation and Resilience Plan.
- Control and monitoring of the development and implementation of systems based on G-ONCE, JAVA and SAP technologies.



Ministry of Justice / Secretary of State for Justice

In the **Justice Modernisation** programme, it has been supported by:

- The planning, design, execution and automation of judicial information systems tests in accordance with ISO 29119 (Software and Systems Engineering-Software Testing).
- The life cycle and configuration management of these applications.

These services are included in the actions of development and implementation of digital services of the Secretary of State for Justice and seek to achieve **an effective, efficient, innovative administration focused on citizens and professionals.**



Ministry of Justice / SDG of Planning and Digital Transformation

Participation in the implementation of the programmes for the **Digital Transformation of Justice**, through technical and management support to the **Technological Modernisation projects of Minerva and LexNET**, and **Dashboards** for monitoring the Administration of Justice.

Support in European Union projects for the interconnection and interoperability of Justice Administrations, including eCodex, Court Database and eSENS.

Support in the functions of Secretary of the State Technical Committee of the Electronic Judicial Administration (CTEAJE).

Ministry of Justice / SDG Innovation and Quality of the Judicial and Fiscal Office

Collaboration for the deployment of Judicial Offices and Fiscal Offices, according to the new model with shared services. Technical support in the definition of the objectives and plans of the Justice 2030 programme, to establish the strategies and lines of action for the **modernisation of the Justice Administration**.

Ministry of Justice / Deputy Secretariat of State for Justice / General Directorate of Legal Security and Public Faith (DGSJFP)

Consulting on security, interoperability, efficiency and systems engineering, especially in everything related to the implementation and deployment of the **New Civil Registry Model**. Advice on the application and compliance with the European Data Protection Regulation and on the adaptation of the National Security Scheme (ENS) in all the services that are the responsibility of the General Directorate.

Ministry of Economic Affairs and Digital Transformation / State Secretariat for Digitalisation and Artificial Intelligence / General Secretariat for Digital Administration (SGAD)

Execution of technical activities to support the SGAD in the field of digital administration, collaborating in the progress and monitoring of actions in the fields of security, interoperability, planning and reporting of results, both nationally and internationally.

Collaboration in advising on its adaptation to the National Security Scheme (ENS), in the evolution and improvement of the National Interoperability Scheme, as well as in the definition of a next cybersecurity operations centre.





Support for the Economic Management of the Civil Service

Isdefe provides support to the General State Administration in the management, evaluation, monitoring and continuous auditing of Public Fund Programmes, both national and European. It also carries out activities related to analytical accounting through the calculation of rates and their structuring, and the provision of consulting services for the design of strategies, policies and analysis of technical-economic information for regulatory bodies and supervisors of services in regulated markets.

This section groups the activities carried out within this area, both for the Ministry of Defence and for the rest of the Ministries.

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Economic Affairs (DIGENECO)

Subdirectorate General for Contracting, support activities in:

- Implementation of the Excellence Model in purchasing management in the Public Sector.
- Implementation of a code of ethics and an observatory for the purchasing function.
- Design of a risk management system in contracts.
- Design of the social policy applicable in contracting, as well as a practical guide to incorporate social aspects in contracts.
- Preparation and processing of regulations on contracting.
- Annual Procurement Report of the Ministry of Defence.
- Annual Contracting Plan of the Ministry of Defence (PACDEF).
- Purchasing strategies of the centralised MINISDEF categories and their monitoring.

Contracting Board, technical support in:

- Processing and execution of the files of the Contracting Board of the Ministry of Defence.



Subdirectorato General of Accounting, support in:

- The maintenance and evolution of the Analytical Accounting model in the 6 Budget Services of the Ministry of Defence (SUBDEF, EMAD, SEDEF, ET, AR and EA).

Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Infrastructures (DIGENIN)

Subdirectorato General for Planning and Environment, collaboration in the following areas:

- Centralised acquisition and support in the management, monitoring and control of energy supplies (electricity, fuels and natural gas).
- Preparation of technical documentation for internal and / or external audits / controls of management processes.
- Participation in projects and international forums related to energy efficiency and the environment.
- **Subdirectorato General for National Heritage**, support in activities related to aeronautical easements.



Ministry of Defence / Secretary of State for Defence (SEDEF) / General Directorate of Economic Affairs (DIGENECO)

Support to the Cost Evaluation Group (GEC), participating in the entire acquisition process, from the estimation of the cost of the complete life cycle, acquisition, operation and retirement, of the systems and infrastructures, to the cost analysis that allows setting the price in those specific systems whose price is not regulated by the market.

Action to analyse the viability of programmes and provide valuable information to the planning authorities for decision-making.

Ministry of Defence / Institute of Housing, Infrastructure and Defence Equipment (INVIED)

Technical support to INVIED in the field of support in management areas, highlighting the use of the implemented CANOA analytical accounting model and support in public procurement processes.



2. OUR SECTORS

Ministry of Defence / Navy / Headquarters of the Navy Logistics Support (JAL)

Support to the contracting body and the procurement board through:

- Advice on public procurement.
- Support in the implementation of electronic tendering.
- Support in the processing of all types of recruitment files.
- Support to the procurement board.



Ministry of the Interior / General Directorate of Traffic (DGT) / National Road Safety Observatory (ONSV)

Specialised consulting for the treatment of technical information, monitoring and control of the documentation of the annual calls for research grants in Road Safety and in support programmes for Victims of Traffic Accidents.

Support for the identification of research and innovation needs in the 2021-2024 environment.

Ministry of the Interior / General Directorate of the Civil Guard / Headquarters of Technical Services of the Support Command

Technical assistance services to provide support in the management of different projects promoted both through **Innovative Public Procurement, CPI**, and the different innovation programmes, as well as in the development of procedures and technological activities that must be carried out in each one of them.



Image: Carlos Calvo Torregrosa / Shutterstock



Ministry of Foreign Affairs, European Union and Cooperation / General Directorate of Sustainable Development Policies (DGPOLDES)

Technical consulting services for the calculation and review of the evaluation of Official Development Assistance (ODA), in the analysis and statistical evaluation, with Big Data techniques, for the preparation of technical information to be presented at the meetings of the organisations and multilateral development initiatives, mainly the OECD Development Assistance Committee and the United Nations.

Ministry of Finance / General Directorate of European Funds (DGFE)

Technical support to the DGFE, as the National Managing Authority for ERDF funds, both in the Multi-regional Programme and in the regional programmes:

- Choice of Electronic Administration operations and technical assistance in the public sector.
- Corresponding management verification.
- Designation of Intermediate Organisations.

Support to the ERDF axis regarding the strengthening of the response capacity to the health crisis caused by COVID-19, which has allowed the DGFE to achieve the compliance objectives for the period, and has materialized a significant return of ERDF funds to Spain for recovery of health expenses caused by the pandemic.

Ministry of Economic Affairs and Digital Transformation / Secretary of State for Energy and Business Support

Collaboration as a Technical Engineering Unit in Debt-to-Investment Conversion Programmes in different African countries such as Senegal and Mauritania. This mechanism for recovering part of the External Debt serves to promote the participation of Spanish companies in technology and capital goods export projects.

Isdefe supports renewable energy projects throughout the entire development cycle, especially rural electrification projects.

During 2020, Jordan has collaborated with the Spanish and Jordanian authorities as the Programme Office in the construction of a Solar Plant in the Azraq region.

Ministry of Industry, Commerce and Tourism (MINCOTUR) / Secretary of State for Commerce

During 2020, of particular note is the technical support for:

- Supervision and monitoring of the construction of a 120 MW wind farm in Egypt.
- Company Internationalisation Funds (FIEM), evaluating projects and carrying out ex post verifications.



Ministry of Territorial Policy and Public Function / General Directorate of Regional and Local Cooperation

Technical support in the management of various operational programmes within the European Regional Development Fund (ERDF) and the European Social Fund (ESF), in the field of territorial policy.

Technical support in the control of projects co-financed through these programmes.

Ministry of Universities / Spanish Service for the Internationalisation of Education (SEPIE)

Support to SEPIE in the management of the Erasmus+ Programme and in the procedures associated with the grants awarded through this programme.



Ministry of Science, Innovation and Universities / SE Universities and RD&I / General Directorate of RD&I / SDG Innovation Promotion

Carrying out the improvement of the processes and tools of the Reasoned Reporting system for tax deductions for business investment in RD&I, in such a way that the response time for requests from the national industry has been substantially improved.

State Agencies / AESA / AEMPS / AEMET

Isdefe has been providing consulting and technical assistance services for more than 10 years aimed at complying with the regulatory requirements established in terms of economic information, both budgetary, analytical and management, making proposals for improvement and development of systems that facilitate analysis and provision of information on economic management of the activity of Public Bodies that allows correct and efficient decision-making.

In particular, it has supported:

- **AESA:**

In the operation and continuous evolution of the Accounting Information System, providing economic information that shows a true and fair view of the equity, the financial situation, the results and the execution of the budget; as well as the operation and continuous evolution of the management and income control systems.

- **AEMPS:**

In the integration and consolidation of the accounting and management systems, as well as the revenue management system, proposing new financing plans for the Agency through the design and establishment of the amount of fees.

- **AEMET:**

Support was provided in calculating AEMET's real costs by providing financial information to the European Commission and the National Supervisory Authority in their function of reviewing the Agency's performance plan.



National Commission of Markets and Competition (CNMC)

Specialised analysis activities that facilitate decision-making in the CNMC, by allowing the assessment of potential **price regulation** scenarios of the supervised sectors, in terms of compliance with regulatory objectives and their impact on the market.



Image: www.cnmc.es / Press room images

Support in the **analysis of the systems that contain the economic information** and the degree of automation thereof and the preparation and presentation of the annual accounts and in the accounting and issuance of economic and financial reports.

Support for the use of a **Regulatory Cost Information Model (IRC Model)**, for the supervision of the regulated activities of electricity and natural gas transportation.

Support services in defining the remuneration of electricity and natural gas transportation activities.

Consulting services to support the design of strategies, policies or plans and the analysis of technical-economic information, in the transport, postal and telecommunications sectors.

Consulting services to the Directorate of Telecommunications and the Audiovisual Sector (DTSA) to carry out analysis and studies in the field of electronic communications:

- Periodic analysis of the evolution of broadband infrastructures at the national level, results that make it possible to continuously evaluate the conditions of competition in the telecommunications market.
- Verification of the results of the accounting models for determining the costs of regulated electronic communications services.



2. OUR SECTORS

Prado National Museum (MNP)

Technical support services in the operation, review and continuous evolution of the analytical accounting system in order to comply with the requirements set forth in the General Public Accounting Plan, as well as in the integration of applications and optimisation of procedures and management tools of the Museum.

Support in the preparation of studies and reports on the costs, rates and public prices associated with the finalist activities of the Museum and in the identification, prioritisation, and proposal of actions for the improvement of processes associated with the economic management and the control system of management.

Reina Sofía National Art Centre Museum (MNCARS)

Support in the areas of economic-financial management, highlighting the use of the implemented CANOA analytical accounting model.

Spanish Radio Television Corporation (CRTVE)

Technical support services in the control and monitoring of the centralised electricity supply contract:

- Preparation of monthly estimates.
- Preparation of monthly audit.
- Monthly monitoring of the execution of the contract.

Provision of consulting services for the definition of the strategy and preparation of the specifications for the new centralised contract for the period 2021-2023.

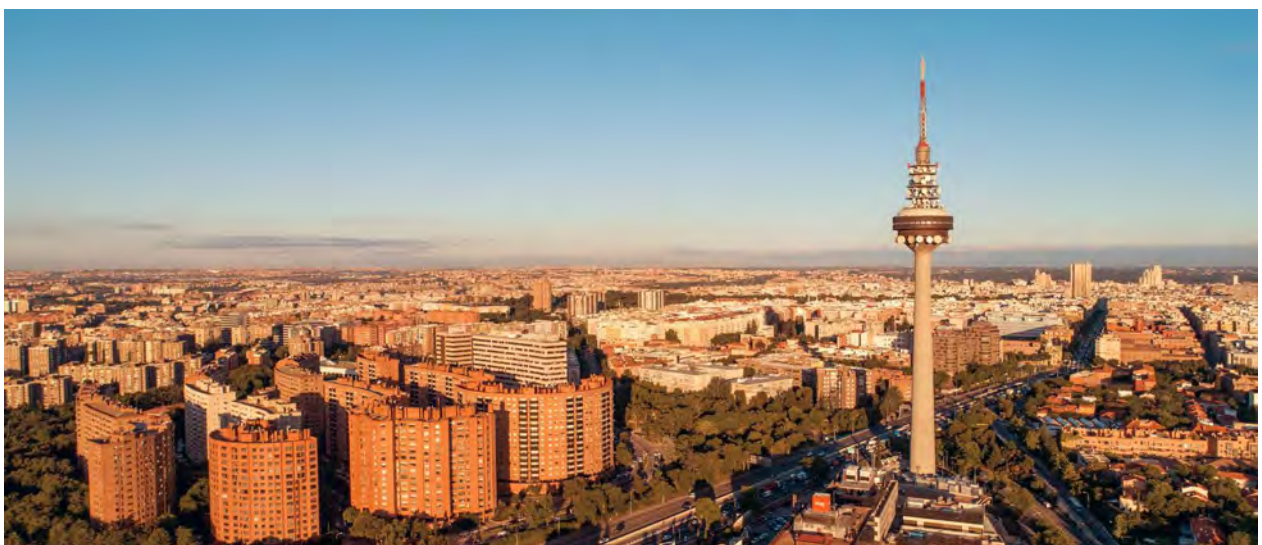


Image: Songquan Deng / Shutterstock

Information and Communication Technologies (ICT) Sector

Isdefe in the field of Information and Communication Technologies (ICT), has a long history in the provision of engineering and consulting services for the General State Administration, in the definition of digital public services and electronic administration, planning and management of the radioelectric spectrum, management of the digital dividend and reduction of the digital divide.

Our teams support the competent bodies of the Administration in matters of regulation and supervision of ICT services.





Radioelectric spectrum

We support the Administration in the field of planning and management of the radioelectric spectrum, for the different radiocommunication services throughout the Spanish State, guaranteeing quality and universal availability at the service of society. We also provide consulting services and assistance in the definition and monitoring of the National Plans for the Transition to Digital Terrestrial Television (DTT), and for the Management of the Digital Dividend.

Ministry of Economic Affairs and Digital Transformation / State Secretariat for Telecommunications and Digital Infrastructures (SETELECO) / State Secretariat for Digitalisation and Artificial Intelligence (SEDIA)

Isdefe has a long track record with the competent bodies in matters of regulation and supervision of ICT services, in engineering and consulting services for the planning and management of the radioelectric spectrum, the management of the digital dividend, the reduction of the digital divide and the definition of digital public services and e-government:

- Support in the planning and management of the radioelectric spectrum for the different radiocommunication services throughout the Spanish State, guaranteeing quality and universal availability at the service of society.
- Actions related to the implementation of Digital Terrestrial Television (DTT) and the digitalisation of the Company with the development of 4G and 5G mobile technologies.
- Planning and management of the radioelectric spectrum, for the development of radiocommunication services.
- Support for the creation, start-up and operation of the Intermediate Body in the ICT sector for the ERDF Operational Programme for Smart Growth.



- Support to the technical office for the management of the National Plan for Natural Language Technologies, and in the coordination of ICT actions and projects in this area with the European Commission.
- Support in the definition, design, implementation and operation of improvements in the management and control system of public aid to R&D in the ICT sector.
- Technical assistance to the cabinet of the Secretary of State for Digital Advancement in planning and promoting technological innovation programmes and in institutional missions in the ICT field related to international organisations and the European Union.





Communications Networks and Systems

We develop specialised technical support activities in information security and digital trust, and support in the management and execution of communications programmes, such as the New Infrastructures Programme, to promote the deployment of ultra-fast networks and broadband infrastructures, as well as services of regulatory consulting and analysis of telecommunications markets.

Ministry of the Interior / Prison Work and Training for Employment (TPFE)

ICT services consultancy for the strategic definition, planning, control and monitoring of networks and information systems, in the execution of the **Strategic Plan for Electronic Administration and Digital Transformation of the TPFE**. Support in the analysis of the identification of functional needs for the definition of a future integrated management system.

Ministry of the Interior of the Civil Guard / Headquarters of Technical Services of the Support Command

Technical assistance services to the Networks Area of the Civil Guard's Telecommunications Service:

- Analysis of the state of current telecommunication services.
- Research of the state of the art of technology for its potential use.
- Definition of policies and procedures for their implementation and improvement with respect to current capacities.

The final objective is the implementation and start-up of the future Unified Civil Guard Communications System, providing a differential value in technical assistance to the Civil Guard in the monitoring and control of supplier companies.



Ministry of Economic Affairs and Digital Transformation / State Secretariat for Telecommunications and Digital Infrastructures (SETELECO) / State Secretariat for Digitalisation and Artificial Intelligence (SEDIA)

Specialised technical support in the field of communications networks and systems, and in the management and execution of communications programmes, such as the New Infrastructures Programme to promote the deployment of ultra-fast networks and broadband infrastructures.

ICT strategic consulting services in activities in which data of a markedly confidential nature are used or in which a guarantee of objectivity and independence from the interests of third parties is required.

Ministry of the Interior of the Civil Guard / Headquarters of Technical Services of the Support Command

Specialised technical support in the field of communications networks and systems, and in the management and execution of communications programmes, such as the New Infrastructures Programme to promote the deployment of ultra-fast networks and broadband infrastructures.

ICT strategic consulting services in activities in which data of a markedly confidential nature are used or in which a guarantee of objectivity and independence from the interests of third parties is required.

Corporación de Radio y Televisión Española, S.A. (RTVE)

Specialised services to the RTVE Corporation in different projects:

- **Modernisation of its network infrastructures** towards state-of-the-art standards, participating in the evolution of RTVE's contribution network, which will allow it to have a high-capacity, agile and robust network to guarantee high reliability and quality in the provision of its public services.
- Development and integration of artificial intelligence technologies in the processes of generation and distribution of audiovisual content, evaluation and improvement of algorithms for content recommendation, and implementation of a user online consumption *dashboard* through advanced analytics techniques.



Image: Juan Ci / Shutterstock

Energy Sector

2.6

Isdefe provides technical support to large plans and programmes for the implementation of energy policies, both in terms of Energy Efficiency and Renewable Energies.

Consulting in the field of Energy Security, following the lines established in the National Energy Security Strategy, in the fields of regulation and standards, security of supply, promotion of indigenous sources, economic and environmental sustainability and dissemination of the culture of security.

Our teams support the competent bodies of the Administration in matters of regulation and supervision of ICT services.





Diversification and Energy Efficiency

We provide support services to the Public Administration in the design, implementation and monitoring of programmes and projects related to: security policies, energy efficiency, renewable energies and technical consultancy for the development, technical direction and monitoring of these types of projects.

Ministry of Ecological Transition and the Demographic Challenge / Secretary of State for Energy / IDAE

Specialised technical support for:

- **Modelling of the national energy system** for the development of the National Integrated Energy and Climate Plan 2020-2030 (PNIEC).
- Design, management and execution of administrative procedures related to the subjects of the electricity sector, renewable energies and self-consumption.
- Development and management of public aid programmes that affect the main energy consuming sectors. Programmes that come from the National Energy Efficiency Fund, General State Budgets and ERDF Funds, dedicated to the low-carbon economy.

Participation in aid programmes for:

- The energy renovation of existing buildings and infrastructures of the General State Administration and the programme
- Local entities for investment projects in low carbon economy (DUS - Sustainable Urban Development).

RD&I activities

2.7

At **Isdefe**, innovation pursues objectives inherent to its nature as the in-house provider of General State Administration (AGE), such as the generation of knowledge, anticipation of needs and the improvement of engineering and consulting services in strategic areas of the Administration. That is why we are committed to RD&I activities as a tool for identifying and knowing what technologies await us in the future, which allows us to anticipate the impact that these technologies could have, especially in the field of Defence. and Security.





RD&I Management Model

Isdefe, as in-house technical service provider for the General State Administration (AGE), promotes different RD&I activities with the aim of generating knowledge, anticipating the needs of the administration and improving engineering and consulting services in strategic areas of the AGE.

We are committed to RD&I activities as a tool to identify and learn what technologies await us in the future, especially in the field of Defence and Security.

In terms of sustainability, investment in RD&I allows Isdefe to be more innovative through the development of proofs of concept, prototypes and methodologies, among others. This investment returns in improving the quality of the consulting and engineering service that Isdefe provides to the public administration, as well as to society in general.

The use of the results of RD&I activities provides first-hand knowledge that allows us to anticipate future challenges and needs of the Administration.

The Business Development Department and, within it, the **Innovation, Processes and Transformation Department**, is in charge of preparing, supervising and coordinating the execution of RD&I activities.

The management model is structured around two axes:

- Innovation activities.
- Research and development activities.



Innovation activities

Horizons Network

The Horizons Network is the vehicle around which innovation is articulated in Isdefe and acquires the capacity to anticipate the opportunities and challenges that the Public Administration will have to face, developing ideas and proposing innovative solutions.

The Horizons Network:

- It identifies and takes advantage of the existing sources of knowledge in the innovation ecosystem, establishes a range of lines of activity focused on both the staff and General State Administration (AGE) bodies, and makes tools available to the organisation to promote an innovative corporate culture.
- It carries out technological and methodological surveillance and prospective activities in Isdefe's areas of strategic interest, mainly using the University-Isdefe collaboration framework articulated in technological observatories.





The Network is nourished by the academic knowledge of its employees, of the organisations for which it works and of national and international partners and collaborators. The Network also exploits information from open sources.

It also supports the internal knowledge management system through its **knowledge communities**, heterogeneous groups made up of Isdefe personnel who share their experiences and knowledge in a collaborative framework.

In 2020, two new communities were created: **Artificial Intelligence and Blockchain and Big Data**.

In order to make the objectives and results of the Red Horizons public, multiple activities have been carried out in 2020 that disseminate and make use of the results:

- Virtual participation as speakers in national and international technological and professional conferences.
- Publications in scientific journals.
- Knowledge transfer sessions, among others.



Network Nodes

The Isdefe Horizons Network has developed a University – Company collaboration model and configures a network of experts at the national and international level that allows for the dynamisation of the existing knowledge in the organisation, the University and the Administration.

In 2020 the Horizons Network is made up of a set of observatories:

Defence and Security Observatory

POLYTECHNIC UNIVERSITY OF MADRID (UPM)

This observatory is the result of the work carried out under the Isdefe-UPM Chair in Defence and Security with the Higher Technical School of Telecommunications Engineers (ETSIS). The observatory carries out prospective exercises in detection and neutralisation of drones, in embedded sensors and in collaborative autonomous platforms.

The Defence and Security Observatory's main lines of research in 2020 were the characterisation of cameras embedded in UAVs with movement modelling and the evaluation of digital algorithms for blurring images captured by UAVs.

Air Traffic Management Observatory

POLYTECHNIC UNIVERSITY OF MADRID (UPM)

This observatory is the result of the work carried out under the Isdefe-UPM Chair in Air Traffic Management with the Higher Technical School of Aeronautical Engineers (ETSIA). The observatory carries out prospective exercises in influence parameters on 4D routes, in the minimum separation between manned and unmanned aircraft, in the integration of drones in airspaces and in aircraft approaches to airports under the time-spaced concept.

The main lines of research of the Air Traffic Management Observatory in 2020 were the generation of scenarios of interest with the ATC SkySim simulation platform (validation tests of concepts, means, techniques and procedures related to the operation) and the integration of RPAS in airport air control.

Cybersecurity Observatory

UNIVERSITY OF ALCALÁ DE HENARES (UAH)

This observatory is the result of the work carried out under the Isdefe-UAH Chair in Cybersecurity, ICT and Digital Advancement with the Department of Computer Science of the University of Alcalá de Henares' Higher Technical School of Computer Engineering. The observatory conducts foresight exercises in legal cybersecurity, cloud cybersecurity and data science, in the dark web and in cybersecurity on mobile devices.

The Cybersecurity Observatory's main lines of research in 2020 were blockchain and underlying technologies, continuous authentication for both military users and military devices, homomorphic cryptography and IoT security.



ICT and Digital Advancement Observatory

UNIVERSITY OF ALCALÁ DE HENARES (UAH)

This observatory is also part of the Isdefe-UAH Chair in Cybersecurity, ICT and Digital Advancement with the Department of Computer Science of the Technical School of Computer Engineering at the University of Alcalá de Henares. The observatory carries out foresight exercises in 5G Technologies and Artificial Intelligence.

The ICT and Digital Advancement Observatory's main lines of research in 2020 were Artificial Intelligence applied to Natural Language Processing (NLP), 5G propagation models and the impact of Massive MIMO 5G on the influence of EMF on health and in the certification protocols for new sites.

Space Observatory

CARLOS III UNIVERSITY OF MADRID (UC3M)

This observatory is the result of the work carried out under the Isdefe-UC3M Chair in Space with the Aerospace Bioengineering Department of the Escuela Politécnica Superior. The observatory carries out foresight exercises on various aspects (technologies, industry, policies...) in terms of space surveillance and earth observation.

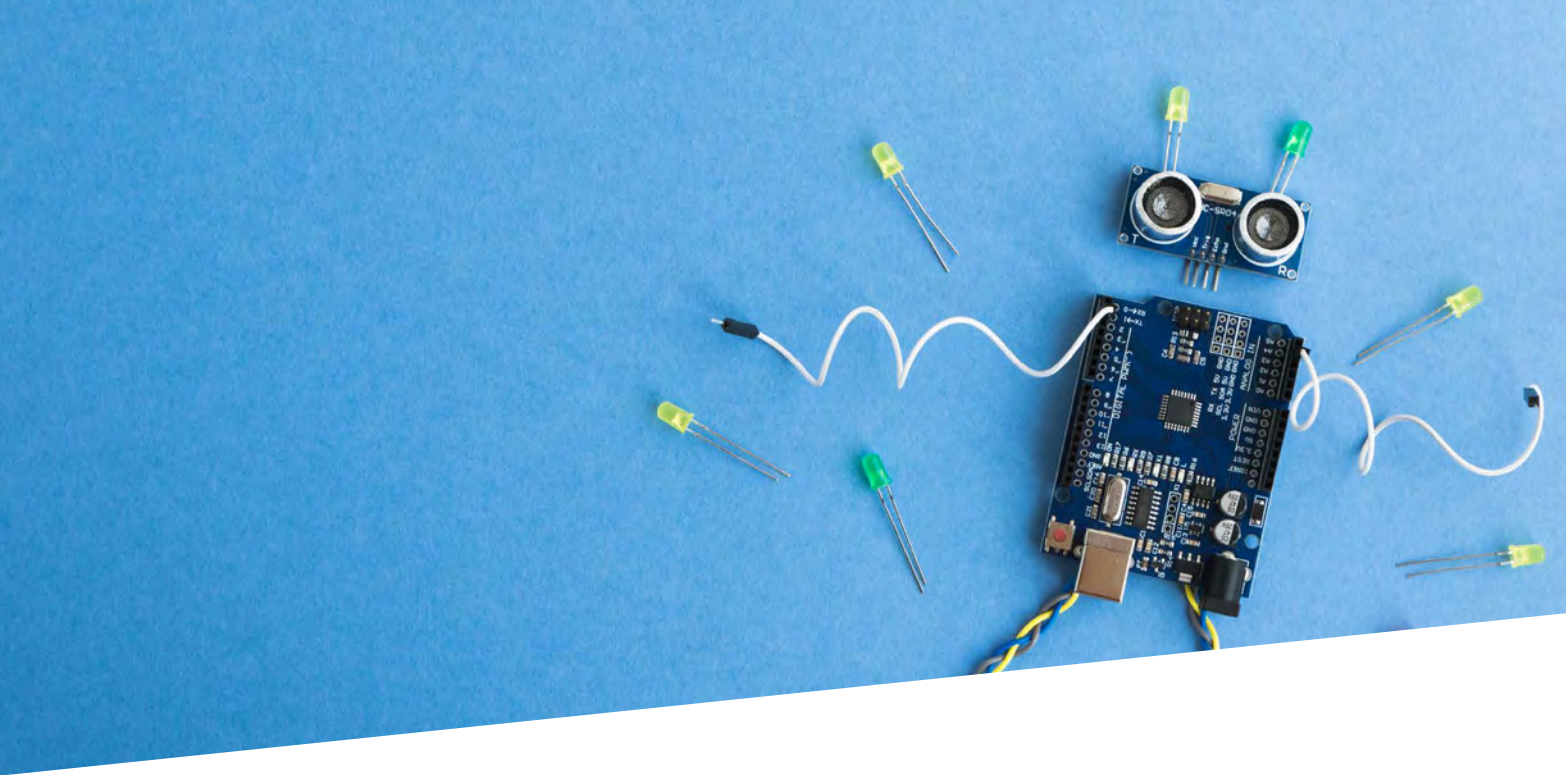
The Space Observatory's main lines of research in 2020 were optical communications and quantum cryptography.

Observatory of Systems Engineering, Logistics and Programme Management

This observatory has a cross-sectional and methodological nature, which is why it carries out its activity with permanent or occasional collaborations with various universities and international organisations.

In the Systems Engineering field, the observatory is part of the INCOSE Advisory Board, the International Council on Systems Engineering, and its Spanish chapter AEIS.





Research and development activities

RD&I recruitment and management programme

During 2020, the **sixth edition of the RD&I Ideas Capture and Management Programme** was held, allowing the participation of all Isdefe employees in the process of generating ideas to be transformed into research, development and innovation projects with internal applications and for our customers.

The programme **fosters the corporate culture of RD&I** and is developed with the aim of engaging and raising awareness throughout the organisation about the importance of innovation and its leading role in the process when generating value for the company.

In the 2020 call, despite the situation caused by the pandemic, the number of proposals submitted has increased notably, reaching a total of **27 ideas in the fields of defence, security, public administration and energy.**





Winning projects in the 2020 call:

SIGUEN - National Energy Efficiency GIS Tool to define strategies in a just transition

- **Objective:** development of a Geographic Information System (GIS) capable of representing the current state of energy efficiency of certified buildings or their estimated efficiency based on their characteristics and energy consumption.
- **General State Administration (AGE) Interest:** Institute for Diversification and Energy Saving (IDAE), Ministry for Ecological Transition and the Demographic Challenge.

SEMODI - Money movement tracking

- **Objective:** the investigation of new technologies for the monitoring of money in the prevention of tax fraud, money laundering and other crimes related to the economic sphere.
- **General State Administration (AGE) Interest:** State Security Bodies and Forces, Prosecutor's Office, Ministry of Finance.

Special recognitions in the 2020 call:

GECO - Knowledge Management applied to Isdefe's Digital Transformation

- **Objective:** manage the knowledge related to the General State Administration's (AGE) Digital Transformation and apply the lessons learned to establish the foundations of good knowledge management.
- **General State Administration (AGE) Interest:** Isdefe.

OFINPRO - Observatory of International Project Financing

- **Objective:** analyse the viability of developing a tool for the Identification of International Projects financed by multilateral organisations, development banks and other agents in the field of international financing.
- **General State Administration (AGE) Interest:** Ministry of Industry, Commerce and Tourism (MINCOTUR).

European projects

Isdefe continues to consolidate its participation in European project programmes such as Horizon 2020, SESAR and GSA. During 2020, Isdefe has participated in the RD&I projects shown below:



Projects financed by **SESAR JOINT UNDERTAKING (SESA-JU)**

INVIRCAT - IFR RPAS Control in Airports and TMA

- **Start Date:** 2020.
- **Phase:** project in progress.
- **RD&I Scheme:** Transport - Traffic Management.
- **Financing Programme:** SESAR PJ.

The use of remotely piloted aircraft is on the rise worldwide, raising safety issues related to their operation within airport manoeuvring areas. **Efficient and safe integration** of remotely piloted aircraft systems (RPAS) into existing air traffic control procedures and infrastructures is needed within terminal control areas under instrument flight rules (IFR).

The EU-funded project will develop an operations concept for RPAS in airport terminal control areas, based on simulation evaluations and recommendations, intended for legislators and standardisation bodies.

It will develop standardisation concepts for the full adaptation of RPAS in terminal control area environments, including automatic take-off and landing operations to establish a cooperative, heterogeneous and distributed simulation infrastructure that enables full RPAS IFR flight.

IMHOTEP - Integrated Multimodal Airport Operations for Efficient Passenger Flow Management

- **Start Date:** 2020.
- **Phase:** project in progress.
- **RD&I Scheme:** Transport - Traffic Management.
- **Financing Programme:** SESAR PJ.

One of the most important priorities of the European Union is to establish an integrated transport system that is sustainable, safer and smarter.

The EU-funded IMHOTEP project will go beyond collaborative decision-making to disseminate information on air transport systems over the public transport network for the benefit of passengers.

The objective is to develop a conceptual operations framework and a set of data analysis methods and tools that allow information sharing, common situational awareness, and real-time collaborative decision-making between airports and ground transport stakeholders.

Case studies will be carried out at Palma de Mallorca and London City airports to test these newly developed methods and tools.



PJ04 W2 TAM - PJ04 W2 Total Airport Management

- **Start Date:** 2020.
- **Phase:** project in progress.
- **RD&I Scheme:** Transport - Transport Centres.
- **Financing Programme:** SESAR - Very Large Demonstrators (Wave 2).

The TAM project **aims to improve the integration of airports and networks of large and medium or regional airports**, improve the integration of airports in the area of operations and on the ground and carry out new research on how environmental aspects could be supervised and managed in the day-to-day operations of airports.

This project is a continuation of the SESAR PJ04 – Total Airport Management project that was developed within “wave 1” of the programme.

PJ13 W2 ERICA - Enable RPAS, Insertion In Controlled Airspace

- **Start Date:** 2019.
- **Phase:** project in progress.
- **RD&I Scheme:** Transport - Advanced Concepts.
- **Financing Programme:** SESAR - Very Large Demonstrators (Wave 2).

Remotely Piloted Aircraft Systems (RPAS) provide important services to civil and military aviation. If RPAS could access non-segregated airspaces, it would generate great economic benefits and opportunities in the market. However, for operational and safety reasons, this is not yet possible.

The EU-funded project PJ13 - W2 ERICA **looks at operational and technical opportunities that would allow RPAS to operate safely in controlled airspaces, both under nominal conditions and during emergencies**. You will also create test solutions without a negative impact on air traffic. The objective is to develop European operations to develop RPAS-accredited European operations in non-segregated airspaces, in order to enable civil and military RPAS to operate air traffic management systems within and outside of Europe.





2. OUR SECTORS

DOMUS - Demonstration of Multiple U-Space Suppliers

- **Start Date:** 2018.
- **Phase:** project in progress.
- **RD&I Scheme:** Transport - Advanced Concepts.
- **Financing Programme:** SESAR - Connecting Europe Facility.

The DOMUS project is the result of the offer submitted to the CEF-SESAR-2018-1 U-SPACE call, the objective of which is to prepare a rapid deployment of U-Space services for phase U2, including those deployed for phase U1, which will allow the operation of RPAS at low altitude in:

- Flights beyond line of sight (BVLOS).
- Flights in rural environments.
- Flights in urban environments.
- Flights in suburban environments.

The deployment of these services will facilitate the processes and authorisations for certain RPAS operations. To do this, DOMUS will carry out a series of real RPAS flights using a U-Space architecture developed by the Spanish industry and operated by several U-Space service providers and the Spanish air navigation service provider – ENAIRE.

Projects funded by the European Commission through the Horizon 2020 Programme

COPKIT - Technology, training and knowledge for Early-Warning / Early-Action led policing in fighting Organised Crime and Terrorism

- **Start Date:** 2018.
- **Phase:** project in progress.
- **RD&I Scheme:** Defence and Security - Intelligence and electronic warfare.
- **Financing Programme:** H2020 - Secure Societies.

The COPKIT project **addresses the challenge of analysing, preventing, investigating and mitigating the use of new information and communication technologies by organised crime and terrorist groups.** This is a key challenge for policy makers and for Spain's Law Enforcement, due to the complexity of the phenomenon and the number of factors and actors involved through the development of an early warning system, based on intelligence at both strategic as well as operational levels.

EUROPOL participates in COPKIT as head of its Advisory Board, and in the SOCTA 2017 report "Crime in the era of technology" states that "This is now, perhaps, the greatest challenge facing Spain's Law Enforcement in the entire world".



MEDEA - Mediterranean practitioners' network capacity building for effective response to emerging security challenges

- **Start Date:** 2018.
- **Phase:** project in progress.
- **RD&I Scheme:** Defence and Security - Crisis and Emergency Management Systems.
- **Financing Programme:** H2020 - Secure Societies.

The Mediterranean and Black Sea region is characterised by a highly volatile and dynamic security environment that presents severe threats and challenges to societies and prosperity. The MEDEA project, during its 60 months of implementation, provides funds for four interrelated actions:

1. Establish and operate the MEDEA network, a multidisciplinary network of security professionals.
2. Engaging participants in early governance on new security challenges.
3. Promote the “co-creation” of security technology innovations and capabilities between innovation professionals and providers.
4. Establish and update annually the Mediterranean Security Research and Innovation Agenda (MSRIA).

Projects funded by the European GNSS Agency (GSA)

PETRUS-PRS JTA-MS: PRS JOINT TEST ACTION

- **Start Date:** 2018.
- **Phase:** project in progress.
- **RD&I Scheme:** Space - Systems and Earth Observation.
- **Financing Programme:** *European GNSS Agency.*

The PETRUS project responds to the needs of the European Galileo Agency (GSA), in the areas of:

1. Provision of test data and results to the programme in support of the validation of the PRS service.
2. Provision of test and demonstration results, to assess the suitability of the ERP to meet the needs of potential users.
3. Provision of lessons learned about different characteristics of the PRS service: PRS service quality and safety, performance, operational concept and definition of use cases.
4. Carrying out awareness-raising activities on the actions and use of PRS.



A success story

Tele-iNNOVATION

Isdefe with open and collective innovation



The lockdown due to the COVID-19 pandemic in Spain that came into force on March 14, 2020 forced the vast majority of Isdefe employees to work remotely from one day to the next. The company made a great effort of coordination and cooperation to make this possible.

The Business Development Management, through its RD&I Area, launched the **Tele-iNNOVATION Express Contest** on March 23 with the purpose of collecting innovative ideas that mitigate the impact of the COVID-19 crisis in Isdefe.

The contest had the following **objectives**:

- To take advantage of the exceptional situation of massive teleworking.
- To help staff stay active and creative.
- To test an innovation management tool.

The Tele-iNNOVATION contest was developed over 4 weeks, collecting the innovative ideas of Isdefe employees through an innovation management tool, answering the question, **How do you see the Isdefe of the future?**

65 ideas were collected, which received a total of 437 comments and 850 likes from the 228 participants.

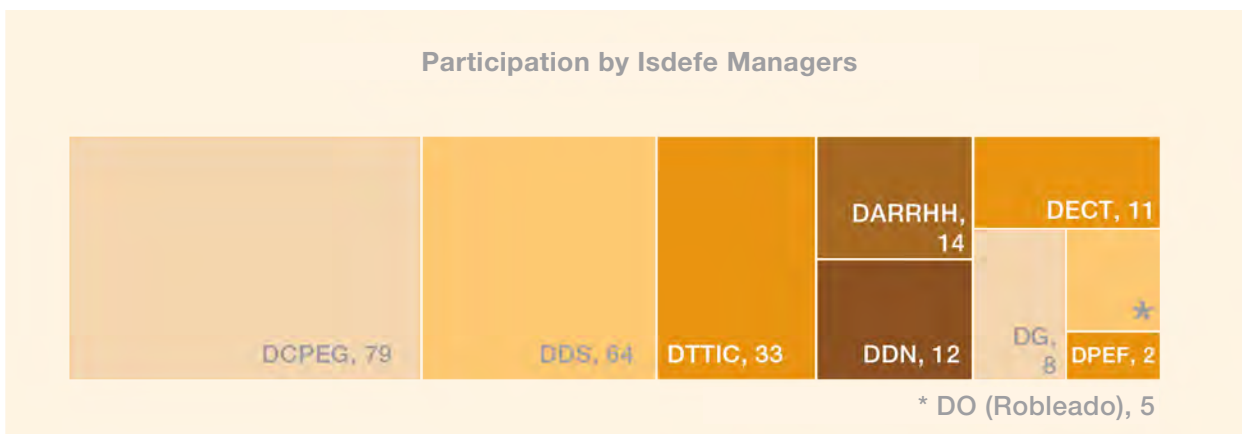
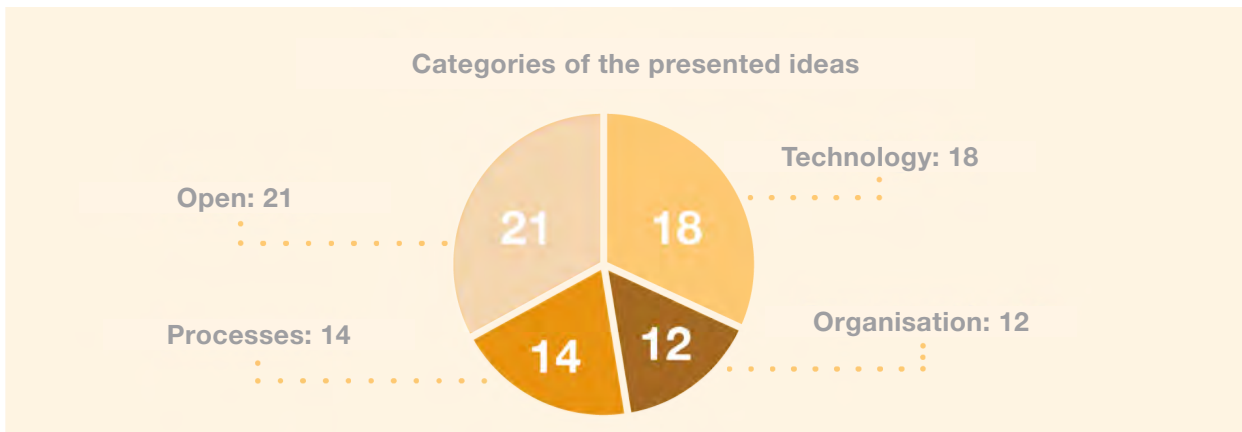
A classification of **4 categories** was proposed:

- **Technology**
- **Organisation**
- **Processes and Others**, being the finalist and winning ideas in each of these categories which are shown in the following table.



Technology	Processes
<ul style="list-style-type: none"> Innovative Company 5.0 Digital workplace 	<ul style="list-style-type: none"> Work by objectives Forming relationships between different parts of the company. Knowledge management.
Organisation	Others
<ul style="list-style-type: none"> Partial or temporary telework to reconcile, motivate and take care of health Talent retention and motivation 	<ul style="list-style-type: none"> Carsharing of Isdefe Electric Vehicles The Headquarters of the Future. Nursery and gym at the Isdefe headquarters.

Winning idea
 Finalist idea

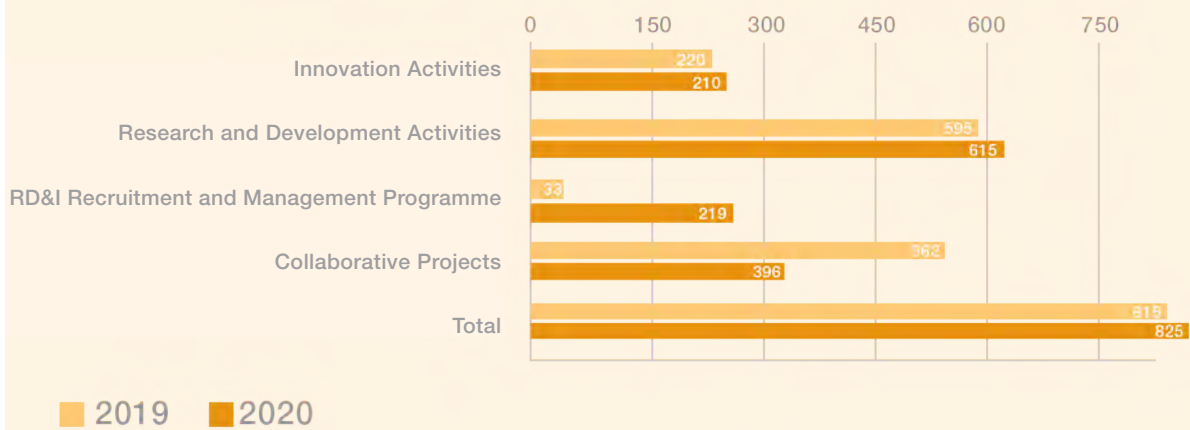


DDN (Dirección de Desarrollo de Negocio): Business Development Management; **DARRHH (Dirección de Recursos Humanos):** Human Resource Management; **DO (Dirección de Operaciones):** Operations Management; **DCPEG (Dirección de Consultoría y Procesos Estratégicos de Gestión):** Management of Consulting and Strategic Management Processes; **DDS (Dirección de Defensa y Seguridad):** Defence and Security Management; **DECT (Dirección de Espacio y Centros Tecnológicos):** Space and Technology Centres Management; **DPEF (Dirección de Planificación y Económico Financiera):** Planning and Financial Economics Management.



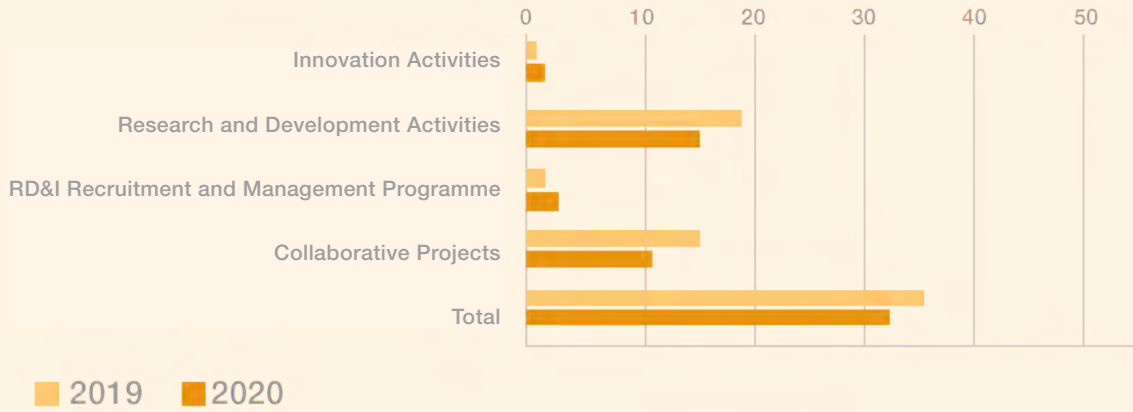
RD&I indicators

Cost distribution of RD&I projects by activity axis

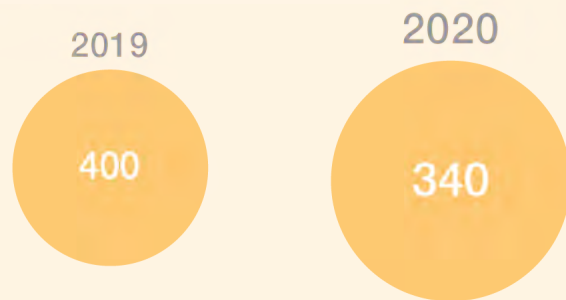




Distribution of RD&I projects by activity axis



Financing obtained for R&D activities



Financing received (thousands of €)