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1.0 – Presentación

Poder presentar el informe anual de HEGAN es siempre de orgullo, pues un año más el colectivo al que representamos ha seguido contribuyendo – con vigor - al desarrollo de la economía, y en particular de la industria aeronáutica y espacial.

Con un crecimiento de la facturación superior del 16% sobre 2015, las organizaciones asociadas al Cluster de Aeronáutica y Espacio del País Vasco - HEGAN - han alcanzado en el ejercicio 2016 una cifra de ventas de 2.247 millones de euros en todas sus plantas repartidas por todo el mundo. Así, este sector mantiene su aportación al del PIB industrial de Euskadi en torno al 6%. Las exportaciones totales superaron por cuarto año consecutivo los 1.000 millones de euros, alcanzando la cifra de 1.366 millones de euros. Las empresas ubicadas en Reino Unido y Francia son los principales destinos de los trabajos, seguidas de las de Estados Unidos y Brasil. Conviene indicar si a las exportaciones de los asociados sumamos las ventas internas (nacionales) a OEMs, Consorcios internacionales o Programas globales, el resultado es un 'índice de internacionalización' que superaría el 89% de la facturación.

El esfuerzo inversor en I+D+i de esta industria alcanza los 150 millones de euros siendo muy elevado el esfuerzo de la autofinanciación -el 87% del total de esa inversión - con 1.366 personas dedicadas a actividades de I+D (72 personas más que el año anterior). Y podemos dar la alegría de que el empleo de este periodo volvió a crecer, con un 9,4% de incremento medio en todas las plantas y del 7% en las instalaciones del País Vasco donde aumentó en casi 300 nuevas contrataciones, contando con 4.519 personas trabajando directamente en este sector.

Estos datos confirman la solidez de la industria aeronáutica y espacial vasca, una la tendencia del sector a seguir generando crecimiento económico y empleo de calidad.

En cuanto al futuro, el sector aeronáutico mantiene una gran resistencia. Así entre 2017 y 2035 se estima que se doblará la flota actual de aviones de pasajeros, por lo que en este periodo será necesario entregar cerca de 33.000 grandes aviones comerciales, y más de 6.000 aviones regionales. De hecho, se estima que durante 2017 se producirán un total de 1.456 aeronaves comerciales. En este contexto, las previsiones de los socios del Cluster HEGAN para 2017 son moderadamente optimistas, pero conservadoras. Aunque continúan las previsiones favorables a medio y largo plazo y el sector se encuentra inmerso en una etapa de fuerte crecimiento de producción, sin embargo la incertidumbre generada por los cambios socio-políticos surgidos en el último periodo nos hacen ser cautos, por lo que para el 2017 estimamos un incremento de la facturación del 2% respecto al año anterior, en línea con las previsiones del sector.

1.0 – Presentación

Por todo esto, la situación de la industria aeroespacial vasca necesita preparar un futuro para mantener la competitividad, asegurar la posición en el mercado a largo plazo de las empresas, mejorar la eficacia, responder a la evolución permanente de los requerimientos tecnológicos del sector, a la creciente presión sobre los costes de los suministradores para reducir los precios de las aeronaves ofertadas o a la creciente competencia de nuevos países que se incorporan a la oferta del sector y que están respaldados por la capacidad de compra de sus gobiernos y empresas (China, India, Singapur, Emiratos...).

En consecuencia, es necesario seguir manteniendo el liderazgo de los Tier-1 en tecnología e innovación y desarrollar todos los eslabones de la cadena de valor. El sector necesita también contar con medidas financieras específicas para poder abordar el lanzamiento de nuevos programas que pudieran surgir.

No podemos dejar de destacar este año la consolidación del Centro de Fabricación Avanzada Aeronáutica (CFAA) y la progresiva incorporación de nuevos socios dentro de la Asociación Cluster HEGAN y de la entidad que ostenta la representación industrial en el CFAA. Estos hechos sin duda fortalecen la competitividad general del sector, pues facilitarán la diversificación de la oferta, la posibilidad de encontrar sinergias y la aportación de conocimientos en áreas de mejora de los procesos de fabricación.

Finalmente, debemos hablar del Plan Estratégico 2017-2020, un trabajo compartido vivido en el seno de HEGAN que recoge precisamente estos y otros retos, al tiempo que alude a la intención de diseñar un futuro colectivo para el sector, con el fin de jugar un papel relevante en las cadenas de valor del sector a nivel mundial y con el compromiso de las empresas que forman parte de esta industria en el desarrollo del bienestar del territorio.

En las próximas páginas podréis conocer de primera mano las principales actividades de la asociación y de sus miembros. Muchas gracias.

Jorge UNDA MALCORRA
Presidente



José JUEZ LANGARA
Director General



2.0 – La Asociación Cluster

2.1 - Organización

HEGAN es una asociación privada sin ánimo de lucro que agrupa al sector aeronáutico y espacial vasco, creada con la misión, de representar y dinamizar el sector, para facilitar su competitividad a corto, medio y largo plazo mediante la cooperación y la innovación entre empresas y otros agentes, dando respuestas en cooperación a los retos estratégicos del mismo



Asamblea General

Es el máximo órgano de la Asociación. Está integrada por todos los socios y es, por tanto, el foro de expresión de la voluntad de éstos.

Junta Directiva

Es el Órgano Colegiado de Administración y Dirección. Sus miembros actuales designados por la Asamblea General, son:

Jorge UNDA –Presidente-, SENER

Eduardo JUNKERA -Vicepresidente-, DMP

Iñaki LÓPEZ GANDASEGUI –Secretario-, AERNNOVA

Ignacio MATAIX, ITP

Koldobika GRAJALES, LTK GRUPO

Ignacio EIRIZ, CTA

Iñaki TELLECHEA, SPRI / GOBIERNO VASCO

José JUEZ, HEGAN

2.0 – La Asociación Cluster

Comité Ejecutivo

Este comité, delegado de la Junta Directiva, actúa como órgano de seguimiento estratégico de las actuaciones de la Asociación Cluster, se reúne regularmente y sus miembros actuales son:

Javier VIÑALS –Presidente-, SENER
Álvaro FDEZ BARAGAÑO, ACITURRI
Javier FDEZ DE RETANA, AERNNOVA
Eduardo JUNKERA, DMP
Plácido MÁRQUEZ, ITP
Koldobika GRAJALES, LTK GRUPO
Ana SANTIAGO, SISTEPLANT
Susana LARREA, SPRI
José JUEZ, Director de HEGAN
Martín FDEZ LOIZAGA, Director adjunto de HEGAN

Grupos de Trabajo

Desde 2005, los comités permanentes de HEGAN sufrieron una reestructuración pasando a ser grupos de trabajo temporales y flexibles dedicados específicamente a actividades puntuales y reportando al Comité Ejecutivo.

Estos grupos de trabajo se crean y desaparecen a voluntad de los asociados y según sus necesidades específicas del momento. En 2016, queremos destacar la generación del Plan Estratégico 2017-2020 (PE1720) y el trabajo que supuso para casi el 70% de los socios que participaron en diferentes talleres y sesiones de Contraste Estratégico.

Equipo de HEGAN

El equipo permanente de la Asociación es el siguiente:

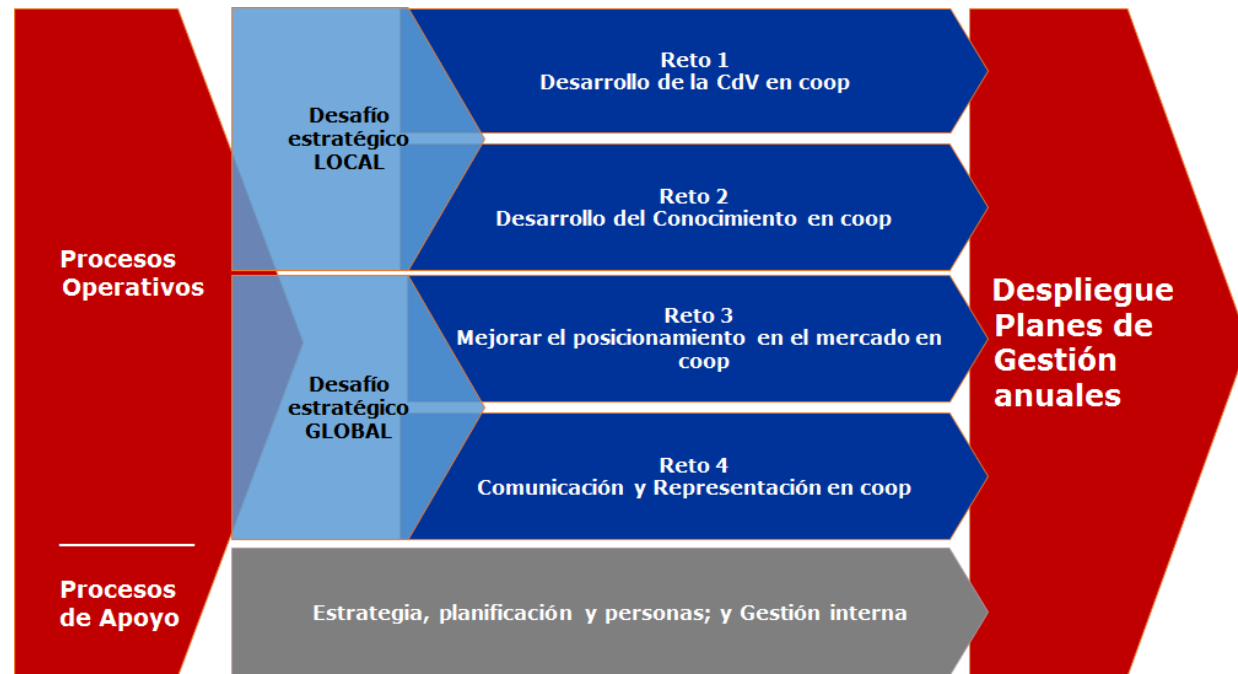
- Mentxu DÍAZ, Responsable de Administración
- Martín FDEZ LOIZAGA, Director Adjunto
- José JUEZ LANGARA, Director General
- Ana RODRÍGUEZ, Responsable de Operaciones
- Ana VILLATE, Responsable de Proyectos en Cooperación

2.0 – La Asociación Cluster

2.2 HEGAN 2016

Como comentamos hace ya cuatro años en estas mismas líneas, en la primavera de 2012 comenzamos otro proceso de reflexión estratégica. El proceso nos marcó las líneas de trabajo generales que iríamos desplegando en acciones concretas hasta el año 2016, año de finalización del periodo de reflexión y de balance del mismo.

Desde el comienzo del despliegue de los retos estratégicos de aquella Reflexión Estratégica (RE1316) se ha venido trabajando en la dinamización de grupos de empresas con intereses compartidos ya sean en áreas de desarrollo tecnológico como no tecnológico e internacionalización, y siempre con objetivo de apoyar la mejora de la competitividad en cooperación; a este trabajo diario, se le ha sumado la de realizar la Reflexión Estratégica del siguiente periodo de manera interna: el propio equipo de HEGAN sería el responsable de la gestación del Plan Estratégico 2017-2020 (PE1720) que nos ha dado la ruta compartida para los próximos 4 años.



2.0 – La Asociación Cluster

Estas han sido las actividades más significativas en el año 2016 (y según los retos estratégicos de la RE1316):

Refuerzo de la Cadena de Valor (Retos 1)

- Secretaría técnica, junto a AFM, de la de la **AEDTFAA**. Asociación de empresas del CFAA, que ya comprende a 35 socios industriales y que se constituye como una herramienta clave de generación de proyectos en colaboración en Euskadi
- Del trabajo de Identificación de **Huecos** de la Cadena de Valor de 2015. De las 20 líneas identificadas, se ha estado trabajando profundamente en 2 en 2016: Procesos Especiales y Fabricación aditiva
- Participación en tres iniciativas: Grupo pilotaje **Basque Industry 4.0** (con la colaboración de Aernnova), **CLUSTERS3** y **Basque EcoDesignCentre**.
- Redacción de un borrador para el proyecto **INNOSUP** (H2020)
- Colaboración (como miembro honorario) con **SPACE** (iniciativa de Airbus para el desarrollo de la cadena de suministro en Europa)

Mejorar el posicionamiento con ciertos clientes (Retos 2)

- Soporte al Equipo **Liebherr** formalizado en 2015
- Formalizado un embrión de equipo **MTU**
- Firma del **MoU** entre el Aeroclúster de Querétaro y HEGAN que fue firmado en Mexico DF por parte de ambos Presidentes.
- Coordinación de **participaciones agrupadas** junto con Eusko Ganberak en Aerospace & Defence Supplier Summit (Seattle) // ADM (Sevilla) // ILA (Berlín) // AIRTEC (Munich) y AEROMART (Toulouse)

Comunicación y Representación (Retos 3)

- Mantenimiento web, soportes promocionales y **Memoria Anual** (2015). Video promocional y explicativo sobre la asociación.
- Se han atendido a **medios de comunicación** en diferentes entrevistas y foros; siendo el canal de referencia para todos los medios del Estado en cuanto a la situación del sector en Euskadi.
- Puesta en marcha de actividad en redes sociales.

2.0 – La Asociación Cluster

Aportar contexto para la toma de decisiones estratégicas (Reto 4)

- . **SICC** (Sistema de Inteligencia Competitiva del Cluster), selección de información clave y alimentación diaria con eficiencia. En 2016 se subieron a esta herramienta alrededor de 2.300 fichas con noticias sobre tecnología, transformación empresarial, mercado, innovación, eventos, ayudas...
- . Consolidado un sistema de **Gestión de Oportunidades** con reuniones de identificación de retos.

Generar, retener y atraer talento (Reto 5)

- . Colaboración con **Bizkaia Talent** - B:T en sus jornadas de vinculación: participación en la que tuvo lugar en Hamburgo. Se continua la relación habitual con centros de FP (HETEL, Oteiza, IMH...), Universidades (Aula, Mondragón...)

Crear formación específica del sector (Reto 6)

- . **AeroAcademy**, bajo este paraguas se han organizado 7 seminarios:
 - . Curso APQP (2 ediciones), 10 socios (3 no-socios)
 - . Taller eficiencia energética, 4 socios
 - . Curso AMFE (2 ediciones), 11 socios (3 no-socios)
 - . Introducción NADCAP: 9 socios (1 no socio)
 - . Curso Entregas en Plazo de Proveedores, 5 socios (1 no-socio)
 - . Curso Adaptación a la nueva EN9100:2016, 12 socios (4 no-socios)
 - . Taller ciberseguridad, 3 socios (2 no-socios)
- . Colaboración en el lanzamiento del Curso FP de mecanizado de alto rendimiento (Escuela de FP Oteitza-Zarautz).
- . Curso Especializado en Composites para Aeronáutica con la MU

Desde HEGAN trabajamos con el objetivo de ser la casa de todos (de grandes, de pequeñas, de todos los eslabones de la cadena de valor), tratando de dinamizar espacios de confianza que nos permitan desarrollarnos en colaboración, y vivir con coherencia nuestro slogan:

+confianza = +cooperación = +valor



2.0 – La Asociación Cluster



2.3 – Asamblea General 2016



2016.urteko txostena
Informe anual 2016

hegan
basque aerospace cluster

3.0 – Asociados del Cluster

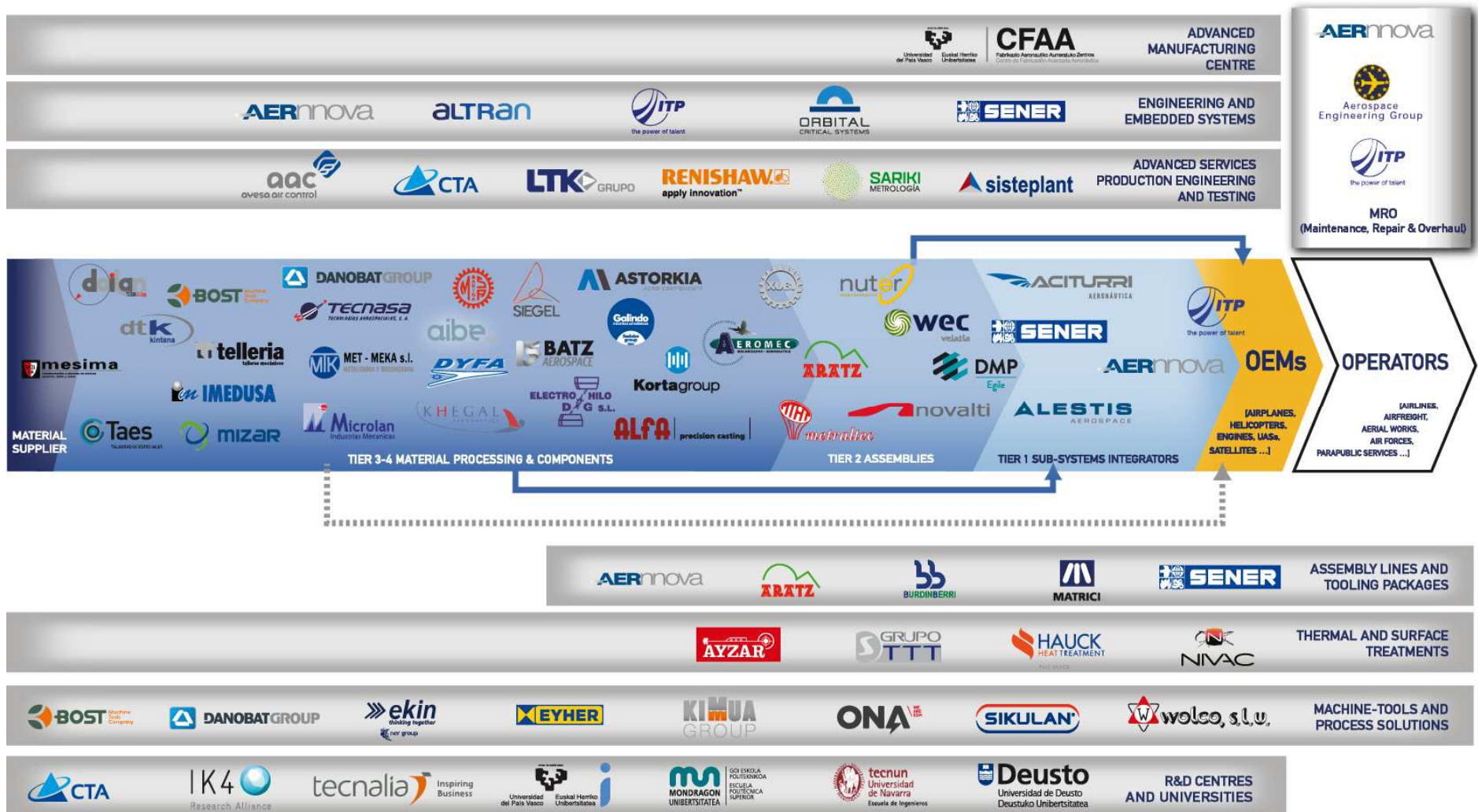
3.1 Coordenadas de los asociados

Industry	AERNNOVA www.aernnova.com Contact: mri@aernnova.com	ITP www.itp.es Contact: placido.marquez@itp.es	SENER www.sener.es Contact: javier.vinals@sener.es	ACTURRI www.acturri.com Contact: Ester.porras@acturri.com	AEROMEC www.aeromec.es Contact: jim@aeromec.es	AEROSPACE ENGINEERING GROUP www.aerospacengineeringgroup.aero Bizkaia-Headquarter contact: aeg@aeurope.net	AIBE www.aibe.es Contact: jon@aibe.es	ALESTIS www.alestis.aero Contact: info@alestis.aero
	ALFA PRECISION CASTING www.alfalan.es Contact: ajimenez@alfalan.es	ALTRAN www.altran.es Contact: inigo.ezquerro@altran.com	ARATZ www.aratz.com Technical Manager: kbalsategui@talleresaratz.com	ASTORKIA www.astorkia.com Contact: mecanizados@astorkia.com	AYESA AIR CONTROL www.ayesa.com General Manager: psanz@ayesaaircontrol.com	AYZAR www.ayzar.com Commercial Manager: comercial@ayzar.com	BATZ www.batz.com Commercial Manager: cgrande@batz.es	BOST MACHINE TOOLS COMPANY www.bost.es Contact: sales@bost.es BOSTMEK MACHINING www.bost.es/es/bostmek Contact: alberto@bost.es
	BURDINBERRI www.burdinberri.com Contact: burdinberri@burdinberri.com	DANOBAT GROUP www.danobatgroup.com Contact: alusoz@danobatgroup.com GOIMEK Machinig parts: www.goimek.com Contact: jgarciasantome@goimek.com	DMP www.dmp.aero Contact: philippe@dmp.aero	DDILAN www.dolan.info Contact: jon@dolan.com	DTK www.dtkintana.com Contact: dtk@dtkintana.com	DYFA www.dyfa.es Commercial Manager: joseramon@dyfa.es	EKIN www.ekin.es Contact: lazkuenaga@ekin.es	ELECTROHILO www.electrohilo.es Contact: pedrol.diez@electrohilo.es
	EYHER www.eyher.com Contact: ctroacaia@eyher.com	GRUPO TTT www.grupottt.com General Manager: xberasategi@grupottt.com Commercial Contact: cgarcia@grupottt.com	HAUCK www.haukht.com Plant Manager: Roberto.Granado@haukht.com Commercial/Quality manager: Jose.Borge@haukht.com	IMEDUSA www.imesusa.net Manager: imedusa@imesusa.net I+D+i: idi@imesusa.net	INDUSTRIAS METALÚRGICAS GALINDO www.galindosl.com General Manager: juan@galindosl.com Commercial Manager: josebecano@galindosl.com	KHEGAL AERONAÚTICA www.khegal.com Contact: comercial@khegal.com	KIMUA GROUP www.kimuagroup.com Sales Director: lucas@kimuagroup.com	KORTA www.korta.com Project Manager: aguenetxea@korta.com
	LTK GRUPO www.ltkgrp.com Contact: info@ltkgrp.com	MATRICI www.matrici.com Business Development Manager: dpzamacona@matrici.com	MESIMA www.mesima.com Technical contact: rperex@mesima.com Commercial contacts: jalameda@mesima.com aesparza@mesima.com	METALÚRGICA MARINA www.metalurgicamarina.com Responsible I+D+i: eneko@metalurgicamarina.com	MET-MEKA www.met-meka.com Technical contact: met-meka@met-meka.com Production Engineer: aitort@met-meka.com	METRALTEC www.metaltec.com General Manager: amendiñibil@metaltec.com Technical Manager: jgarcia@metaltec.com	MICROLAN www.microlansl.com General Manager: huarte@microlansl.com	MIZAR www.mizaradditive.com Contact: info@mizaradditive.com
	NIVAC www.nivac.es Technical & Commercial Director: cristina.sanz@nivac.es	NOVALTI www.novalti.es Contact: smartinez@novalti.es	NUTER www.nuter.es General Manager: oscar.cantero@nuter.es	ONA ELECTROEROSIÓN www.onaedm.com Key Account Manager: MPetean@onaedm.com	ORBITAL CRITICAL SYSTEMS www.orbitals.com General Manager: acuchaga@orbitals.com	RENISHAW www.renishaw.com Sales and Calibration Product Manager: inaki.beitia@renishaw.com	SARIKI www.sariki.es Contact: sariki@sariki.es	SIEGEL www.siegel-aero.com Contact: eperez@siegel-sa.es
	SIKULAN www.sikulan.com Export Manager: anergomez@sikulan.com	SISTEPLANT www.sisteplant.com R&D Department Director: minsunza@sisteplant.com CEO: ASantiago@Sisteplant.com	Taes www.taes.eu Commercial Contact: azamakala@taes.eu	TECNASA www.tecnasa.com.es Chief Commercial Officer: isebeta.monje@tecnasa.com.es	TALLERES MECÁNICOS TELLERIA www.tmtelleria.com General Manager: jimero@tmtelleria.com	WALLAIR ENGINE COMPONENTS www.wallair.es Market Manager: azn@wallair.es	WOLCO www.wolco.es Contact: wolco@wolco.es	XUBI ENGRANAJES/RENGEAR/ ZUAZO www.xubi.com/www.rengear.net/ www.zuazo.net Contact: alexander@zuazo.net/aritz@xubi.com/ jgarate@rengear.net
	CTA www.ctaero.com Contact: jose Luis.simon@ctaero.com	IK4 www.ik4.es Market Manager: otegi@ik4.es Technical Coordinator: f.berri@ideko.es	TECNALIA www.tecnalia.info Business Development Director: Javier.colet@tecnalia.com Aeronautic Market Manager: Begona.canflanca@tecnalia.com Space Market Manager: Jesus.marcos@tecnalia.com					
	EUSKAL HERRIKO UNIBERTSITATEA (UPV/EHU) www.ehu.es/manufacturing Contact: norberto.lzcalle@ehu.es	MONDRAGON UNIBERTSITATEA www.mondragon.edu/es/eps Contact: ru@mondragon.edu	TECNUN www.tecnun.es Contact: ree@tecnun.es	UNIVERSIDAD DE DEUSTO www.deusto.es Contact: ingenieria@deusto.es				

R&D Org.
Universit.

3.0 – Asociados del Cluster

3.2 Cadena de Valor



3.0 – Asociados del Cluster

3.3 Actividades 2016

3.3.1 Aeroestructuras

3.3.2 Motores

3.3.3 Sistemas y Equipos

3.3.4 Espacio

3.3.5 Mantenimiento

3.3.6 Proyectos de I+D+i

3.4 Programas y Clientes

3.5 Estadísticas



3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
ACITURRI			
VTP Dorsal Fin & HTP Torsion box	AIRBUS OPERATIONS	AIRBUS	A320
Leading edge panels and LEX of HTP	AIRBUS OPERATIONS	AIRBUS	A320
Leading edge of HTP assembly	AIRBUS DS	AIRBUS	A330
Passenger door structural assembly	ALESTIS	AIRBUS	A330
CFRP Spar Ouboard Aileron	AIRBUS OPERATIONS	AIRBUS	A330
VTP & Internal structure of S19	AIRBUS OPERATIONS	AIRBUS	A350 XWB
Outboard FLAP CFRP parts	FOKKER-GKN	AIRBUS	A350 XWB
Belly Fairing (Zones 0,1, 2 , 3.1, 3.2, 3.3 y 4)	AIRBUS DS	AIRBUS	A380
HTP Ribs	AIRBUS OPERATIONS	AIRBUS	A380
Rudder & Elevators	AIRBUS OPERATIONS	AIRBUS	A380
S19 CFRP Omeagas	AIRBUS OPERATIONS	AIRBUS	A380
S19.1 Ducts & Housing	AIRBUS OPERATIONS	AIRBUS	A380
Auxiliary HTP	AIRBUS OPERATIONS	AIRBUS	BELUGA XL
Ventral Fin	AIRBUS OPERATIONS	AIRBUS	BELUGA XL
Sponsons	DAHER-SOCATA	AIRBUS DS	A400M
Rudder CFRP Spar	AIRBUS FRANCE	AIRBUS DS	A400M
Flap and Vanes	AIRBUS GERMANY	AIRBUS DS	A400M
Central Box: structural assembly and equipment & Tip wings integration	AIRBUS DS	AIRBUS DS	CN235, C295
Sponsons and VT	FOKKER	AIRBUS HELICOPTERS	NH 90
Rudder Components & Subassembly	AIRBUS DS	BOEING	737
Passenger door surround	BOEING	BOEING	787
KJ Beams CFRP Parts cargo door	BOEING	BOEING	787
Elevators and HTP	AIRBUS DS	DASSAULT	FALCON 7X
Ailerons	FOKKER	DASSAULT	FALCON 7X
Wing to Fuselage Fairing	EMBRAER	EMBRAER	KC-390
Composite components	AIRBUS DS	EUROFIGHTER	TYPHOON

3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
AERNNOVA			
Elevators Assy /Main Landing Gear Doors Assy / Horizontal Stab. Spars / Fus. Section 18 Covers / Interior "dado" panels	AIRBUS	AIRBUS	A320
Elevator Components / Karman Fairings. Design Maintenance and Manufacturing of Main Landing Gear Doors Assy	AIRBUS	AIRBUS	A330/A340
Rear Fuselage	AIRBUS	AIRBUS	BELUGA XL
Conceptual and detailed design and manufacture of HTP horizontal stabiliser fixed parts and Elevators - Risk Partner	AIRBUS	AIRBUS	A350 XWB
Build to print Rudder	AIRBUS	AIRBUS	A350 XWB
Build to Print Passenger Doors	AIRBUS	AIRBUS	A350 XWB
Build to Print Air Inlet	AIRBUS	AIRBUS	A350 XWB
Horizontal Stabilizer: Design and Manufacturing of Leading Edges, Trailing Edges and Box Joint.	AIRBUS	AIRBUS	A380
Rear Fuselage - Section 19: Design & manufacturing of Internal Metallic Structure, including attachment fittings to Vertical Stabilizer.	AIRBUS	AIRBUS	A380
Stiffeners and angle bars S19.1 / trailing edge covers HTTP (composite)	AIRBUS	AIRBUS	A380
Skin Panels Assembly S-19 (Built to Print)	AIRBUS	AIRBUS	A380
Conceptual and detailed design and manufacture of MLG Pressure bulkhead	STELIA AEROSPACE	AIRBUS	A350 XWB
Build to print Fuselage	AGUSTAWESTLAND	AIRBUS HELICOPTERS	NH90
Upper structure manufacture.	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	EC 225 /725 Super Puma
Lower structure manufacture. Tail cone (composite)	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	EC 225 /725 Super Puma
Rear fuselage(composite)	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	TIGRE
Tail Cone manufacture	HELIBRAS	AIRBUS HELICOPTERS	EC 225 /725 Super Puma
Stringers / tip HTTP / wing stringers (composite)	AIRBUS DS	AIRBUS DS	A400M
Forward landing gear traps/ engine housings (composite)	AIRBUS DS	AIRBUS DS	CN235, C295
Spoilers	STELIA AEROSPACE	ATR	ATR 72
Manufacture of Complete structure (foward fuselage, cabin and tailboom)	BELL	BELL	Bell 505

3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
Conceptual engineering Wing Insparr Ribs and structures for sections 11, 12 and 42	BOEING	BOEING	747-8I/F
Rear Pressure Bulkhead (composite)	BOEING	BOEING	787-9/-10
Manufacturing of complete Tail section (vertical and horizontal stabilisers) and elevators	BOMBARDIER	BOMBARDIER	CRJ700/900/1000
Conceptual Design & Manufacture of Central Wing Box (composite)	BOMBARDIER	BOMBARDIER	CSeries
Design & manufacture of Tail Cone (composite)	BOMBARDIER	BOMBARDIER	CSeries
Design and manufacture of complete Tail section (vertical and horizontal stabilizers), rudder and elevators - Risk Partner	EMBRAER	EMBRAER	EMB 170/175/190/195/LINEAGE 1000
Design and manufacture of rear fuselage - Risk Partner	EMBRAER	EMBRAER	EMB 170/175/190/195/LINEAGE 1000
Design and manufacture of complete wings-Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
Design and manufacture of nacelles - Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
Design and manufacture of wing to fuselage fairings -Risk Sharing Partner- Partially Transferred to Embraer	EMBRAER	EMBRAER	ERJ135/140/145
Design and manufacture of complete wings - Risk Partner	EMBRAER	EMBRAER	LEGACY Family
Design and manufacture of nacelles -Risk Partner	EMBRAER	EMBRAER	LEGACY Family
Design and manufacture of wing to fuselage fairings -Risk Partner- Partially Transferred to Embraer	EMBRAER	EMBRAER	LEGACY Family
Design and manufacture of rear fuselage - Risk Partner	EMBRAER	EMBRAER	LINEAGE 1000
Design and Manufacturing of Flaps, Ailerons and Rudder	EMBRAER	EMBRAER	KC-390
Design of Rear Fuselage, Pylon, Cargo Ramp and Upper Door	EMBRAER	EMBRAER	KC-390
Design of Wing Box	EMBRAER	EMBRAER	KC-390
Design and Manufacturing of Horizontal & Vertical stabilizer	EMBRAER	EMBRAER	E-jets E2
Design of Cockpit	EMBRAER	EMBRAER	E-jets E2
Wing covers, housings and conduits (composite)	AIRBUS DS	EUROFIGHTER	TYPHOON
Design and manufacture of the equipped transition section and tail cone - Risk Partner	SIKORSKY	SIKORSKY	S-92 / H-92
Design and manufacture of the HS - Risk Partner	SIKORSKY	SIKORSKY	S-92 / H-92
Design and manufacture of the main rotor pylon, fairings and engine cowlings - Risk Partner	SIKORSKY	SIKORSKY	S-92 / H-92

3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
AEROMECH			
Pilon Rib	Several	AIRBUS	A320
Wing ribs structure	Several	AIRBUS	A350XWB
Structural door components.	Several	BOEING	787
Horizontal stabilizer structure & Structural components front section	Several	DASSAULT	Falcon 5X
Door structural components	Several	EMBRAER	170/175/190/195
AIBE			
Precision machining of components	MTORRES	Several	Miscellaneous
ALESTIS			
BBAA HTP & VTP	ACITURRI	AIRBUS	A320 & A320neo
TIP's HTP	AIRBUS	AIRBUS	A320 & A320neo
TTP's	AERNNOVA	AIRBUS	A320 & A320neo
TIP's HTP	AIRBUS DS	AIRBUS	A330
PAX Door	AIRBUS	AIRBUS	A330
Ribs HTP	AIRBUS	AIRBUS	A330
PAX Door	AIRBUS	AIRBUS	A330neo
Ribs HTP	AIRBUS	AIRBUS	A330neo
Belly Fairing - Risk Partner	AIRBUS	AIRBUS	A350 XWB
S19.1 - Risk Partner	AIRBUS	AIRBUS	A350 XWB
MLGD / S19.1 / Rear Fairing	AIRBUS	AIRBUS	A380
Belly Fairing (Structure)	AIRBUS DS	AIRBUS	A380
Assembly tasks	AIRBUS DS	AIRBUS DS	A330MRTT
Elevator	AIRBUS DS	AIRBUS DS	A400M
Cowlings	AIRBUS DS	AIRBUS DS	A400M
Rear fuselage	AIRBUS DS	AIRBUS DS	CN235, C295
HTP / VTP	AIRBUS DS	AIRBUS DS	CN235, C295
Tips & Strakelet	BOEING	BOEING	737

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3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
Aileron	AIRBUS DS	BOEING	777
Flaperon	AIRBUS DS	BOEING	777
Winglet & Wingstub	EMBRAER	EMBRAER	190/195
Central Fuselage	EMBRAER	EMBRAER	LEGACY450/500
Empennage & Wings	EMBRAER	EMBRAER	LEGACY450/500
Composite parts	EMBRAER	EMBRAER	LEGACY450/500
ALFA PRECISION CASTING			
Secondary structure components	TAI	AIRBUS	A320ceo
Secondary structure components	AIRBUS	AIRBUS	A320neo/ceo / A330
Secondary structure components	AIRBUS DS	AIRBUS DS	C235,C295, EUROFIGHTER TYPHOON
ALTRAN			
Design, stress, tests and materials/process, industrial operations, quality assurance	AIRBUS	AIRBUS	A350XWB/320/330MRTT/380
Design, stress, tests and materials/process, industrial operations, quality assurance	AERNNOVA	AIRBUS	A350XWB
Design, stress, tests and materials/process, industrial operations, quality assurance	ALESTIS	AIRBUS	A350XWB/380
Design, stress, tests and materials/process, industrial operations, quality assurance	AIRBUS DS	AIRBUS DS	A400M/C295
ARATZ			
Composite Tooling	AIRBUS	AIRBUS	A350 XWB
Lay Up Tooling	AIRBUS	AIRBUS	A350 XWB
Assembly tooling	AIRBUS	AIRBUS	AIRBUS families
Assembly tooling	DASSAULT	DASSAULT	Falcon family
Composite Tooling	BOMBARDIER	BOMBARDIER	Cseries CS100
ASTORKIA			
Structural components	AERNNOVA	AIRBUS	AIRBUS families
Structural components	Several	BOEING	747 / 787
Structural components	AERNNOVA	BOMBARDIER	CRJ700/900
Structural components	AERNNOVA	EMBRAER	EMBRAER families

3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
AYESA AIR CONTROL			
Process optimization techniques, Industry 4.0 solutions and Digital Factory technologies	AIRBUS DS	AIRBUS DS	A400M, C295/CN235, A330MRTT
AYZAR			
Heat treatments	ACITURRI	AIRBUS	AIRBUS families
Heat treatments	BURDINBERRI	AIRBUS	AIRBUS families
BURDINBERRI			
A320 Neo Engine Cover Fan Cowl Curing Tools	AIRBUS	AIRBUS	A320neo
A320 Neo Engine Cover Rotary Lay-up Tools	AIRBUS	AIRBUS	A320neo
HTP Cover Curing Tools	REDUCTIA AEROSPACE	AIRBUS	A320neo
Wing Stringer Curing Tools	REDUCTIA AEROSPACE	AIRBUS	A350 XWB
Curing Barrel S19	REDUCTIA AEROSPACE	AIRBUS	A350 XWB
VTP Leading Edge Curing Tools	ACITURRI	AIRBUS	A350 XWB
Door Rtm Tools	AERNNOVA	AIRBUS	A350 XWB
HTP Leading Edge Rtm Tools	AERNNOVA	AIRBUS	A350 XWB
TIP Assembly Jig	AERNNOVA	AIRBUS	A350 XWB
V1000 Belly Fairing Curing Tools	ALESTIS	AIRBUS	A350 XWB
S19.1 Rotary Lay-up Tool	ALESTIS	AIRBUS	A350 XWB
HTP Cover Curing Tools	AERNNOVA	AIRBUS	A350 XWB
Wing Stringer Curing Tools Transport Jigs	REDUCTIA AEROSPACE	AIRBUS	A350 XWB
Crown Area Fitting Assembly Tools	ASCENT INTEGRATION	AIRBUS	A350 XWB
A380 Engine Cover Fan Cowl Curing Tools	AIRBUS	AIRBUS	A380
KJB Js Curing Tools	ACITURRI	BOEING	787
CTA			
Pylon Attachment Tension Fitting	AIRBUS	AIRBUS	A350 XWB
Fire certification tests of interior materials	DIEHL AIRCABIN	AIRBUS	A350 XWB
Fire certification tests of interior materials	TCI CABIN INTERIOR	AIRBUS	A350 XWB
Bir strike on rotor blade	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	EC175

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3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
Fire certification tests of interior materials	BOEING R&T EUROPE	BOEING	Airlines
Cseries 4-Bay Fail safety Test	AERNNOVA	BOMBARDIER	Cseries
Cseries CWB In-Cut Out Test	AERNNOVA	BOMBARDIER	Cseries
Panel buckling test	STELIA AEROSPACE	BOMBARDIER	GLOBAL 7000
Panel residual strength test	STELIA AEROSPACE	BOMBARDIER	GLOBAL 7000
E2 Flap Supports Structural Test	ASCO INDUSTRIES	EMBRAER	E-Jets E2
Flap inboard test	AERNNOVA	EMBRAER	KC-390
Aileron & Rudder tests	AERNNOVA	EMBRAER	KC-390
Fire certification tests of interior materials	AIR NOSTRUM LAM	Several	Airliners
Fire certification tests of interior materials	DIEHL AEROSPACE	Several	Airliners
Fire certification tests of interior materials	IACOBUCCI HF AEROSPACE	Several	Airliners
Fire certification tests of interior materials	HUTCHINSON-CR	Several	Airliners
Fire certification tests of interior materials	COMPOSITE INDUSTRIES	Several	Airliners
Fire certification tests of interior materials	PMV INDUSTRIES	Several	Airliners
Fire certification tests of interior materials	JCB AERO	Several	Airliners
Fire certification tests of interior materials	INDUSTRIAL NEO-TEX	Several	Airliners
Fire certification tests of interior materials	PINTA INSULATION	Several	Airliners
Fire certification tests of interior materials	VELCRO EUROPE	Several	Airliners
Fire certification tests of interior materials	ROMTEX ANJOU AERONAUTIQUE	Several	Airliners
Fire certification tests of interior materials	SN CENTRAIR	Several	Airliners
Fire certification tests of interior materials	DESSO	Several	Airliners
DT KINTANA			
Landing gear trap	AERNNOVA	AIRBUS	A320
Stabilizer	AERNNOVA	AIRBUS	A350 XWB
DYFA			
Machining of components	ACITURRI	AIRBUS	A350XWB
Tooling for Aeronautical manufacturing	AIRBUS	AIRBUS	A320/330/400M
Tooling for aeronautical Assembly	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	NH90

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3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
Tooling for aeronautical Assembly	AIRBUS	DASSAULT	Falcon 7X
Machining of Composite (Carbon fiber / Fiberglass) & Metallic components	AERNNOVA	EMBRAER	ERJ170/190, KC-390
EYHER			
Work-in-heights-platforms for the S19 manufacturing	MTORRES	AVIC CHINA	COMAC C919
Works Stations with goods lift and platforms modifications for S19	MTORRES	AIRBUS	A350XWB
Inspection platform	MTORRES	AEROTEC	Miscellaneous
FLY10K Building lifting platform	AIRBUS	AIRBUS	A350XWB
Work in-heights platforms for the S17 manufacturing	ACTEMIUM	AIRBUS	A32X family
GRUPO TTT			
Heat and surface treatments	SONACA	AIRBUS	AIRBUS families
Heat and surface treatments	AERNNOVA	AIRBUS	AIRBUS families
Heat and surface treatments	ALESTIS	AIRBUS	A400M/380
Heat and surface Treatments	AIRBUS DS	AIRBUS DS	AIRBUS DS families
Heat and surface treatments	AERNNOVA	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS families
Heat and surface treatments	BHR Helicopter	BHR Helicopter	F360/290
Heat and surface treatments	Several	BOEING	737 / 777 / 787
Heat and surface treatments	Several	BOMBARDIER	BOMBARDIER families
Heat and Surface treatments	SONACA	DASSAULT	FALCON family
Heat and surface treatments	AERNNOVA	EMBRAER	EMBRAER families
Heat and surface treatments	Several	EMBRAER	KC-390
Heat and surface treatments	SKF	Several	Miscellaneous
Heat and surface treatments	AERNNOVA	SIKORSKY	S-92
HAUCK			
Heat treatments	CESA	AIRBUS	AIRBUS families
Heat treatments	ACITURRI	AIRBUS	AIRBUS families
Heat treatments	AIRBUS DS	AIRBUS DS	AIRBUS DS families
Heat treatments	EMBRAER	EMBRAER	KC-390

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3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
Heat treatments	AERNNOVA	FOKKER	Miscellaneous
Heat treatments	AERNNOVA	SIKORSKY	S-92
Heat treatments	CESA	SIKORSKY	S-92
INDUSTRIAS GALINDO			
Tooling manufacturing	INESPASA	AIRBUS	A350 XWB
Tooling manufacturing	ALESTIS	AIRBUS	A350 XWB
Tooling manufacturing	AERNNOVA	AIRBUS	A380
Tooling manufacturing	ACITURRI	AIRBUS	Miscellaneous
Tooling manufacturing	ALESTIS	BOEING	787
Tooling manufacturing	AERNNOVA	EMBRAER	E-JET family
Tooling manufacturing	CTA	Several	Miscellaneous
KHEGAL AERONÁUTICA			
Elementary components Machining	Several	AIRBUS	AIRBUS Families
Elementary components Machining	AERNNOVA	BOMBARDIER	CSeries Family
Elementary components Machining	Several	DASSAULT	Falcon Family
Elementary components Machining	Several	ATR	42/72
Fuselage Holders for assembly line	Several	AIRBUS DS	A400M
Fuselage Holders for assembly line and Tooling for test bench	Several	AIRBUS	AIRBUS Families
LTK GRUPO			
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS	AIRBUS	AIRBUS families
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS DS	AIRBUS DS	A330MRTT
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS DS	AIRBUS DS	A400M
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS DS	AIRBUS DS	CN235, C295
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	ALESTIS	EMBRAER	AIRBUS families
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	ALESTIS	EMBRAER	E-JET family
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	ALESTIS	BOEING	787

3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
MATRICI			
Tooling for carbonfiber and metallic parts	AIRBUS OPERATIONS	AIRBUS	Miscellaneous
Tooling for carbonfiber and metallic parts	AIRBUS DS	AIRBUS DS	Miscellaneous
MESIMA			
Materials management and supply	AIRBUS DS	AIRBUS DS	Miscellaneous
METRALTEC			
Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	FIBERTECNIC	AIRBUS	A320
Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	ACATEC	AIRBUS	A320
Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	AERNNOVA	AIRBUS	A380
Manufacture of elementary parts (machining)	KHEGAL	AIRBUS	A380
Manufacture of elementary parts (sheet metal)	ALESTIS	AIRBUS	A350XWB
Manufacture of elementary parts and assembly (sheet metal, machining, heat and surface treatments, painting)	AERNNOVA	BOMBARDIER	CRJ family, CSERIES
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	AERNNOVA	EMBRAER	EMBRAER families
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	OGMA	EMBRAER	KC-390
Manufacture of elementary parts (sheet metal, machining, heat treatment, surface treatment, painting)	FIBERTECNIC	EUROFIGHTER	TYPHOON
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	AERNNOVA	SIKORSKY	S-92
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	MTORRES	Several	Miscellaneous
MICROLAN			
Precision Machining of components, Turning and Milling	Several	Several	Miscellaneous

3.0 – Asociados del Cluster

3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
NOVALTI			
Landing gear trap	AIRBUS	AIRBUS	A380
Belly Fairing components	AIRBUS	AIRBUS	A380
Belly Fairing components	Various	AIRBUS	A350XWB
Belly Fairing components	Various	AIRBUS	A320neo
Structural components	Various	EMBRAER	KC-390
NUTER			
Structural components	AERNNOVA	AIRBUS	A380
Components	AERNNOVA	BOMBARDIER	CRJ family
Structural components	AERNNOVA	EMBRAER	ERJ family / E-JET family
Structural components	AERNNOVA	SIRKOSKY	S-92
RENISHAW			
Interferometric Laser and Optical Encoders for measuring positional data: wing-panel assembly machines	ELECTROIMPACT INC	AIRBUS	A380
SARIKI METROLOGÍA			
Measurement Equipment and Consultancy -supply, maintenance, training and software programming	AERNNOVA	AIRBUS	Miscellaneous
Measurement Equipment and Consultancy -supply, maintenance, training and software programming	AIRGRUP / CONSUM	AIRBUS	Miscellaneous
SENER			
Design, construction, installation, transport and start up of the system in which the carbon fibre laminates of the wing stringer positioning line are generated	ARITEX	AIRBUS	A350 XWB
HTP assembly line	AIRBUS	AIRBUS	A330
Four access platforms for drilling the upper and lower shells of section S19	AIRBUS	AIRBUS	A380
Surface protection stations	AIRBUS	AIRBUS	A320/330/350XWB

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3.3.1 Aeroestructuras

General Description of the Product/service	DIRECT CLIENT	OEM	MODEL
Floor grid assembly stations	PAG	AIRBUS	A350 XWB
Nacelles demoulding systems	AIRBUS	AIRBUS	A32X family
Design and production of HTP assembly stations 70 and 71	THYSSEN GERMANY	AIRBUS	A350 XWB
Wing equipment station elevators	BOMBARIDER	BOMBARDIER	C Series family
Handling system for big mobile aircraft parts	EMBRAER	EMBRAER	KC-390
SISTEPLANT			
Manufacturing Execution System implementation - New features	ALESTIS	AIRBUS	A350XWB
Brainstorming Factory of the Future	SPACE	AIRBUS	Miscellaneous
TAES			
Components Deep precision Drilling	MEUPE	Several	Miscellaneous
Components Deep precision Drilling	AEROTECNIC	Several	Miscellaneous
Components Deep precision Drilling	ACATEC	Several	Miscellaneous

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
ACITURRI				
Mounting Rings, Thermals and fittings	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Components	WEC	EUROJET	EJ200	EUROFIGHTER TYPHOON
Housings	ITP	GENERAL ELECTRIC	F414	BOEING F/A-18E/F
Struts	ITP	GENERAL ELECTRIC	GE90-115	BOEING 777
Hubs	ITP	PRATT&WHITNEY	Development	Development
Housings	ITP	ROLLS-ROYCE	TRENT 700	AIRBUS A330
Housings	ITP	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Lugs and vanes	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Lugs and vanes	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Lugs and vanes	ITP	ROLLS-ROYCE	TP400	AIRBUS A400M
Lugs and vanes & T.Match	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
End Fittings	SL ENGINEERING	ROLLS-ROYCE	Several	Miscellaneous
Rings	ROLLS-ROYCE	ROLLS-ROYCE	Development	Development
Hubs	ITP	ROLLS-ROYCE	T1000/T7000	BOEING 787/737
Fun Hub Frames	SAFRAN AIRCRAFT ENGINES	SAFRAN AIRCRAFT ENGINES	LEAP 1A/1B	AIRBUS A320 / BOEING 737
Hub Compressor	SAFRAN AIRCRAFT ENGINES	SAFRAN AIRCRAFT ENGINES	LEAP 1A	AIRBUS A320
Brackets	SAFRAN AIRCRAFT ENGINES	SAFRAN AIRCRAFT ENGINES	LEAP 1A/1B	AIRBUS A320 / BOEING 737
Lugs and Shrouds	SAFRAN AIRCRAFT ENGINES	SAFRAN AIRCRAFT ENGINES	LEAP 1B	BOEING 737
Belts	SAFRAN OIL SYSTEMS	SAFRAN AIRCRAFT ENGINES	LEAP 1A/1B, GTF	AIRBUS A320 / BOEING 737
AEROMEC				
Support ring	Several	CFM INTERNATIONAL	CFM56	AIRBUS A320 / BOEING 737
LPT rings	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Engine exhaust Zone.	Several	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Turbine casing & Thermal	ITP	Several	Several	Miscellaneous
Engine exhaust zone	Several	SAFRAN AIRCRAFT ENGINES	SILVERCREST	DASSAULT FALCON 5X / CESSNA Citation
Engine 2nd stage turbine	Several	PRATT&WHITNEY	Several	Miscellaneous
AIBE				
Design and manufacture of clamping systems and fixtures for machining processes and special machines	ITP	GENERAL ELECTRIC	GE90	BOEING 777
Design and manufacture of clamping systems and fixtures for machining processes and special machines	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
ARATZ				
Machined parts	ITP	ROLLS-ROYCE	TRENT 700	AIRBUS A330
ASTORKIA				
Engine components	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Engine components	ITP	ROLLS-ROYCE	TP400	AIRBUS A400M
Engine components	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
AYZAR				
Heat treatments	ACITURRI	Several	Several	Miscellaneous
BATZ				
Hot formed panels for special alloys	WEC	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Hot formed panels for special alloys	WEC	ROLLS-ROYCE	TRENT 1000	BOEING 787
Hot formed panels for special alloys	WEC	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Hot formed panels for special alloys	ITP	ROLLS-ROYCE	TP400	A400M
CTA				
Aerodynamic Technology Acquisition Rig Programme	ITP	Several	Several	Miscellaneous
DANOBAT				
Vertical grinding Machine-Tools for aeroengine manufacturing	GENERAL ELECTRIC	Several	Several	Miscellaneous

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
DMP				
Carter parts	PCB	CFM INTERNATIONAL	CFM56	AIRBUS A320 / BOEING 737
Carter parts	PCB	CFM INTERNATIONAL	LEAP	AIRBUS A320neo / BOEING 737MAX
Thrust struts	Several	EA	GP7200	AIRBUS A380
Main shaft Ge90	AUBERT&DUVAL	GENERAL ELECTRIC	GE90	BOEING 777
Thrust struts	Several	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Thrust struts	Several	Several	SaM146	SUKHOI Superjet 100
Main transmission gears	SAFRAN HELICOPTER ENGINES	SAFRAN HELICOPTER ENGINES	ALL RANGE	Miscellaneous
Accessory transmission gears	SAFRAN HELICOPTER ENGINES	SAFRAN HELICOPTER ENGINES	ALL RANGE	Miscellaneous
Transmission shafts Curvic-Coupling	SAFRAN HELICOPTER ENGINES	SAFRAN HELICOPTER ENGINES	ARRIEL / MAKILA	AIRBUS HELICOPTERS DAUPHIN / SUPERPUMA
Transmission shafts Curvic-Coupling	SAFRAN HELICOPTER ENGINES	SAFRAN HELICOPTER ENGINES	ARRIUS	AIRBUS HELICOPTERS EC135
Shaft	ITP	SAFRAN HELICOPTER ENGINES	MTR390	AIRBUS HELICOPTERS TIGRE
EKIN				
Broaching Tools for the manufacture of Fir Tree turbine discs	ITP	Several	ALL RANGE	Miscellaneous
ELECTROHILO				
Inner vanes stubs machining (spark erosion) and Vanes edge cutting (wire)	ITP	EPI	TP400	AIRBUS A400M
TEC segmentation	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Strut manufacture	ITP	MTRI	MTR390-E	AIRBUS HELICOPTERS TIGRE
Edging of VANES and BCVs	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
HUB drill, Separation Top Core Vane, Vanes erosion	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Edging of VANES and BCVs	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
GRUPO TTT				
Heat and Surface treatments	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Heat and surface treatments	ITP	ROLLS-ROYCE	Several	Miscellaneous
Heat and surface treatments	SAFRAN TRANSMISSION SYSTEMS	Several	Several	Miscellaneous
Heat and surface treatments	SAFRAN AIRCRAFT ENGINES	SAFRAN AIRCRAFT ENGINES	Several	Miscellaneous
Heat and surface treatments	Several	SAFRAN HELICOPTER ENGINES	Several	Miscellaneous
HAUCK				
Heat treatments	ACITURRI	ITP	TRENT 1000	BOEING 787
Heat treatments	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Heat treatments	WEC	Several	Several	Miscellaneous
Heat treatments	DMP	SAFRAN HELICOPTER ENGINES	Several	Miscellaneous
Heat treatments	SAFRAN HELICOPTER ENGINES	SAFRAN HELICOPTER ENGINES	Several	Miscellaneous
IMEDUSA				
BRACKETS	WEC	EUROJET	EJ200	EUROFIGHTER TYPHOON
BRACKETS	WEC	CFM INTERNATIONAL	LEAP	AIRBUS A320neo / BOEING 737MAX
BRACKETS	WEC	ROLLS ROYCE	TP400	AIRBUS A400M
INDUSTRIAS GALINDO				
Manufacturing of Tooling for LPT Components (inter stage seals)	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Manufacturing of Tooling for turbine shafts and static components	ITP	Several	Several	Miscellaneous
Design of Cutting Tools	ITP	Several	Several	Miscellaneous
Design of Cutting Tools	MECACHROME	Several	Several	Miscellaneous
Design of Cutting Tools	SAFRAN AIRCRAFT ENGINES	CFM INTERNATIONAL	LEAP	AIRBUS A320neo / BOEING 737MAX

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
ITP				
Lost wax casting super alloys for Turbine	SAFRAN AIRCRAFT ENGINES	CFM INTERNATIONAL	CFM56	AIRBUS A320 / BOEING 737
Lost wax casting super alloys for Turbine	MTU	EA	GP7000	AIRBUS A380
Design and manufacture of low pressure turbine (LPT) - Member of EPI Consortium	AIRBUS DS	EPI	TP400	AIRBUS A400M
Design and manufacture of the Front Frame and Exhaust System - Member of the EPI Consortium	AIRBUS DS	EPI	TP400	AIRBUS A400M
Manufacture of Externals - Member of EPI Consortium	AIRBUS DS	EPI	TP400	AIRBUS A400M
Final assembly of engine - Member of EPI Consortium	AIRBUS DS	EPI	TP400	AIRBUS A400M
Lost wax casting super alloys for intermediate pressure turbine	ROLLS-ROYCE	EPI	TP400	AIRBUS A400M
Lost wax casting super alloys for the LPT	ITP	EPI	TP400	AIRBUS A400M
Design and manufacture of the Diffuser cones and By-Pass Module - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Design and manufacture of the post burner duct and variable nozzle - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Manufacture of Externals - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Final assembly of the engine - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Lost wax casting super alloys - nozzle	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Lost wax casting super alloys - low pressure turbine	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Components	GENERAL ELECTRIC	GENERAL ELECTRIC	CF34-10	EMBRAER 190/LINEAGE 1000
Manufacture of rear turbine structure	GENERAL ELECTRIC	GENERAL ELECTRIC	GE90-115	BOEING 777
Structural components	HONEYWELL	HONEYWELL	HTF7000	BOMBARDIER CHALLENGER 300
Design and manufacture of three LPT - Member of the MTRI Consortium	MTRI	MTRI	MTR390-E	EUROCOPTER TIGRE

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Final assembly of the engine - Member of the MTRI Consortium	MTRI	MTRI	MTR390-E	EUROCOPTER TIGRE
Lost wax casting super alloys - low pressure turbine	ITP	MTRI	MTR390-E	EUROCOPTER TIGRE
Lost wax casting super alloys for Turbine	SAFRAN AIRCRAFT ENGINES	POWERJET	SaM146	SUKHOI SUPERJET 100
Modules manufacturing	PRATT & WHITNEY	PRATT & WHITNEY	PW1000G	Cseries/MRJ90/MS-21/A320neo
Components manufacturing	PRATT & WHITNEY CANADA	PRATT & WHITNEY	PW535E	EMBRAER PHENOM 300
Parts of external equipment of engine	ROLLS-ROYCE	ROLLS-ROYCE	BR725	GULFSTREAM G650
Design and validation of the ROLL POST	ROLLS-ROYCE	ROLLS-ROYCE	F136	LOCKHEED MARTIN F-35
Design and manufacture of low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 1000	BOEING 787
Design and manufacture of Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 1000	BOEING 787
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 1000	BOEING 787
Design and manufacture of low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Design and manufacture of the Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Assembly of the LPT and component manufacture	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 700	AIRBUS A330
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 700	AIRBUS A330
Design and manufacture of the low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Design and manufacture of the Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Design and manufacture of the low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB

3.0 – Asociados del Cluster

3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Design and manufacture of the Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
KHEGAL AERONÁUTICA				
Injection elementary components Machining	AD Group	CFM INTERNATIONAL	CFM56	AIRBUS A320 / BOEING 737
MATRICI				
Tooling for metallic parts	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Metallic Forming Components	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Metallic Forming Components	LAUAK	CFM INTERNATIONAL	LEAP	AIRBUS A320neo / BOEING 737MAX
MESIMA				
Materials management and supply	ITP	ROLLS-ROYCE	Several	Miscellaneous
Materials management and supply	WEC	Several	Several	Miscellaneous
NIVAC				
Thermal and surface treatments	Several	Several	Several	Miscellaneous
NOVALTI				
Components for LPT	ITP	EPI	TP400	AIRBUS A400M
Components	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Engine components	ITP	MTRI	MTR390-E	EUROCOPTER TIGRE
Components for the LPT	ITP	ROLLS-ROYCE	Trent 1000	BOEING 787
Components for the LPT	ITP	ROLLS-ROYCE	Trent XWB	AIRBUS A350XWB
NUTER				
Fittings	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Fittings	ITP	EPI	TP400	AIRBUS A400M
Fittings	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Airfolds & Small Parts	ITP	PRATT & WHITNEY	Several	Miscellaneous

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3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
RENISHAW				
Measurement data for the production and repair of blades and bladed disks: Blade tip refurbishment, in-process blade measurement and root blending of bladed disks. Contact and non-contact tool setting systems to detect and adjust to the condition or wear of cutting tools.	Several	Several	Several	Miscellaneous
Precision sensors for fast, accurate acquisition of component dimensions and surface data. They include blade-specific software applications.	MECANIZADOS ESCRIBANO	Several	Several	Miscellaneous
Component set up, tool setting and in-cycle gauging and first off component inspection for accurate machining processes.	CASTLE PRECISION	Several	Several	Miscellaneous
Precise and rapid gauging of complex parts, tracking trends in machining and enabling automatic process adjustments to account for changing variables like thermal drift.	HIGH-TECH ENGINEERING	Several	Several	Miscellaneous
SARIKI METROLOGÍA				
Measurement Equipment and Consultancy-supply, maintenance, training and software programming	ITP	Several	Several	Miscellaneous
SIEGEL				
Components	ITP	EPI	TP400	AIRBUS A400M
Components	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Machined Components	ITP	PRATT & WHITNEY	Several	Miscellaneous
Machined Components	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Machined Components	ITP	GENERAL ELECTRIC	Several	Miscellaneous
SISTEPLANT				
Review of Assembly standards	ITP	Several	Several	Miscellaneous
TAES				
Components Deep precision Drilling	DMP	Several	Several	Miscellaneous
TECNASA				
Silicone Grommets	ITP	Several	Several	Miscellaneous

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3.3.2 Motores

General Description of the Product/service	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
WEC				
Parts of external equipment of engine	SAFRAN AIRCRAFT ENGINES	CFM INTERNATIONAL	CFM56	AIRBUS A320 / BOEING 737
Parts of external equipment of engine	SAFRAN AIRCRAFT ENGINES	CFM INTERNATIONAL	LEAP	AIRBUS A320neo / BOEING 737MAX
Parts of external equipment of engine	ITP	EPI	TP400	AIRBUS A400M
Structural parts	ITP	EPI	TP400	AIRBUS A400M
Exhaust nozzle parts	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
TEC parts	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Parts of external equipment of engine	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Parts of external equipment of engine	SAFRAN AIRCRAFT ENGINES	GENERAL ELECTRIC	GE90-115k	BOEING 777
Rings, annular components, combustion chamber components	HONEYWELL	HONEYWELL	Several	Miscellaneous
Parts of external equipment of engine	ITP	PRATT & WHITNEY	PW 814	GULFSTREAM G500
TEC Front Cases	GKN Aerospace Engine Systems	ROLLS-ROYCE	Several	Miscellaneous
Structural parts	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Parts of external equipment of engine	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Dynamic seals components	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Parts for engine cooling devices	SAFRAN AIRCRAFT ENGINES	SAFRAN AIRCRAFT ENGINES	SILVERCREST	DASSAULT FALCON 5X

3.0 – Asociados del Cluster

3.3.3 Sistemas y Equipos

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
ACITURRI			
Auxiliary Fuel Tanks	AIRBUS DS	Fuel system components	EUROFIGHTER TYPHOON
Hydraulic Tanks	CESA	Hydraulic system	AIRBUS A380
Equipped elements	RATIER FIGEAC	Turboprop systems	Several
AEROMECH			
Nose and main landing gear components	Several	Landing Gear	AIRBUS C295
Main landing gear components	Several	Landing Gear	AIRBUS CN235
ALFA PRECISION CASTING			
Conduits- Air Fittings (Lost wax casting superalloys)	IAI	Air conditioning	GULFSTREAM 280
Radar housings (Lost wax casting aluminium)	INDRA	Radars	EUROFIGHTER TYPHOON
Conduits- Air Fittings (Lost wax casting superalloys)	LIEBHERR AEROSPACE	Air conditioning	AIRBUS A320neo/ceo /BOEING 787 / CSERIES / COMAC / KC395 / EJET / G7000
Optronic equipment housings (Lost wax casting aluminium)	SAGEM DEFENSE	Optronic systems TV- Thermography	AIRBUS HELICOPTERS NH90
Optronic equipment housings (Lost wax casting aluminium)	SAGEM DEFENSE	Optronic systems TV- Thermography	DASSAULT RAFALE
Optronic equipment housings (Lost wax casting aluminium)	THALES GROUP	Actuators-Electrical equipments	AIRBUS A320/330/380
Optronic equipment housings (Lost wax casting aluminium)	ZODIAC AEROSPACE	Actuators-Electrical equipments	AIRBUS A320/330/380
ALTRAN			
Architecture, critical software and hardware development	AIRBUS	ATA30, ATA32, ATA36, ATA39, ATA27, ATA24, ATA21	Miscellaneous
Architecture, critical software and hardware development	AIRBUS DS	ATA30, ATA32, ATA36, ATA39, ATA27, ATA24, ATA22	Miscellaneous
Architecture, critical software and hardware development	BOMBARDIER	ATA32	Miscellaneous

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3.3.3 Sistemas y Equipos

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
BOST			
Machine Tools for aero-components manufacturing	Several	Several	Miscellaneous
CTA			
MLG retraction actuator test	CESA	Landing gear	AIRBUS A350 XWB
Landing gear actuators system test	CESA	Landing gear	AIRBUS A400M
Main and Tail Rotor Endurance Tests	INDRA	Rotor	INDRA PELÍCANO
Shafts	UTC	Landing gear	BOMBARDIER Cseries
Flow Servo valve tests	ZODIAC	Servo valve	mitsubishi MRJ
DANOBAT			
Grinding Machine-Tools for Landing Gears	SAFRAN LANDING SYSTEMS	Landing gear	Miscellaneous
DMP			
Main transmission components	AIRBUS HELICOPTERS	Main rotor	AIRBUS HELICOPTERS X6
Landing gear components	CESA	Balancier	AIRBUS HELICOPTERS TIGRE
Actuation systems	CESA	Several	AIRBUS CN235/C295
Flight control & actuation systems	CESA	Several	EUROFIGHTER TYPHOON
Engine actuation systems	CESA	Several	EUROFIGHTER TYPHOON
Actuation systems	CESA	Several	SIKORSKY S92
Shock Absorber	SAFRAN LANDING SYSTEMS	MLG	AIRBUS A330/A340
Shock Absorber	SAFRAN LANDING SYSTEMS	MLG	AIRBUS A350XWB
Shock Absorber	SAFRAN LANDING SYSTEMS	MLG	BOEING 787
Shock Absorber	SAFRAN LANDING SYSTEMS	NLG	BOEING 787
Slider	SAFRAN LANDING SYSTEMS	NLG	AIRBUS A320
Slider	SAFRAN LANDING SYSTEMS	NLG	ATR 42/72
Rack	SAFRAN LANDING SYSTEMS	NLG	AIRBUS A320
Cylinder & Piston	SAFRAN LANDING SYSTEMS	Retraction actuator MLG	AIRBUS A330
Balancier équipé	SAFRAN LANDING SYSTEMS	Main rotor	AIRBUS HELICOPTERS SUPER PUMA

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3.3.3 Sistemas y Equipos

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
DOILAN			
Component machining	Several	Landing Gear	Miscellaneous
GRUPO TTT			
Heat and surface treatments	BHR Helicopter	Systems	F360, F290
Heat and surface treatments	GOODRICH	Systems	Miscellaneous
Heat and surface treatments	SAFRAN TRANSMISSION SYSTEMS	Systems	Miscellaneous
Heat and surface treatments	IAI	Systems	Miscellaneous
Heat and surface treatments	SAFRAN LANDING SYSTEMS	Landing Gear	AIRBUS families
Heat and surface treatments	SAFRAN LANDING SYSTEMS	Brakes	AIRBUS families
Heat and surface treatments	Several	Landing Gear	SIKORSKY
HAUCK			
Heat treatments	AIRBUS DS	Several	Miscellaneous
Heat treatments	CESA	Several	Miscellaneous
Heat treatments	DMP	Several	Miscellaneous
Heat treatments	SAFRAN LANDING SYSTEMS	Landing Gears	Miscellaneous
Heat treatments	SENER	Several	Miscellaneous
IMEDUSA			
CARCASAS EXTERIORES	INDRA	MBDA	Miscellaneous
INDUSTRIAS GALINDO			
Tooling manufacturing	WEC	Several	Miscellaneous
KHEGAL AERONÁUTICA			
Oil tanks Elementary components Machining	AD Group	Lubrication systems	AIRBUS A350XWB
KORTA			
Ball/Trapezoidal Screws	SENER	Actuators	Miscellaneous
Ball Screws	SOMINEX	Actuators	Miscellaneous
MATRICI			
Tooling for carbonfiber and metallic parts	AIRBUS DS	Several	Miscellaneous

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3.3.3 Sistemas y Equipos

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
METRALTEC			
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	SENER	Several	Miscellaneous
MICROLAN			
Precision Machining of components, Turning and Milling	Several	Several	Miscellaneous
NUTER			
Components	CESA	AIRBUS	AIRBUS A330/A350XWB
Components	CESA	AIRBUS DS	AIRBUS A400M
ORBITAL CRITICAL SYSTEMS			
MTF, Model and Test System Support	AIRBUS DS	Military Test Facilities	AIRBUS A400M
M-MMS DASS Display Capabilities V&V	AIRBUS DS	Mission Management System (M-MMS)	AIRBUS A400M
M-MMS Tactical Situation System. Design, Development and V&V	AIRBUS DS	Tactical Situation Management (M-MMS)	AIRBUS A400M
Tactical Situation Management System (TSMS), Test System Development	AIRBUS DS	Test System for TSMS	HELIBRAS EC725
Maintenance Simulator Training (MST)	AIRBUS DS	MST	EUROFIGHTER TYPHOON
Flight Control System (FCS), SW, SW/HW Integration and V&V	AIRBUS DS	FCS	EUROFIGHTER TYPHOON
Smart Nozzle. Sensor in Boom for Automatic Air to Air Refuelling.	AIRBUS DS	Boom System	AIRBUS A330-MRTT
System integration test bench and supportability for Ground and Flight test	E2S AIRBUS DS	Air to Air Refuelling System	AIRBUS A330-MRTT
SW Multifunction Control Display (MFCD) and BOOM Control and Computing System (BCU)	E2S AIRBUS DS	MFCD and BCU	AIRBUS A330-MRTT
M-MMS Communication Management System. Design, Development and V&V	E2S AIRBUS DS	Mission Management System (M-MMS)	AIRBUS A400M
M-MMS Cargo and Aerial Delivery System. Design, Development and V&V	E2S AIRBUS DS	Mission Management System (M-MMS)	AIRBUS A400M
AMU. SW and Firmware design and testing	E2S AIRBUS DS	Audio Management System (AMS)	AIRBUS A400M
Flight Test and Analysis Defence Aided System	E2S AIRBUS DS	DASS	AIRBUS A400M

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3.3.3 Sistemas y Equipos

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
M-MMS Low Level testing for DO178B certification.	E2S AIRBUS DS	Mission Management System (M-MMS)	AIRBUS A400M
M-MMS, MIDS Display Capabilities. Design, Development and V&V	E2S AIRBUS DS	Mission Management System	AIRBUS A400M
Avionics Flight Test Telemetry	E2S AIRBUS DS	Flight Tests Telemetry	Miscellaneous
Fly-by-Wire FT4B actuators control system	E2S AIRBUS DS	FT4B	AIRBUS DS C295
Automatic Air to Air Refuelling A3R. Platform Software	E2S AIRBUS DS	A3R	AIRBUS A330-MRTT
FITS. Radar System.	E2S AIRBUS DS	FITS	AIRBUS DS C295
MIDS System Integration and V&V	E2S AIRBUS DS	MIDS	AIRBUS A330-MRTT
Tactical Situation Management System (TSMS), Test System Production	EMBRAER	Test System for TSMS	HELIBRAS EC725
STTE MIMETS Bench	INDRA	DASS Test System	AIRBUS DS C295
RENISHAW			
Raman spectroscopy technology for the material make-up of specialist components and the quality of component surface coatings	Several	Several	Miscellaneous
SENER			
Production of the Control Section of aerodynamic fins and fixed wings (Air - Air version)	DBD	IRIS-T	Defence aircrafts
Development and qualification of the Control Section of aerodynamic fins (Surface Launch version)	DBD	IRIS-T	Ground equipment
Technological teammate of GA-ASI for the integration of the Remotely Piloted Aircraft (RPA) system Predator® B in the Spanish Armed Forces	GENERAL ATOMICS	Predator® B	GENERAL ATOMICS PREDATOR
Program to extend the life of the Spanish Navy's AB212 helicopters	Head of Logistics Support (JAL) - Spanish Navy	Several	AGUSTA-BELL AB 212
Development, qualification, industrialisation and production of the Control Section of aerodynamic fins	MBDA-UK	METEOR	Defence aircrafts

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3.3.3 Sistemas y Equipos

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Stabilized Mirror Unit (SMU) of the sight	SAAB Dynamics	RBS 70 NG	Ground equipment
FASS subsystem of drive and control of aerodynamic fins	TAURUS Systems GmbH	TAURUS KEPD 350	Defence aircrafts
Image management unit for two Tactical Recognition systems (RecceLite or Litening Pods)	RAFAEL	IPU 2 / IPU 3	Defence aircrafts
SISTEPLANT			
Manufacturing Execution System implementation - New features	DMP	Several	Miscellaneous
Manufacturing Execution System implementation	CESA	AIRBUS	Miscellaneous
TAES			
Components Deep precision Drilling	METALMEC	Several	Miscellaneous
Components Deep precision Drilling	CESA	Several	Miscellaneous
TECNASA			
Firing Handles	MARTIN-BAKER	Ejection Seats	Defence aircrafts
O-RINGS	MARTIN-BAKER	Ejection Seats	Defence aircrafts
JIGS	MARTIN-BAKER	Ejection Seats	Defence aircrafts
WEC			
Air Bleed equipment parts	HONEYWELL	Air Treatment Management	AIRBUS A320/330 DASSAULT F7X
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A320/A330/A400M, C Series
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A320neo
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A330neo
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A400M
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	BOEING 747-8
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	DASSAULT F7X

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3.3.4 Espacio

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
AIBE			
Precision machining of components	SENER	Several	Miscellaneous
ALTRAN			
Structure development/system development/integration/industrial operations	AIRBUS DS	Several	Miscellaneous
Structure development/system development/integration/industrial operations	RUAG	Several	Miscellaneous
Structure development/system development/integration/industrial operations	THALES	Several	Miscellaneous
Structure development/system development/integration/industrial operations	ALENIA	Several	Miscellaneous
Structure development/system development/integration/industrial operations	OHL	Several	Miscellaneous
ARATZ			
Machined Components	Several	Several	Miscellaneous
Components for satellite antennas	Several	Several	Miscellaneous
AYESA AIR CONTROL			
Implementation of process optimization techniques, Industry 4.0 solutions and Digital Factory technologies	AIRBUS DS	Satellite solar panel arrays	SKYNET 5
CTA			
Heat pipes system	IBERESPACIO	Heat pipes system	ALPHASAT
Antenna climatic tests	SENER	Antenna	BEPICOLOMBO
Lander impact tests	SENER	Lander	EXOMARS
Heat pipes system	IBERESPACIO	Heat pipes system	EXOMARS
Mechanisms	SENER	Antenna	SOLAR ORBITER
DYFA			
CAD/CAM , Satellite Panel Machining and Dimensional Control	Several	Satellites	Miscellaneous
GRUPO TTT			
Heat and surface treatments	AIRBUS DS	Propulsion systems	ARIANE
Heat and surface treatments	SENER	Systems	Miscellaneous

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3.3.4 Espacio

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
HAUCK			
Heat treatments	SENER	Several	ASTRIUM
Heat treatments	AIRBUS DS	Several	Miscellaneous
Heat treatments	INDRA	Several	Miscellaneous
INDUSTRIAS GALINDO			
Tooling manufacturing	THALES ALENIA SPACE	Collars	CSO SATELLITE
ITP			
Super alloy components for space shuttle engine	SNECMA	Shuttle	ARIANE 5
METRALTEC			
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	SENER	Several	Miscellaneous
MICROLAN			
Precision Machining of components, Turning and Milling	Several	Satellites	Miscellaneous
NOVALTI			
On-board components and mechanical systems	THALES ALENIA SPACE	MISCELLANEOUS	IRIDIUM NEXT GENERATION
On-board components and mechanical systems	TESAT (AIRBUS DS)	MISCELLANEOUS	VARIOUS
On-board components and mechanical systems	ESA	MISCELLANEOUS	VARIOUS
NUTER			
Components	SENER	Several	GAIA
Components	SENER	Several	METEOSAT THIRD GENERATION
ORBITAL CRITICAL SYSTEMS			
Avionics System SW Demonstrator based on RTEMS	ESA	Avionics System	RTEMS
Full design and development of Scientific Instrument and launch to Space	UAM	IR Camera System	EUSO-Balloon
EXOMARS 2018 DM OBC UT	CRISA	EGSE	EXOMARS 2018 DM
IRCAM System Definition and proto development.	UAH	IR Camera System	JEM-EUSO
Requirement Data Base Maintenance	EUMETSAT	Meteorological satellite	METEOSAT THIRD GENERATION
UVAS FEE	CSIC	UV/UVN FEE System	UVAS CSP SEOSAT
VEGA MFU UT	CRISA	EGSE	VEGA Launcher

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3.3.4 Espacio

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
RENISHAW			
Metal 3D printing systems	Several	Several	Miscellaneous
SENER			
ALMA Amplitude Calibration Device (ACD)	ESO - European Southern Observatory	Robotic Arm for the ALMA antennas	Atacama Large Millimeter/submillimeter Array (ALMA)
Mechanisms' engineering	ESA	Scientific Mission	ATHENA
Analysis of different alternatives for planetary vehicle landing gear	ESA	Planetary exploration ship -Scientific Mission	AURORA - Mars Sample Return Mission
Mechanism that separates the magnetic disturbance magnetometer of the satellites, as well as the accompanying mobile arm	ESA / AIRBUS DS	Planetary exploration ship -Scientific Mission	BEPICOLOMBO
Communication antennas sub-system (HGA & MGA)	ESA / THALES ALENIA SPACE	Planetary exploration ship -Scientific Mission	BEPICOLOMBO
Main system contractor	ESA	MARES system to investigate muscular atrophy caused by weightlessness	COLUMBUS
Prime contractor for Euclid's AOCS/GNC	ESA / THALES ALENIA SPACE	Scientific Mission	EUCLID
High Gain Antenna Gimbal	ESA / THALES ALENIA SPACE	Scientific Mission	EUCLID
Main contractor and responsible for the support structure and of the help system at the exit of the Rover (SES) onto the Martian surface	ESA /THALES ALENIA SPACE	Planetary exploration ship -Scientific Mission	EXOMARS
In-flight demonstration study of all the functions of the mechanism and Guidance, Navigation and Control system (GNC)	ESA - ESTEC	Docking and joining mechanism - Navigation	IBDM (International Berthing and Docking Mechanism)
FixBox for the ISS	ESA	Fixation Box for a vegetal biology experiment to be performed at the ISS	ISS - International Space Station
Complete Guidance, Navigation and Flight control subsystem (GNC)	ESA	Intermediate experimental vehicle for re-entry into atmosphere	IXV
High gain antenna pointing mechanisms (HGAG) of the Rover	NASA / AIRBUS DS	Planetary exploration ship -Scientific Mission	MARS SCIENCE LABORATORY

3.0 – Asociados del Cluster

3.3.4 Espacio

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Technical and engineering assistance in the project	ESA	MELISSA project for developing a life-support system for long duration space travel and planetary bases.	MELISSA
Scan assembly (FCI and IRS SCA) and the Calibration and Obturation Mechanism (FCI and IRS COM)	ESA / Kayser-Threde	Observation satellite	METEOSAT THIRD GENERATION
Attitude and orbit control system, Special Check Out Equipment (AOCS SCOE)	ESA / OHB System	Observation satellite	METEOSAT THIRD GENERATION
Main contractor of the formation flying system	ESA / GMV	Formation flying system	PROBA 3
Main contractor of the entire program	ESA	Phases C/D and E1	PROBA 3
Radar deployment system	ESA / AIRBUS DS	Observation satellite - Scientific Mission	SENTINEL 1
Calibration mechanism	ESA / AIRBUS DS	Observation satellite - Scientific Mission	SENTINEL 2
Design and verification of a swinging mechanism or FMD (Flip Mirror Device)	ESA / JENA OPTRONIK	Observation satellite -Sentinel 3-	SENTINEL 3
Optical instrument: engineering work of systems and optical and thermal-structural design	ESA / AIRBUS DS	Optical instrument - Observation satellite	SEOSAT / INGENIO
Communication antennas sub-system	ESA / AIRBUS DS	Scientific Mission	SOLAR ORBITER
Feedthroughs, doors and mechanism subsystem	ESA / AIRBUS DS	Scientific Mission	SOLAR ORBITER
EPD (Energetic and Surathermal PArticle Detector Analyzer) instrument	ESA / UNIVERSIDAD DE ALCALÁ DE HENARES	Scientific Mission	SOLAR ORBITER
Instrument Boom	ESA / AIRBUS DS	Scientific Mission	SOLAR ORBITER
So-Phi Instrument	ESA / IAA	Scientific Mission	SOLAR ORBITER
Actuator system for the JST telescope's panoramic camera	Institute of Astronomy, Geophysics and Atmospheric Science of Sao Paulo University	JPCam camera actuator system	T250 or JST (Javalambre Survey Telescope)

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3.3.4 Espacio

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
SIEGEL			
Machined components	SENER	Several	METEOSAT THIRD GENERATION
TECNALIA			
PCM materials for launchers	ESA	Avionics	ARIANE
THERCOBOX: Thermally Conductive RTM Carbon Fibre Reinforced Polymer	ESA	Launchers Power control electronics	ARIANE
LPSR-Partial Demonstration of Liquid bi-propellant Rocket Stage Recovery	ESA	Launchers	ARION 2
Graphene for thermal heat sinks in active RF microelectronics	ESA	TC/TC electronics	GALILEO
Solid lubricants (REF. ESA AO/1-5671/08/NL/CB)	ESA	Mechanism	GALILEO
Harmonic drive gears for space applications	ESA	Mechanism	METEOSAT THIRD GENERATION
Hybrid-MMCs: Development and characterization of advanced metal matrix composites	ESA	Spacecraft Structures	METEOSAT THIRD GENERATION
ao8318 LHP for solar dynamics energy conversion	ESA	Power	NEOSAT
Citric Acid as a Green Replacement for Steels Passivation	ESA	Spacecraft Structures	REACH
WEC			
Mechanical parts for Vulcain engine	AVIO AERO	Vulcain engine	ARIANE 5

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3.3.5 Mantenimiento

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
AERNNOVA			
Technical assistance & Sales of spares 24H/365d	AIRBUS	MLGD, HTP, Fuselage, etc	AIRBUS families
Composite & metal structure repairs	AIRBUS	MLGD, Elevators	AIRBUS families
Sales of spares 24H/365d	BEECHCRAFT	wings, flaps, ailerons, etc	Beechcraft families
Composite & metal structure repairs	BOMBARDIER	Tips, fairings, panels, etc	BOMBARDIER Families
Technical assistance & Sales of spares 24H/365d	BOMBARDIER	Empenage, fairings, elevators	BOMBARDIER Families
Composite & Metal structure repairs	EMBRAER	Elevators, Rudders	EMBRAER 170/190
Composite & Metal structure repairs	EMBRAER	Flaps, Ailerons, Wing tips, MLGD, etc	EMBRAER ERJ145/135/Legacy
Technical assistance & Sales of spares 24H/365d	EMBRAER	Structures and mobile surfaces	EMBRAER families
Inspections, special processes and re-qualifications	Operators	Several	Miscellaneous
Technical assistance & Sales of spares 24H/365d	Operators	Several	Miscellaneous
Composite & metal structure repairs and modifications	Operators	Several	Miscellaneous
Design of repairs	OEM & Operators	Several	Miscellaneous
Design of GSEs	OEM & Operators	Several	Miscellaneous
sales of GSEs	OEM & Operators	Several	Miscellaneous
Maintainability, Reliability Analysis	OEM	Several	Miscellaneous
Technical Publications, SRM, AMM, ITEM, SB, etc	OEM	Several	Miscellaneous
Modifications at Final Assembly of OEMs	OEM	Several	Miscellaneous
Composite & Metal structure repairs	SIKORSKY	Doors, cowlings, stabilisers	SIKORSKY S-92/ H92
Technical assistance & Sales of spares 24H/365d	SIKORSKY	Doors, cowlings, stabilisers	SIKORSKY S-92/ H92

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3.3.5 Mantenimiento

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
AEROSPACE ENGINEERING GROUP			
Overhaul and repair of electrical components	MRO, Operators, Air Forces, Trading Companies	Electrical systems	A320/A340/737/747/757/767/C212/CN235/C295/MD80/C130/P3/ATR/FOKKER/CRJ/EMBRAER...
Overhaul and repair of hydraulic components	MRO, Operators, Air Forces, Trading Companies	Hydraulic systems	A320/A340/737/747/757/767/C212/CN235/C295/MD80/C130/P3/ATR/FOKKER/CRJ/EMBRAER...
Overhaul and repair of electrical components	MRO, Operators, Air Forces, Trading Companies	Fuel systems	A320/A340/737/747/757/767/C212/CN235/C295/MD80/C130/P3/ATR/FOKKER/CRJ/EMBRAER...
Overhaul and repair of avionics components	MRO, Operators, Air Forces, Trading Companies	Avionics systems	Miscellaneous
DANOBAT			
Grinding Machine Retrofitting	MRO, Operators	Engines	Miscellaneous
GRUPO TTT			
Heat and surface treatments	MESSIER-SERVICES	Several	Miscellaneous
ITP			
Resolving incidents	ROLLS-ROYCE	RR Trent 700	AIRBUS A330
Resolving incidents	ROLLS-ROYCE	RR Trent 500	AIRBUS A340
Resolving incidents	ROLLS-ROYCE	RR BR717	BOEING 717
Full Maintenance, Inspection and Repair of the F404 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	GE F404	BOEING F/A-18
Full Maintenance, Inspection and Repair of the TFE731 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	HONEYWELL TFE731	CASA C101
Full Maintenance, Inspection and Repair of the TPE331 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	HONEYWELL TPE331	CASA C212
Full Maintenance, Inspection and Repair of the ATAR -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	SNECMA ATAR	DASSAULT MIRAGE Families

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3.3.5 Mantenimiento

General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Full Maintenance, Inspection and Repair of the PW206 -engine, modules and components- & engine and accessories test	Several	P&W PW206	AIRBUS HELICOPTERS EC135
Full Maintenance, Inspection and Repair of the EJ200 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	EUROJET EJ200	EUROFIGHTER TYPHOON
Full Maintenance, Inspection and Repair of the T56 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	RR T56	LOCKHEED MARTIN C130
Full Maintenance, Inspection and Repair of the T56 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	RR T56	LOCKHEED MARTIN P-3
Full Maintenance, Inspection and Repair of the J85 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	GE J85	NORTHROP F-5
Full Maintenance, Inspection and Repair of the TPE331 -engine, modules and components- & engine and accessories test	ROYAL AIR FORCE	HONEYWELL TPE331	SHORT TUCANO
ORBITAL CRITICAL SYSTEMS			
Mission Planning and Maintenance Portable platform in Android	E2S AIRBUS DS	Maintenance System	AIRBUS A300/310
Cargo Load DB Manager (Mozart)	E2S AIRBUS DS	Mission Management System	AIRBUS A400M
Fuel Management System platform in Tablets	E2S AIRBUS DS	Maintenance System	AIRBUS A300/310
SARIKI METROLOGÍA			
Measurement Equipment maintenance, training and software programming	ITP	Several	Miscellaneous
RENISHAW			
Calibrations devices and software for accurate set-up of complex multi-tasking machine tools and CMMs.	FGP SYTEMS	Several	Miscellaneous

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ACITURRI		
EWIRA	Manufacturing, assembly and integration of extended wing for a regional aircraft	European-CLEAN SKY 2
SYMBIO-TIC	Symbiotic Human-Robot Collaborative Assembly: Technologies, Innovations and Competitiveness	European - H2020-FoF
COMMUNION	Net-shape joining technology to manufacture 3D multi-materials components based on metal alloys and thermoplastic composites	European - H2020-FoF
COROMA	The main output of COROMA project will be a modular robotic system that will perform multitude of different manufacturing tasks in an autonomous way to adapt to the production requirements. The robot will be capable of performing drilling, trimming, deburring, polishing, sanding, non-destructive inspection and adaptive fixturing operations	European - H2020-IND-CE-2016-17
ESTENEA	Study of low cost and high rates technologies for composite parts	National-CIEN - CDTI
RTM LE	Manufacturing of integrated leading edge in one shot	National-RETOS - MINECO
ADDITIVE	Desarrollo e investigación de nuevas aleaciones y componentes industriales mediante fabricación aditiva para sectores estratégicos.	Regional - ETORGAI - Basque calls
LIVE-X	Hybrid laminar flow control application in leading edges	Others - AIRBUS
AERNNOVA		
CLEAN SKY 2	Airframe ITD	European - CLEAN SKY 2
CLEAN SKY	Smart Fixed Wing Aircraft. High accuracy wing assemblies for Natural Laminar Flow	European - CLEAN SKY
AFLONEXT	Maturation of an integrated set of active flow, load and noise control technologies for the next generation of active wing	European - FP7
FLYBAG2	Aircraft Interiors for blasting resistance	European - FP7
DAEDALOS	Dynamics in Aircraft Engineering Design and Analysis for Light Optimized Structures	European - FP7

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
SARISTU	Smart intelligent aircraft structures	European - FP7
LOWFLIP	Low cost flexible integrated composite process	European - FP7
HIPOCRATES	European project for self-healing aeronautical composites	European - FP7
CAPPADOCIA	Coordination Action Pro "Production, Avionics, Design" on Cost-efficiency in Aeronautics	European - FP7
SARISTU	New Materials for Morphing and SHM	European - FP7
DAMTEX	Ultra-thin, non-conventional carbon fibre laminates	National - AirTN
PRONTAS	Out of autoclave wing for a solar power UAV	National - INNPACTO
NANOPROT	Nano-cerami material development	National - INNPACTO
PERIGEO	Out of autoclave UAV airframe development	National - INNPRONTA-CDTI
CURVED	Composite processes simulation	National - PID
PEEN FORMING II	Development of peen forming for metallic structures	National - PID
SUPERCALCULUS	Advanced numerical simulations	National - PID
ISOP	Peen Forming Optimisation	National - PID
NANOPROT	Nano ceramic coatings	National - RETOS - Edu. Ministry
ESTAVRIL	New composite development for light weight railway trains	Regional - ETORGAI - Basque calls
SUMOCAR	New composite architectures for control surfaces and ground testing validation	Regional - ETORGAI - Basque calls
ATEA-AERO	New automated composite processes for landing gear doors	Regional - ETORGAI - Basque calls
PROSAVE2	Advanced Systems research for a more eco- friendly aircraft	Regional- GAITEK - Basque calls
CVD DIAMANTE	New and more efficient cutting tools for light alloys	Regional- GAITEK - Basque calls
DINA	Neutronic Reserch Disks development	Regional- GAITEK - Basque calls

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
HIMAT	Super light weight structures for zero emissions vehicle	Regional- GAITEK - Basque calls
INTEGRA	Advanced Inertia Wheels Developments	Regional- GAITEK - Basque calls
ULTRACAP	Development, Testing and Validation of ULTRA-precise and ULTRA-repetitive Retractable Positioning Cannons for assembling wing-type aeronautical structures	Regional- GAITEK - Basque calls
VECTURA	New Aerostructures Assembly and Painting Technologies	Regional- Interconnecta - Andalucía calls
DESTACAR	Development of high performance technologies for the manufacture of multimaterial components	Regional- Interconnecta - Galicia calls
ALESTIS		
Composites Aerostructures resistant to high temperatures	A350XWB Programme Development	Others
Integrated fuselage barrel structures	A350XWB Programme Development	Others
Optimization of composite beams	A350XWB Programme Development	Others
ALTRAN		
SOLAR IMPULSE	Autopilot of the Solar Impulse. Final success in 2016 in the flight all around the world. World record of non-stop flying time: 7 days	Others
AYESA AIR CONTROL		
JIGLESS	Advanced tooling for aerospace assemblies	European - CLEAN SKY 2
MINERVA	Advanced tooling for aerospace assemblies	National - INNTERCONECTA
NEBULA	Advanced tooling for aerospace assemblies	National - INNTERCONECTA
DRONECAPTOR	Protection of airspace from malicious drones	National - INNTERCONECTA
AI2X	Functional Test digitalization	National - INNTERCONECTA
CAPTA	Automatic process observation	National - MINETUR

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
CTA		
OUTCOME	OUT of autoclave COMpositE manufacturing, wing and tail unit components and multifunctional design	European -CLEAN SKY 2
E-SEMA	Development of Electric Smart Actuator for gas turbine engines.	European - CLEAN SKY
WINDDOM	Wing Structural Test Development Method	European - CLEAN SKY
E-BREAK	Engine Breakthrough Components and Subsystems	European - FP7
ENOVAL	Engine Module Validators	European - FP7
LEMCOTEC	Low Emissions Core-Engine Technologies	European - FP7
VIBRATION	Global in flight health monitoring platform for composite aerostructures based on advanced VIBRATION based methods	European - FP7
TEMPROCEN	Automation technologies for metal empennage	National-CIEN
DIEMETEN	Empennage metal design with new testing technologies	National-RETOS
SPACECAP V	Development of the spatial technologies	Regional - DFA - Basque calls
ACTIMAT	Research and Development of new smart materials	Regional - ELKARTEK - Basque calls
GENTALVE	Disruptive Technologies for the New Generation of High Speed Turbines	Regional - ELKARTEK - Basque calls
INGRAVE	"Innovative aerodynamic test configurations for the new generation of high-speed turbines"	Regional -DFB 2016 - Basque calls
ATEAERO	New Generation landing gear door for future single-aisle aircraft	Regional -ETORGAI - Basque calls
INNGAS	INNGAS	Regional -ETORGAI - Basque calls
SUMOCAR	Development of new mobile aircraft surfaces in carbon fibre	Regional -ETORGAI - Basque calls
KONMUSAT	New Controlled Switches for Waveguide in Satellites.	Regional -HAZITEK - Basque calls
DMP		
CLEAN SKY 2	Core Partner in Engines ITD	European - CLEAN SKY 2

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3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
Client Developments	Space: LO049, LO050 / Aircrafts: AIRBUS A320/330/350XWB/A400M , ERJ170/190 , KC-390	Others
EHU / UPV		
HIMMOVAL	High speed metallic material removal under acceptable surface integrity for rotating frame Consortium: TECNALIA, UNIVERSIDAD DEL PAIS VASCO (EHU/UPV), GEONX. The HIMMOVAL project aims to develop a new rapid metal removal concept under acceptable surface integrity for fabricating typical jet engine components made of high resistant super alloys that will be based on smart use of non-conventional machining methods, namely water jet technologies and low plasticity burnishing surface treatment, optimized conventional machining and a well-defined sequence of processes.	European - CLEANSKY - SP1-JTI-CS-2013-01
PARADISSE	A Productive, Affordable and Reliable solution for large scale manufacturing of metallic components by combining laser-based ADDitive and Subtractive processes with high Efficiency Consortium: TECNALIA, IBARMIA, Siemens, Precitec, GKN Aerospace Norway, Michelin, Universidad del País Vasco / Euskal Herriko Unibertsitatea (EHU/UPV) y Rheinisch-Westfaelische Technische Hochschule Aachen (WZL). The overall objective of PARADISE project is to rationalize, to structure and to make available to the stakeholders of manufacturing value chain the knowledge and the tools for combining two antithetical processes: Laser Metal Deposition (LMD) and Machining (milling and turning).	European - H2020
EKIN		
DESAFIO II	High production broaches Development	National - MICIN
GRUPO TTT		
PRO-SURFACE	Leader: CESA	National-RETOS
HAUCK		
Heat treatments	ITP projects	Several
Heat treatments	SENER projects	Several

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3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
IK4		
INDUCTICE	Efficient, Modular and LigthWeight Electromagnetic Induction Based Ice Protection System	European - CLEANSKY 2
ISSELUB	Innovative sealing and sensing technologies for extended life of lubricated elements	European - CLEANSKY 2
CRO-INSPECT	Collaborative Robotic solution for Advanced Inspection of Complex Composite parts	European - CLEANSKY 2
WINNER	Smart Wing panels for Natural laminar flow with functional Erosion Resistant	European - CLEANSKY 2
ACCOMIM	Actuator components made by alternative Metal Injection Moulding	European - CLEANSKY
HiperTURB	Development of investment casting process of nickel superalloys with enhanced weldability.	European - CLEANSKY
Rib-on	Innovative Stamping Die for Aluminium Ribs hot stamping	European - CLEANSKY
SEALANT	Optimize a Chromium-free sealing process for thin layer Sulfuric Acid Anodizing (SAA) as eco-friendly alternative to Chromic Acid Anodizing (CAA) for aluminium unpainted parts.	European - CLEANSKY
SENTRY	Sustainable Dismantling and Recycling of Metallic Aerostructures	European - CLEANSKY
LIGHTWELD	Characterization of metallurgical joining technologies for Al, Al-Li and Mg joints	European - CLEANSKY
SENTRY	Sustainable Dismantling and Recycling of Metallic Aerostructures	European - CLEANSKY
TIFAN	Manufacturing by SLM of a titanium fan wheel	European - CLEANSKY
WELDMINDT	Open rotor engine WELDED parts insp using MIniaturized NDT	European - CLEANSKY
DISTRACTION	Design against Distortion of metallic aerospace parts based on combination of numerical modelling activities and topology optimisation	European - CLEANSKY

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3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
DELASTI	Development of advanced Laser based technologies for the manufacturing of Titanium HLFC structures	European - CLEANSKY
CRO-INSPECT	New inspection system based on advance Ultrasonic Test of large aircraft components	European - CLEANSKY
ECO-TECH	Development of innovative and ECO-friendly airframe TECHNOLOGIES from design to manufacturing to improve aircraft life cycle environmental footprint	European - CLEANSKY
NESMONIC	Net shape Hot Isostatic Pressing of IN718	European - CLEANSKY
ETSIN	Modular, Scalable, multi-functional and high power density power controller for electrical taxi in new aircraft	European - CLEANSKY
TEMGIR	Thermal and electrical Mock-ups for Thermal Management of a Ground Integration Test Rig	European - CLEANSKY
OPTIMIZE	Design of Experiments to OPTIMIZE design solutions for a Power reduction Gearbox	European - CLEANSKY
SMERobotics	The European Robotics Initiative for Strengthening the Competitiveness of SMEs in Manufacturing by integrating aspects of cognitive systems.	European - FP7
INTEFIX	INTElligent FIXtures for the manufacturing of low rigidity components	European - FP7
MERLIN	Development of Aero Engine Component Manufacturing using Laser Additive Manufacturing	European - FP7- Transport
ENOVAL	ENgine mOdules VALidator	European - FP7-AAT
SusPIRE	Sustainable production of industrial recovered energy using energy dissipative and storage technologies	European - H2020
FourByThree	Highly customizable robotic solutions for effective and safe human robot collaboration in manufacturing applications	European - H2020
DITAS	Data-intensive applications Improvement by moving data and computation in mixed cloud/fog environments	European - H2020
MM-TECH	New aerospace advanced cost effective materials and rapid manufacturing technologies	European - H2020
SCORE	Score board of competitiveness of European transport manufacturing industries	European - H2020

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3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
A4BLUE	Adaptive Automation in Assembly For BLUE collar worker satisfaction in Evolvable context	European - H2020
SYMBIO-TIC	Symbiotic Human-Robot Collaborative Assembly: Technologies, Innovations and Competitiveness	European - H2020-FoF
OPTIMISED	Operational Planning Tool Interfacing Manufacturing Integrated Simulations with Empirical Data	European - H2020-FoF
MC-SUITE	ICT Powered Machining Software Suite	European - H2020-FoF
COROMA	Cognitively enhanced robot for flexible manufacturing of metal and composite parts	European - H2020-FoF
ForZDM	Integrated Zero Defect Manufacturing Solution for High Value Adding Multi-stage Manufacturing systems	European - H2020-FoF
ZAERO	Zero-defect manufacturing of composite parts in the aerospace industry	European - H2020-FoF
MOBNET	Mobile network for people's location in natural and man made disasters	European- FP7 - Galileo
ADDISPACE	Platform for the diffusion and transfer of Additive Manufacturing Technologies in the Aerospace Sector of SUDOE	European: Interreg SUDOE
FUTURALVE	Technical viability of surface inspection in TBHs weldings by means of active thermography.	National - CDTI
SELENA	More electrical, safe and reconfigurable systems oriented to a more efficient airplane by reducing the pilot's stress	National - CIEN
ESCALITURB	Competitive Technologies for Interturbine Hot Structures	Regional - ETORGAI - Basque calls
ADDITIVE	New alloys and industrial components through additive manufacturing for strategic sectors	Regional - ETORGAI - Basque calls
PRECISUS	Ultrasonic assisted drilling for high precision holes in aeronautics Industrias Laip	Regional - GAITEK - Basque calls
aeroHUMS	Adjusting and validating modelling technologies, microlubrication and health monitoring for small size aeronautic reducers more reliable and economical	Regional - GAITEK - Basque calls
PROMULENS	Structural product lightened by multi-material approach and hybrid assembly enabling technologies	Regional - HAZITEK - Basque calls

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
AIRBUS	Carbon fiber pressure deposits by filament winding	Others
IMPRIME	Development of coatings on carbon fiber	Others
CRIOCEN	Development and application of cryogenic refrigeration systems in aeronautical machining	Others
AEROTOOL	Innovative tools for cutting-edge machining in the aeronautics industry	Others
SAVE	Development of carbon fiber preforms by pultrusion	Others
ITP		
CLEANSKY 2	VHBR Engine Intermediate Pressure Turbine Technology	European - CLEAN SKY 2
JTI - CLEANSKY	Advanced propulsion plants: Development of new concepts for the future generation of aircraft propulsion plants in accordance with the environmental requirements established by ACARE.	European - CLEAN SKY
AIDA	Aggressive Intermediate Duct Aerodynamics for Competitive and Environmentally Jet Engines. Aerodynamics: Development of transition ducts between compressors and between turbines in order to reduce consumption and noise emitted by turbomachinery.	European - FP6
MAGPI	Main Annulus Gas Path Interactions. Interaction of secondary flows with the main flow and effects of cavities in turbomachinery.	European - FP6
PREMECCY	Protective Methods for Combined Cycle Fatigue in Gas Turbines. Fatigue prediction: Study of mechanisms and prediction of fatigue in turbomachinery	European - FP6
TATMO	Turbulence and Transition Modelling for Specigla Turbomachinery. Aerodynamics: Improvements in efficiency by means of non-stationary at aerodynamic analysis	European - FP6
VITAL	Environmentally Friendly Aero Engine. Advanced propulsion plants: Integrated project. Substantial reductions in emissions (-18% of CO2) and noise (-6dB).	European - FP6
FANTASIA	Flexible and Near-Net-Shape Generative Manufacture Chains and Repair Techniques for Complex Shaped Aero Engine Parts. Repair: advanced processes. New manufacturing and repair techniques based on LMD (Laser Metal Deposition) and LDF (Laser Direct Forming)	European - FP6
VERDI	Virtual Engineering for Robust Manufacturing with Design Integration. Process simulation: Production of scrap during the development stage (virtual tests) and reduction of engine weight (emission reduction)	European - FP6

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
DREAM	Validation of Radical Engine Architecture Systems. Advanced propulsion plants: Study of new architectures for propulsion plants based on the open-rotor concept	European - FP7
FUTURE	Flutter-Free Turbomachinery Blades. Aerodynamics: Technological development to reduce the flutter phenomenon in turbomachinery blade crowns	European - FP7
ERICKA	Engine Representative Internal Cooling and Applications. Technologies for turbine refrigeration	European - FP7
ELUBSYS	Engine Lubrication System Technologies. New lubrication technologies in gas turbines	European - FP7
OPENAIR	Optimisation for low Environmental Noise Impact Aircraft. Technologies for reducing noise in aircraft	European - FP7
LEMCOTEC	Low emissions Core-Engine Technologies. Improvement of core-engine thermal efficiency	European - FP7
EBREAK	Engine Breakthrough Components and Subsystems. Advanced sealing technologies and oil systems, Engine variability and thermomechanical behaviour, Health monitoring, High temperature materials and abradables, Light weight material	European - FP7
FACTOR	Full Aerothermal Combustor – Turbine Interaction Research. Combustor-turbine interactions design, High-pressure turbine, specific fuel consumption reduction, European test facility, aerodynamic and aerothermal measurement, design simulation	European - FP7
ACCENT	Adaptive Control of Manufacturing Processes for a New Generation of Jet Engine Components. Process simulation: Development of adaptive control technologies for terrible machine component oriented manufacturing processes	European - FP7
INTEFIX	Intelligent Fixtures for the manufacturing of low rigidity components. Fixture, intelligent, control, sensor, actuator, mechatronic, adaptronic, simulation, monitoring, machining, vibration, deformation, set-up	European - FP7
MERLIN	Development of Aero Engine Component Manufacture using Laser Additive Manufacturing. The concept of the MERLIN project is to reduce the environmental impact of air transport using Additive Manufacturing (AM) techniques in the manufacture of civil aero engines.	European - FP7

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
FUTURALVE	Development of the advanced materials and manufacturing technologies needed to design optimized components of high speed turbines and to be able to manufacture them with better use of the raw material	National - CIEN
ALEXANDRIA	Development of Damage Inspection Techniques and Methodologies and New Generation Dimensional Metrology for the Aeronautics, Railways, Naval and Wind Power sectors.	National - MICIN
DESAFIO	Development of High Reliability Manufacturing Systems for rotating parts with High Surface Integrity Requirements.	National - MICIN
MATERIALES	Oxycarbide layers of multicomponent silicon on metal alloys surfaces by plasma spray. Development of the application of coatings by means of plasma spray	National - PROFIT
RAMPE	Alternative coatings to heavy metals. Residue removal: Development of alternative coatings for removing Cr-VI	National - PROFIT
TAG	Feasibility studies for the development of general aviation turbines. Feasibility studies for the development of low pressure turbines, structures and external components in turbines for general aviation	National - SAE
MASIR	Advanced Noiseless Machining. Noise reduction: Techniques to reduce noise in industrial environments engaged in the precision machining and well-being of parts.	National Calls
OPENAER	New engine and aircraft configurations for the future air transport system. Aerodynamics, Methods, Materials, Mechanical design, Manufacture and Control.: Development of technologies for the design and manufacture of components in the hot area of an aeronautical gas turbine in "open-rotor" configuration	National-CENIT
PROSAVE	Eco-efficient aircraft. Leader: CESA	National-CENIT
VANCAST	Next Generation Nozzle Guide Vane Design and Casting Technology. Technologies for the Design and Casting of the New Generation of Low-pressure Turbine Blades.	Regional - Basque Calls
SAGER	Large-scale Energy Storage Systems for the Electricity Grid. Development of energy storage technologies.	Regional - Basque Calls
EUSKESTUR	Manufacturing technologies: Development of Basque excellence pole for the manufacture of radial structures for aeronautical turbines	Regional - Basque Calls
GENESYS		Regional - Basque Calls
PAINT	Aeronautical Pole for Innovation in Turbines. High Performance Manufacturing	Regional - Basque Calls

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ESCALITURB	Competitive Technologies for Hot Structures for Aeronautical Turbines. Develop technology to perform reliably 100% and in high production (from 10 to more than 1000 components year) hot interturbine structures of the mid-segment aeronautical engine	Regional - Basque Calls
NOISE MEASUREMENT	Optimisation and validation of techniques for the advanced measurement of noise in a jet engine. Advanced instrumentation: Optimisation and validation of techniques for the advanced measurement of noise in a jet engine.	Regional - Madrid Region calls
SACMI	Advanced Control and Monitoring System of ITP. Control systems: Development of a control system applied to the fuel control unit of an aeronautical engine.	Regional - Madrid Region calls
DIALPE	Fatigue life design and verification of the vibration behaviour of gas turbine monocrystal blades. Mechanical technology: Study of fatigue and service life behaviour of small size monocrystal blades for a gas turbine.	Regional - Madrid Region calls
MONDRAGON UNIBERTSITATEA		
AEROTIAL	Manufacturing of gamma-Titanium Aluminide Intermetallic Components for Aeronautic Applications (MANUNET-2014-11264)	European - MANUNET
AEROEMA	Research in the field of electromechanical actuation for aeronautical systems	National- CIEN
GENTALVE	Disruptive technologies for the new generation of high-speed turbines	Regional - ELKARTEK - Basque calls
ELECTRA	Development of the process of electromagnetic refinement of micro-fused aluminum components for the aerospace sector	Regional - ELKARTEK - Basque calls
AERONICO	Components for the aeronautics sector in cold stamped nickel base superalloys	Regional - HAZITEK - Basque calls
AEROTURN	Manufacture of aeronautical components by turning-milling process	Regional - HAZITEK - Basque calls
AEROBROCH	Influence of the component material, cutting conditions and tool in the condition of surface integrity of the component material and tool life resulting in the process of broaching of aeronautical components	Regional - U/E - Basque calls
NOVALTI		
AEROTIAL	ALFA-NOVALTI-UNI. MONDRAGON...	European - MANUNET
PAINT	NOVALTI-ITP-UPV/EHU....	Regional - ETORTEK - Basque Calls
Turbine blades for test RIGs	PTB4++, PTB8, PTB9	Others

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ORBITAL CRITICAL SYSTEMS		
CRYSTAL (ARTEMIS)	CRITICAL SYSTEM engineering AccELeration	European - ARTEMIS
UAV-RTEMS	Design and development of a UAV (Unmanned Air Vehicle) D0-178B certifiable Health Monitoring System based on RTEMS real-time operating system.	European - ESA TTP
MOBNET	Lead of consortium with development of a system that localize mobiles during emergency situations.	European - H2020
SELENA	Forecast system for electromechanical actuators.	National - CDTI
ETH-RTOS	Real time operative system with DIMA capability	National - AVANZA
PLATHW	Design and development of a D0-254 certifiable, cost-effective and multipurpose Hardware platform for Avionics subsystem applications.	National - AVANZA
OPENSYS	Design and development of an application programming interface for the communication between IMA partitions and Cockpit Display System	National - CDTI
Test benches complete Simulation	Test benches complete Simulation, Acquisition and monitoring SW/HW Environment. System that provides a common environment for running design models, simulations and real equipment to support testing and / or simulation of avionic equipment subsystem or system.	National - CDTI
RENISHAW		
FUTURALVE	Led by the aero engines and turbines manufacturer ITP and with the cooperation of several other Spanish companies, universities and technology centres, the objective of the Futuralve project is to create advanced material and manufacturing technologies for the new generation of high-speed turbines for the aerospace sector. The 4-year project is funded by the Spanish Government through the Centre for the Development of Industrial Technology (CDTI). Throughout the project Renishaw is directly involved with the development of new lightweight additively manufactured materials. Renishaw will also contribute to the metrology and part verification of the aerospace parts throughout the Futuralve project by its award winning 5 axis measurement system REVO® and on-machine contact scanning system SPRINT™.	National - CIEN - CDTI
Centre for Advanced Aerospace Technologies (CATEC)	CATEC is a technical centre of excellence and aims to become, over the next few years, a national and international R&D centre for developing aerospace technology. In this Centre Renishaw has installed its Ren AM500M and AM 250 additive manufacturing machines.	Others
Centro de Fabricación Avanzada Aeronautica (CFAA)	The objective is to develop advanced manufacturing technologies; these developmental level technologies can be quickly transferred to industry. The centre also acts as an intersection of ideas and advancement for agencies and companies with capabilities, interests, and businesses in the aeronautical engines and structural components sector. The centre has several different manufacturing technologies, including Sprint, REVO and the metal 3D printing machine AM 400.	Others

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
SARIKI METROLOGÍA		
FUTURALVE	Advanced manufacturing and materials technologies for the new generation of high-speed turbines (Futuralve)	National - CIEN - CDTI
EUSK-ADDI	Advanced manufacturing with additive processes and equipment made in Euskadi (Eusk-Addi)	Regional - ETORGAI - Basque calls
ESCALITURB	Advanced forming, welding processes for hot structures on Turbines	Regional - HAZITEK - Basque calls
SENER		
E-SEMA	Development of Electric Smart Actuator for gas turbine engines. Development of prototypes for airplane motor actuators Collaboration with TECNALIA, CTA, ACITURRI and MACCON.	European - CLEAN SKY
ACTUATION 2015	Health Monitoring in Control and Actuation Systems. Control, diagnosis, and prognosis of the operating function of actuators in order to optimize their operation	European - FP7
LEOSWEEP	Improving Low Earth Orbit Security With Enhanced Electric Propulsion. Develop key technology for the implementation of the Ion Beam Shepherd (IBS) concept and demonstrate the technological feasibility of a first active removal mission of a Ukrainian rocket upper stage, prove its economic viability, and propose a convincing legal and policy implementation to "kick-start" large-scale active debris removal activities in Ukraine, Europe and other space faring nations in the future. Collaboration with UPM, TransMIT, ITM, DRL, SDOY, DME, ISLC, Southampton University, CNRS and UC3M.	European - FP7
PEGASUS	Flight Qualification of Deployable Radiator using Two Phase Technology. The main objective of this project is to develop a Deployable Thermal Radiator (DPR) based on Loop Heat Pipes Qualification Model. This includes the design, manufacturing and flight qualification testing to achieve a Technological Readiness Level (TRL) 8. Collaboration with IBERESPACIO, Thales Alenia Space France, Thales Alenia Space Italy, Active Space Technologies and TECNALIA. SENNER will contribute with the development of the Deployment Mechanism of the DPR.	European - H2020

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
SIROM	Standard Interface for Robotic Manipulation of Payloads in Future Space Missions. The main objective is to develop a standard interface that considers a set of connections that allow coupling of payload to manipulators and payload to other payload. The realization of a modular reconfigurable system depends, among other things, on interfaces, that includes mechanical interfaces connecting the blocks to one other, electrical interface for power transmission, thermal interfaces for heat regulation and interfaces to transmit data throughout the satellite. Collaboration with Airbus Defence & Space Ltd, Airbus DS GmbH, Thales Alenia Space Italia, LEONARDO, University of Strathclyde, Deutsches Forschungszentrum fuer Kuenstliche Intelligenz GmbH, Teletel Technologia, Space Applications Services NV, Mag Soar S.L	European - H2020
Image navigation	Image navigation	Others
New developments in composite material manufacturing systems	Flexible stacking machine for pattern fabric materials	Others
New developments in composite material manufacturing systems	Manufacturing of fabric reinforced polymer matrix through a combination of liquid infusion and hot drape forming	Others
Rotary Actuator with potentiometers (HDRA_P)	Rotating actuator for space applications (HDRA) incorporating angular position sensors (potentiometers).	Others
SISTEPLANT		
PLATFORM	Open access pilot plants for sustainable industrial scale nanocomposites manufacturing based on buckypapers, doped veils and prepregs. Industrialisation in nanocomposites - Led by TECNALIA and research in relation to aerostructures with FIDAMC (AIRBUS)	European-H2020
ADAERO	Introduction of additive manufacturing in aeronautic industry - Led by HEGAN	National - CDTI
TECNO-I PLANT	Definition of a new paradigm for aerospace components manufacturing: intelligent manufacturing, extremely agile flow, leading edge technologies	Others / Internal Developmet

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
TECNALIA		
CLEAN SKY 2	CLEAN SKY 2 CORE PARTNER OF ITD AIRFRAME- OUTCOME PROJECT-. Out of autoclave composite manufacturing, wing and tail unit components and multifunctional design	European - CLEANSKY 2
ACOTAAL	Automation concepts and Technologies for Aircraft assembly Lines in the Aircraft Factory of the Future	European - CLEANSKY 2
BLINDFAST	Innovative Blind Fastener Monitoring Technology for Quality Control	European - CLEANSKY 2
HIMMOVAL	High speed metallic material removal under acceptable surface integrity for rotating frame	European - CLEAN SKY
ARMLIGHT	Design, development and manufacturing of EMA and test setup for advanced landing gear system actuation	European - CLEANSKY
FLIGHT-EMA	Advanced Flight Control System- Design, development and manufacturing of an EMA with associated ECU and dedicated Test Bench	European - CLEANSKY
LIGHTBOX	Lightweight Composite Bus System Housing for Extreme Environments	European - CLEANSKY
SEALED BOX	Aerospace Housing for extreme environment	European - CLEANSKY
TESTHEMAS	Design and Implementation of a Load Simulator Rig and Ground Test Bench Adaptation Kit for a HEMAS Test Rig	European - CLEANSKY
FLIGHT-EMA	Advanced Flight Control System- Design, development and manufacturing of an EMA with associated ECU and dedicated Test Bench	European - CLEANSKY
VARIABLES (ARTEMIS)	VARIABLES In safety critical Embedded Systems	European - ARTEMIS
CABLEBOT	FP7 - FoF-ICT-NMP - Parallel Cable Robotics for Improving Maintenance and Logistics of Large-Scale Products. Collaboration with EADS	European - FP7
HELM	High-frequency Electro-magnetic Technologies for Advanced Processing of Ceramic Matrix Composites and Graphite Expansion. Processing and manufacture of advanced ceramics (ceramic matrix composites) for different industrial sector (including Aerospace). 20 partners: Warrant Group S.r.l, Brembo SGL Carbon Ceramic Brakes S.p.A., Snecma Propulsion Solide, TIMCAL SA, EADS Deutschland GmbH, TECNALIA, etc	European - FP7
AMAZE	Additive Manufacturing Aiming Towards Zero Waste and Efficient Production of High-Tech Metal Products- Collaboration with the European Space Agency (ESA), AVIOprop, AVIO S.p.A, Thales Alenia Space, BAE Systems and Bombardier.	European - FP7- FoF-ICT-NMP

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ACTUATION 2015	Integrated modular actuation systems for the future all-electric aircraft ACTUATION 2015 aims to develop and validate a common set of standardised, modular and scalable EMA resources for all actuators and all types of aircraft. Coordinator: GOODRICH ACTUATION SYSTEMS SAS. Some other participants: AIRBUS, ALENIA, SENER, HISPANO SUIZA, CESA, etc	European - FP7-AAT
ESPOSA	Integrated approach to efficient propulsion and related aircraft systems for small-size aircraft. Development and integration of novel design and manufacture technologies for a range of small gas turbine engines up to approx. 1000 kW. Coordinator: PRVNI BRNENSKA STROJIRNA VELKA BITES A.S. Some other participants: AVIO S.P.A, MOTOR SICH JSC, HONEYWELL INTERNATIONAL SRO, PIAGGIO AERO INDUSTRIES SPA, FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V, etc	European - FP7-AAT
SARISTU	Integrated approach to smart airframe structures. The project proposal concerns the challenges posed by the physical integration of smart intelligent structural concepts. Coordinator: AIRBUS OPERATIONS GMBH. Some other participants: ALENIA AERONAUTICA SPA, AERNNOVA, SAAB AKTIEBOLAG, SHORT BROTHERS PLC, GKN Aerospace Services Limited, etc	European - FP7-AAT
ELECTRICAL	Novel aeronautical multifunctional composite structures with built-in electrical conductivity and self-sensing capabilities(Airbus, Univ. Patras, Aernnova, EADS, Short Brothers, Arkema, etc	European - FP7-AAT
HIPOCRATES	Self-healing polymers for concepts on self-repaired aeronautical composite. Coordinator: TECNALIA. Some other partners: University of Patras, University of Bristol, GMI SAS, Aernnova...	European - FP7-AAT
LOCOMACHS	Low Cost Manufacturing & Assembly of Composite and Hybrid Structures. Coordinator: SAAB. Participants: Airbus, GKN Aerospace, Dassault, IAI, DLR, NLR, Tecnomat, Dassault, Bombardier, etc.	European - FP7-AAT
MAAXIMUS	More Affordable Aircraft through eXtended, Integrated and Mature nUmerical Sizing. Fast development and right-first time validation of a highly-optimised composite fuselage thanks to a coordinated effort between virtual structure development and composite technology. Coordinator: AIRBUS. Some other partners: BOMBARDIER: SONACA; TAI; DLR, INASCO, etc	European - FP7-AAT
RESEARCH	RELIABILITY AND SAFETY ENHANCED ELECTRICAL ACTUATION SYSTEM ARCHITECTURES	European - FP7-AAT

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
SUNNY	Smart UNmanned aerial vehicle sensor Network for detection of border crossing and illegal entry	European- FP7-SECURITY
EXOMET	Physical Processing of Molten light alloys under the influence of external fields	European - FP7-Space
HYDRA	TPS thermal protection systems for MSR Mars and Moon mission based in ablative materials	European - FP7-Space
THOR	Innovative thermal management concepts for thermal protection of future space vehicles. Design, develop, implement, test and validate disruptive thermal management concepts for atmospheric entry of space vehicles. Partners: DLR, TECNALIA, TUBITAK, FLUID GRAVITY ENGINEERING , SCUOLA UNIVERSITARIA PROFESSIONALE DELLA SVIZZERA ITALIANA, AEROSPACE AND ADVANCED COMPOSITES GMBH , THALES ALENIA SPACE, JAXA	European - FP7-Space
C3HARME	Next generation Ceramic Composites for Combustion HARsh environments and space	European- H2020-NMP
PEGASUS	Flight Qualification of Deployable Radiator using Two Phase Technology	European- H2020-SPACE
LIGHT-TPS	Super light-weight thermal protection system for space application	European-FP7-SPACE
PAPP_FPP	Portable and Predictable Performance on Heterogeneous Embedded Manycores	European-H2020-ICT
TRANSFRON 3D	3D manufacturing across France and Spanish border	European - INTERREG-SUDOE
SENSOR-GRAPH	MATERIALES MULTIFUNCIONALES REFORZADOS CON NANOESTRUCTURAS DE CARBONO (GRAFENO Y NANOTUBOS): APLICACIÓN COMO MATERIALES COMPUESTOS, ADHESIVOS Y SENSORES ESTRUCTURALES	National - MINECO-RETOS
PRO-SURFACE	DESARROLLO DE UNA NUEVA GENERACIÓN DE RECUBRIMIENTOS Y TRATAMIENTOS DE SUPERFICIE MEDIOAMBIENTALMENTE RESPETUOSOS PARA COMPONENTES AERONÁUTICOS	National - MINECO-RETOS
SELENA	Safer, more electrical and more reconfigurable systems oriented towards a more efficient aircraft by reducing the pilot's workload	National- CIEN
TEMPROCEN	New generation of materials and 3D printer for advanced manufacturing	National- CIEN
ESTENEA	Study of low-cost technologies and high cadences in composites	National- CIEN

3.0 – Asociados del Cluster

3.3.6 Proyectos de I + D

General Description of the Product/service	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
AEROEMA	Electromechanical Actuation for Flight Controls	National- CIEN
DOLOMITE	Development of intelligent assembly systems for the aeronautic industry	Regional - Andalucía Calls
FUTURASSY	Development of robotics solutions for assembly of CFRP aerostructures. Airbus, Tecnalía, Universidad de Cadiz, Universidad de Sevilla, CATEC	Regional - Andalucía Calls
SIMVA	Development of innovative flight control systems for new generation cargo and regional aircraft	Regional - Andalucía Calls
VECTURA	New aerostructures assembly and painting technologies	Regional - Andalucía Calls
ATEA-AERO	New generation of landing gear door for future single-aisle aircraft. Development of new landing gear door structure	Regional - Basque Calls
AIRHEM-II	Electronics for transport: Health Monitoring for structures	Regional - ETORTEK - Basque calls
PYLONCONCEPT	Conceptual solutions for new pylon design automated manufacturing"	Others - Private project
AIRTMC	Hybrid Titanium Matrix Composites (TMC) for aero engines applications"	Others - Private project
WEC		
SELESTUR	New product family for dynamic sealing inter-stages turbine	Regional - ETORGAI - Basque calls
ESCALITURB	Advanced forming, welding processes for hot structures on Turbines	Regional - HAZITEK - Basque calls
Centro de Fabricación Avanzada Aeronautica (CFAA)	Advanced welding processes	Regional-Public-Private regional enterprise

3.0 – Asociados del Cluster

AEROESTRUCTURAS

AIRBUS A300/310/318/319/320/320neo,ceo/321/330/350XWB/380, BELUGA XL. **AIRBUS DS** A330MRTT/400M, CN235, C295. **AIRBUS HELICOPTERS** AS332, EC135, NH90, TIGRE. **ATR** 42, 72. **BELL** 505 JRX. **BEECHCRAFT** BARON / BONANZA / KING AIR. **BOEING** 737, 747-LCF, 747-8I/F, 777, 787, E-3 AWACS. **BOMBARDIER** Q-Series, CRJ Family, CSeries. **CASA** C101/212. **DAHER-SOCATA** TBM700. DASSAULT FALCON 5/7X. **DORNIER** D0728. **EMBRAER** ERJ135/ 140/ 145/ 145LR/ 145XR, LEGACY, 170/ 175/ 190/ 195, E175/190/195-E2, LINEAGE, KC-390, PHENOM. **EUROFIGHTER** TYPHOON. **SIKORSKY** H-92, S-92. **SINO SWEARINGEN** SJ30.

ENGINES

CFM INTERNATIONAL CFM56, LEAP **EPI** TP400. **EUROJET** EJ200. **GENERAL ELECTRIC** CF700, CT7, F404/ 414, GE90-14/ 115, J79, LM2500, T700. **HONEYWELL** AS907, HTF7000, Lycoming T53/55, Garrett TPE331/TFE731, TF50. **MTRI** MTR390E. **PRATT & WHITNEY** F135, JT8-STD / 200, PT6 / T3, PW535 /150/810/1000G. **ROLLS-ROYCE** BR710/715, RB211, TRENT MT30/50, TRENT 500/ 700/ 800/ 900/1000/XWB. **ROLLS-ROYCE NORTH AMERICA** A250, A601K, M250, T63. **SAFRAN AIRCRAFT ENGINES** ATAR, 9KPLUS/09C/09K50, CFM 56, SaM146, Silvercrest. **SAFRAN HELICOPTER ENGINES** ARRIEL, MAKILA, ARRIUS.

SYSTEMS & EQUIPMENT

AIRBUS, AIRBUS DS, ALENIA, BAE Systems, BOMBARDIER, CESA, DIEHL-BGT, EUROFIGHTER, GOODRICH, HONEYWELL, IAI, INDRA, LATECOERE, LIEBHERR, MARTIN-BAKER, MBDA, RATIER FIGEAC, ROLLS-ROYCE, SAFRAN LANDING SYSTEMS, SAFRAN NACELLES, SAFRAN TRANSMISSION SYSTEMS, SAGEM, SIKORSKY, THALES, ZODIAC AEROSPACE.

SPACE

ESA/NASA ARTEMIS, AURORA, CLUSTER, CX-OLEV, EGNOS, ENVISAT, EUCLID, EUREKA, GAIA, GTAB, HERMES, HERCHEL-PANCK, HUBBLE SPACE TELESCOPE, HIPPARCOS, INTEGRAL, ISEE-B/COLUMBUS/CRV, METEOSAT, METOP, MSG, MTG, PROBA-3, ROSETTA, SOHO, SOLAR ORBITER, SPACELAB, ULISSES, XMM-NEWTON.

OTHERS AMC21, AMOS3, ARABSAT 4A/B, ARIANESPACE, ASTRA1M, ASTRIUM, CIEL-2, CHINASAT9, EXPRESS AM33/44, GE 1i/2i, GALAXY 17, GALILEO, HELIOS I/II, HISPASAT 1C/D, KOREASAT5, METEOSAT, MINISAT, NETLAndER, OLYMPUS, PLEIADES, SPOT-4, SYRACUSE 3B, SUPERBIRD7, SPAINSAT, TURKSAT 3A, YAMAL 200.

3.4 Programas y Clientes



AIRBUS A350XWB - courtesy Airbus



ROLLS-ROYCE Trent 900
courtesy Rolls-Royce



MTG-Meteosat Third Generation
courtesy ESA

3.0 – Asociados del Cluster

63 AEROSPACE MEMBERS

5 GLOBAL Tier 1
Aerostructures - Engines - Space - Systems

10 GLOBAL COMPANIES
Advanced Services - Engineering - Processes
Solutions - Treatments - Equipment

41 SMEs
Products, Components, Processes and
Advanced Services for Aerostructures,
Engines, Systems, Space and Equipment

1 AEROSPACE R&D CENTRE
Certification Testing and R&D

2 R&D CORPORATIONS
with 12 R&D Centres with Aerospace activities

4 UNIVERSITIES
ETSIB
Master in Aeronautics,
Master in Space

161 FACILITIES AROUND THE WORLD

80 in the Basque Country
54 in the rest of Spain
27 abroad (Brazil, China, France,
Germany, India, Malta, Mexico, Poland,
Portugal, Romania, UK, USA)

3.5 Estadísticas

TOTAL HEGAN MEMBERS DIMENSION: In 2016

Members aggregate turnover and employment

2,247 million € and 13,612 people

(directly generated in all of their worldwide facilities)

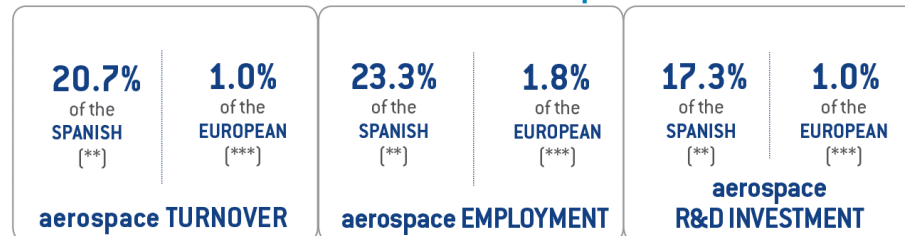
2016 Geographical breakdown	Turnover (MM€)	△ 2015	Employment	△ 2015
Basque Country	884	-1.5%	4,519	7.0%
Rest of Spain	1,025	19.1%	7,166	11.8%
Rest of the World	337	90.6%	1,927	6.7%
TOTAL	2,247	16.1%	13,612	9.4%

2016	MM€	% over Sales	Average % over Sales since 1993
MEMBERS R&D INVESTMENT	150	6.7%	15.1%
MEMBERS EXPORTS	1,366	61%	69.3%

CLUSTER DIMENSION: Facilities in Basque Country



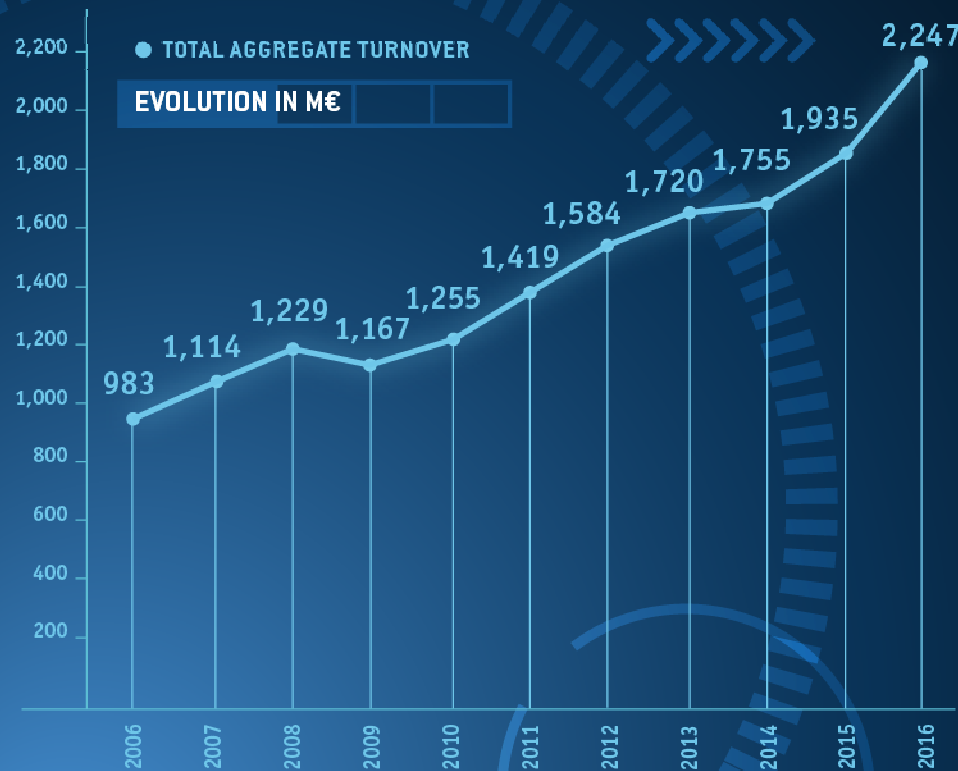
HEGAN MEMBERS DIMENSION: Facilities in Spain



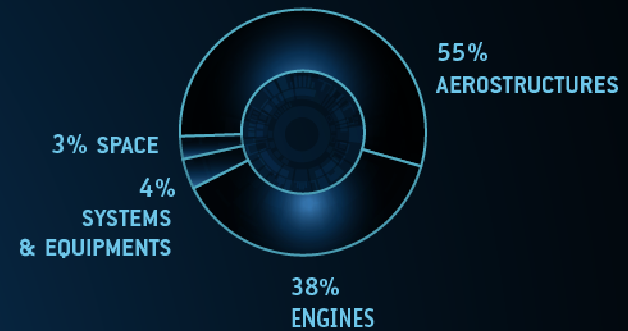
2015 Comparison: (*) EUSTAT 2015 (est.), (**) TEDAE 2015, (***) ASD 2015

3.0 – Asociados del Cluster

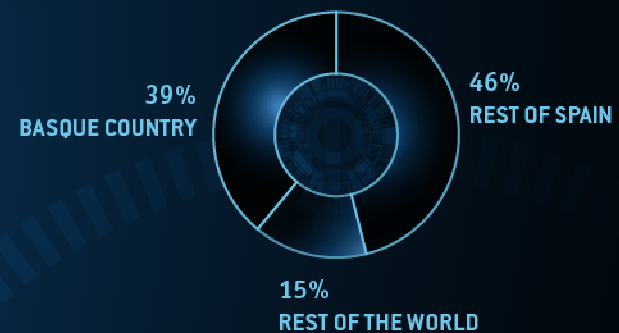
3.5.1 – Volumen de negocio



TURNOVER ACCORDING TO SUBSECTORS



GEOGRAPHICAL DISTRIBUTION OF TURNOVER



3.5.2 Personas

EVOLUTION: PEOPLE

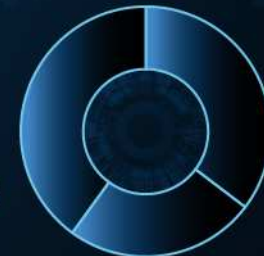


EMPLOYMENT ACCORDING TO QUALIFICATION

ENGINEERS, GRADUATES AND MANAGERS	4,809
TECHNICIANS, ADMINISTRATION AND OTHERS	3,359
MANUAL WORKERS	5,444



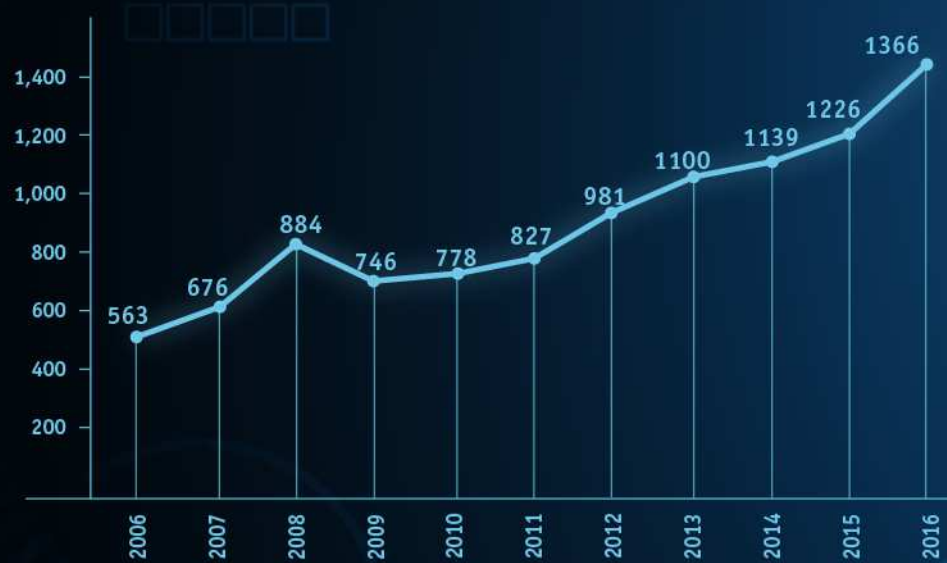
35%
ENGINEERS,
GRADUATES AND
MANAGERS



25%
TECHNICIANS,
ADMINISTRATION AND
OTHERS

40%
MANUAL
WORKERS

3.5.3 Exportaciones en M€



EXPORTS ACCORDING TO COUNTRIES



EXPORTS ACCORDING TO CONTINENTS



3.5.4 R&D

R&D EFFORT



4.0 – Agradecimientos 2016

Confianza para generar colaboración y así aportar más valor: este es el ‘lema’ que hemos hecho nuestro para trabajar como asociación cluster, es decir, como ‘entidad para la colaboración’ –así las llama Michael Porter en su modelo–, con misión de generar mayor actividad económica ‘moviendo’ a los agentes que forman el cluster natural.

Este ha sido nuestro empeño –con nuestras ‘batallas’ personales y grupales por mejorar– y el de todos los que soportáis esta entidad de tantas maneras para que pueda dar el servicio a la sociedad que le acoge.

Desde el equipo de HEGAN queremos agradecer vuestro compromiso y pediros que éste sea permanente: nos necesitamos para este ilusionante proyecto.



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European
Commission

Horizon 2020
European Union funding
for Research & Innovation

Interreg
Sudoe

European Regional Development Fund



EUROPEAN UNION

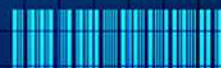
COSME
EUROPE'S PROGRAMME FOR SMES



European
Commission

- ABROAD - Activities and Businesses from Real internationalization Opportunities for Aerospace Developments
- ADDISPACE - Dissemination and transfer of Additive manufacturing technologies in the SUDOE Aerospace Industry
- MONBASA - Monolithic Batteries for Spaceship Applications
- RUE AERO - Reaching Up to Excellence in Aerospace Cluster Management

2016. urteko txostena
Informe anual 2016



hegan 
basque aerospace cluster



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