

Informe Anual 09. Urteko Txostena

# 2009 Annual Report

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Annual Report 2009

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## Presentación

Otro año más, me toca –y me place– presentar la memoria de la asociación cluster del sector aeronáutico y espacial vasco que me honro en presidir.

Corrían estas mismas fechas del año pasado cuando en nuestra Asamblea General comentábamos las peculiaridades del año: una situación de crisis con fuertes impactos que cada empresa debería gestionar con el apoyo de todos, seguíamos recibiendo retrasos en los programas de todo tipo de aviones y helicópteros civiles con impacto en el 2009 y 2010, era necesario resistir y prepararnos para el ramp-up que pudiera llegar, deberíamos conservar al máximo al personal formado y aprovechar la coyuntura baja, para implementar mejoras en la gestión interna y hacer énfasis en la cultura lean y desterrar los despilfarros e ineficiencias de todo tipo.

De esta manera, nos preparábamos para un mercado que nos podría estar esperando con tasas sostenidas de crecimiento tras este duro desierto, al que hemos tratado de adaptarnos con los siguientes resultados.

La cifra total de facturación de todos los asociados en todas sus plantas ha descendido un 5% –de 1229M€ a 1167M€– y la del empleo, en cambio, ha aumentado en un 8% –de 9055 empleados el año anterior a 9819– debido al incremento en plantas exteriores a Euskadi. Por lo que respecta a la actividad en la CAPV, aún cuando la facturación contabilizada en los centros de trabajo vascos ha aumentado en un 1,9% –de 624M€ a 636M€–, el empleo ha caído en 7 décimas –de 4035 trabajadores a 3752–. Esto parece indicar que, si bien realizamos trabajos de mayor valor añadido, no se han podido evitar pérdidas en personal dentro de nuestra tierra que se prevén recuperar en los años 2011 y siguientes. Las previsiones, con caídas del 10%, eran pesimistas, y las hemos logrado superar, pero muchas de nuestras empresas siguen en procesos de EREs, y la situación continúa complicada.

Entre los hitos de este año cuyas consecuencias en facturación y empleo no se notarán hasta dentro de al menos dos años, el primer vuelo de los Airbus A400M y Boeing 787 a finales de año, y los primeros vuelos del helicóptero Tigre y del nuevo modelo de avión de negocios Gulfstream 250, han representado un importantísimo hito en la aeronáutica internacional al igual que para las empresas de la asociación HEGAN, que aportan su tecnología y experiencia a estos proyectos que entran ahora en producción.

Resulta igualmente de gran trascendencia para el futuro de nuestras empresas el inicio en los trabajos para el Airbus A350XWB, fundamentalmente en las fases del diseño conceptual y de detalle de diversos componentes, utillajes y ensayos de certificación. AERNNOVA, ALESTIS y el grupo ACITURRI, han obtenido importantes paquetes de trabajo a riesgo compartido en este avión de Airbus.

El ejercicio ha registrado también el impulso de la participación de nuestros socios en el sector de helicópteros, con nueva carga de trabajo para diversos modelos de Eurocopter y la intensificación en el programa S92 de Sikorsky, de quien AERNNOVA es socio a riesgo. En el área del espacio, SENER ha superado con éxito varias fases del parasol de la misión científica GAIA y mantiene la actividad en diversas plataformas.

Por su parte, ITP y Rolls-Royce firmaron en 2009 el contrato por el que la primera se convirtió en socio a riesgo de la turbina de baja presión del Trent XWB, que motorizará el avión de doble pasillo de Airbus, A350 XWB. Una vez que los programas contratados entren en producción, la cuota del mercado mundial de ITP en turbinas de baja presión para aviones de doble pasillo se situará en el 50%, sin duda un logro sin precedentes.

Destaca en este ejercicio el buen nivel de exportaciones alcanzado por las pequeñas y medianas empresas del sector. Nuestras PYMEs han sabido hacerse un hueco cada vez mayor, de forma directa, con contratistas de otros países a los que suministran desde grandes utillajes para estructuras de avión a piezas de nacelles (carenados), componentes estructurales y de motores, ensayos y reingeniería de procesos de fabricación y manipulación. En este sentido, la participación de los miembros de la asociación en el 48º salón aerospacial de Le Bourget el pasado mes de junio, continúa favoreciendo el encuentro con grandes fabricantes y clientes.

Otro hecho relevante, a pesar de la coyuntura económica, ha sido el incremento de la inversión en I+D con respecto al año precedente, destinado en gran parte a los desarrollos de los programas mencionados. El porcentaje de esta inversión con respecto a la facturación que roza el 14% de su facturación, manifiesta claramente el esfuerzo de las empresas que autofinancian más del 80% de estas actividades.

En todo este panorama dominado por los OEM occidentales (Airbus, Boeing, Bombardier, Embraer...), no debemos olvidar las amenazas, y también oportunidades, que el desarrollo y próximo inicio de ventas de los aviones Superjet 100 de Sukhoi (Rusia), los ARJ21 y C919 de Comac (China) y el MRJ90 de Mitsubishi (Japón) nos presenta.

Dinamizar la cooperación, promocionar y representar al cluster, dar información de valor y acompañar a los asociados son las tareas principales a la que esta asociación cluster dedica su tiempo, conscientes que en estos años difíciles –y siempre– su papel debe centrarse en las personas a las que trata de servir, contribuyendo así al desarrollo de la sociedad.

## Aurkezpena

Aurtengo honetan ere, niri dagokit –eta atsegin osoz egingo dut– ohore handiz lehen-dakari naizen Euskadiko aeronautika eta espazio sektoreko kluster elkartearen urteko txostena aurkeztea.

Iaz, garai honetan, urte hartako berezitasunei buruz hitz egiten ari ginen Biltzar Nagusian: inpaktu handiak sortzen ari zen krisi egoera bat genuen, eta enpresa bakoitzak kudeatu beharko zituen inpaktu horiek, guztion laguntzaz; mota guztietako hegazkin eta helikoptero zibilen programetan atzerapenak genituen, eta 2009. eta 2010. urteetan jasango genuen horren inpaktua; ezinbestekoa zen egoerari eustea eta etor zitekeen ramp-up edo gorakadarako prestatzea; horretarako, prestatutako langile guztiei eustea komeni zen eta egoera apalari etekina ateratzea, barneko kudeaketan hobekuntzak abian jartzeko; gainera, lean kultura azpimarratu behar genuen, eta mota guztietako irioteak eta eraginkortasun falta baztertu.

Horrela, basamortu gogor honen atzean, hazkunde tasei eutsiko zien merkatu baterako prestatzen ari ginen, eta hauek dira egokitzeko saiakera horretan lotu ditugun emaitzak.

Enpresa elkartu guztiek euren lantegi guztietan izandako fakturazio osoa % 5 jaitsi da –1.229M€-tik 1.167M€-ra– eta enpleguarena, aldiz, % 8 igo da –aurreko urtean 9.055 langile ziren, eta 9.819 iritsi dira–, Euskaditik kanpoko lantegietan izandako hazkundeari esker. EAEn izandako jarduerari dagokionez, nahiz eta EAeko lantokietan kontabilizatutako fakturazioa % 1,9 igo –624M€-tik 636M€-ra–, enplegua 7 hamarren jaitsi da –4.035 langiletik 3.752 langilera–. Hori kontuan hartuta, esan beharra dago, balio erantsi handiagoko lanak egin ditugun arren, ezin izan dugula gure herrian langile kopuruaren galera saihesti, baina 2011n eta ondorengo urteetan berreskuratzea aurreikusten da. Aurreikuspenak ezkorak ziren, % 10eko beherakadak aurreikusten baitziren; hala ere, horiek gainditzea lortu dugu, baina gure enpresetako askok erregulazio dosierrekin jarraitzen dute, eta egoera konplexua da oraindik.

Urte honetako mugarrien artean, urte amaieran egin ziren Airbus A400M eta Boeing 787 hegazkinen lehen hegaldiak eta Tigre helikopteroaren eta Gulfstream 250 negozio hegazkin eredu berriaren lehen hegaldiak aipatu behar dira, fakturazioan eta enpleguan hauen ondorioak nabarmendu ahal izateko gutxienez bi urte itxaron beharko badugu ere; nazioarteko aeronautikan garrantzi handiko mugarririk izan dira, bai eta HEGANeko enpresen ere, orain ekoizpenean sartuko diren proiektu horiei teknologia eta esperientzia eskaintzen baitiete.

Garrantzi handia du gure enpresen etorkizunerako Airbus A350XWB eredu egiteko lanak hasteak ere, batez ere diseinu kontzeptualaren fasean eta hainbat osagairen, tresneria eta egiaztapen entseguren xehetasunak emateko fasean. AERNNOVAk, ALESTISek eta ACITURRI taldeak lan sorta garrantzitsuak lortu dituzte arriskua partekatuta, Airbuseko hegazkin honetan.

Ekitaldi honetan, gure bazkideek helikopteroen sektorean izan duten parte-hartzea ere sustatu egin da, eta Eurocopter ereduatarako lan karga berria dute, eta Sikorsky-ren S92 programan, AERNNOVA arrisku bazkidea den horretan, parte-hartzea areagotu egin da. Espazioaren esparruan, SENER-ek arrakastaz gainditu ditu GAIA misio zientifikoaren eguzkitakoaren faseak, eta plataforma askotan lanean jarraitzen dute.

Bestalde, ITPk eta Rolls-Royce etxeak 2009an kontratu bat sinatu zuten, eta horren ondorioz, ITP Trent XWB programaren behe presioko turbinaren lanketan arrisku bazkide bilakatu zen; programa horrek Airbuseko korridore bikoitzeko hegazkinaren motorrak egingo ditu, A350 XWB hegazkinarenarenak. Kontratututako programak ekoizten hasten direnean, korridore bikoitzeko hegazkinetarako behe presioko turbinen merkatuan, ITPk munduko merkatuan % 50eko kuota lortuko du; kuota hori aurrekaririk gabeko mugarrira da, zailtarzik gabe.

Azpimarratzekoa da ekitaldi honetan sektoreko enpresa txiki eta ertainek lotu duten esportazio maila. Gure ETE-ek beste herrialdeetako kontratistekin duten zuzeneko harremana gero eta sendoagoa izan dadin lortu dute, eta, bestek beste, hegazkinen egituretarako tresneria handiak, saskiaren piezak (karenatzak), egituren eta motorren osagaiak, entseguak eta fabrikazio eta manipulazio prozesuen berringeniaritza hornitu dituzte. Zentzu horretan, joan den ekainean, elkarteko kideek Le Bourgeteko 48. azoka aerospazialean parte hartu zuten, eta horrek fabrikatzaile eta bezero handiekin elkartzeko aukera ematen du.

Beste gertakari garrantzitsu bat I+Dn egin den inbertsioaren gorakada izan da, gaur egungo testuinguru ekonomiko kontuan hartuta eta aurreko urtearekin alderatuta; aipatutako programa horien garapenera zuzendu dira gehien bat. Inbertsioaren ehunekoa, fakturazioari dagokionez, fakturazioaren % 14 ingurukoa izan da; beraz, argi eta garbi ikusi da enpresek jarduera horien % 80 autofinantzatzeko egin duten ahalegina.

Mendebaldeko OEMak (Airbus, Boeing, Bombardier, Embraer...) nagusi diren testuinguru honetan, ezin ditugu ahaztu Sukhoi etxearen Superjet 100 hegazkinen (Errusia), Comac etxearen ARJ21 eta C919 hegazkinen (Txina) eta Mitsubishi etxearen MRJ90 hegazkinaren (Japonia) garapenak eta salmentak adierazten dizkiguten mehatxuak eta aukerak.

Lankidetzaz dinamizatzea, klusterra sustatzea eta ordezkatzeko, baliozko informazioa ematea eta elkarteko kideei laguntza eskaintzea dira kluster elkarte honen zeregin nagusiak. Eta zerbitzua ematen dien pertsona horiei zuzendu zaie klusterraren zeregina beti eta, bereziki, urte zail hauetan, horrela, gizartearen garapenean laguntzeko.

# Presentation



Once again, it is my duty – and pleasure – to present the report of the Basque Aerospace Cluster Association of which it is my honour to be president.

It was this time last year when the General Assembly met to discuss some of the year's events: a crisis with severe consequences for all our members and which each company had to face with everyone's support. There were further delays in the programmes of all kinds of civil aircraft and helicopters, the effect of which would have an impact on our business in 2009 and 2010. It was necessary to try and get by and to prepare ourselves for the up-turn, whenever that came. We had to keep as many trained personnel as possible and to take advantage of the economic slump in order to bring about improvements in our internal management systems and to follow the dictates of lean culture and to get rid of wastefulness and inefficiencies of all kinds.

In this way, we prepared ourselves for the new business that was waiting, we hoped, just around the corner, with the promise of sustained growth in contrast to this period of hardship to which we have tried to adapt ourselves with the following results.

The total turnover of all members in all their plants dropped 5% -from 1229M€ to 1167M€- while employment, on the other hand, increased 8% -from 9055 the previous year, to 9819, due to the increase in plants outside the Basque Country. With respect to industrial activity in the Basque Autonomous Community, despite the 1.9% increase recorded in Basque work centres from 624M€ to 636M€, employment fell 7 tenths from 4035 workers to 3752. This seems to indicate that, although we were engaged in projects of greater added value, it has not been possible to avoid job losses in this country. However, we expect to recover these as of 2011. The expected 10% drop in employment turned out to be pessimistic and we have largely been able to avoid such drastic measures, but many of our companies have had to draw up Labour Force Adjustment Plans and the situation is still difficult.

Some of the highlights of this year, the effects of which on turnover and employment will not be noticed until at least a couple of years have gone by, include the first flight of the Airbus A400M and Boeing 787 at the end of the year and the first flights of the Tigre helicopter and the new model of business aircraft, the Gulfstream 250. These represent a major milestone both international aeronautics and for HEGAN member companies, who have contributed their technology and experience to these projects, which are now entering production.

2009 saw the beginning of work on an extremely important project for our companies, the Airbus A350XWB, which is basically at the conceptual and detailed design stage of several components, tools and certification tests. AERNNOVA, ALESTIS and the ACITURRI Group have secured large work packages for this Airbus aircraft as risk partners.

The year also saw an increase in the participation of our members in the helicopter sector with a new series of projects for several models of the Eurocopter and there has been an intensification of the Sikorsky S92 programme for which AERNNOVA is risk partner. In the space sector, SENER has successfully completed several stages of the parasol for the GAIA scientific mission and maintains a high level of activity in several platforms.

For their part, in 2009, ITP and Rolls-Royce signed a contract whereby ITP became a risk partner in the Trent XWB low pressure turbine project, which will propel the twin-aisle Airbus A350 XWB. Once these programmes start production, ITP's share of the worldwide market for low pressure turbines used in twin-aisle aircraft will stand at 50%, without doubt an unprecedented achievement.

Attention should be drawn to the high level of exports achieved by small and medium-sized companies in this sector. Our SMEs are doing more and more work for contractors in other countries to whom they supply a number of different products ranging from large tooling for aircraft structures to nacelle parts (fairings), structural and engine components, tests and the re-engineering of manufacturing and handling processes. In this sense, the participation of members of the Association at the 48th Le Bourget trade fair last June proved very successful. This event continues to be an excellent opportunity to meet large manufacturers and customers.

Another relevant fact (despite the economic situation) was the increase in R&D investment compared to the previous year, used mainly for the development of the aforementioned programmes. The percentage of this investment over turnover, which represents almost 14% of turnover, is a clear indication of the efforts being made by companies who auto-finance more than 80% of these activities.

In this scenario dominated by western OEMs (Airbus, Boeing, Bombardier, Embraer...), we should not forget the threats and opportunities for our companies in the form of the development and forthcoming sales of the Superjet 100 aircraft of Sukhoi (Russia), the ARJ21 and C919 of Comac (China) and the MRJ90 of Mitsubishi (Japan).

Encourage cooperation, promote and represent the Basque aerospace cluster, provide valuable information and give support to the members are the main aims of this cluster association which is aware of its important role in these difficult times. It must concentrate -now and always- on the people it tries to serve, contributing in this way to the development of the society.

José Luis OSORO  
President of HEGAN



# La asociación Cluster - HEGAN

## La asociación

### Misión y Visión

HEGAN es una asociación privada sin ánimo de lucro que agrupa entidades vascas, creada con el fin de potenciar, promover y estimular el tejido del sector aeronáutico y espacial del País Vasco.

Su misión es contribuir a la creación de puestos de trabajo de alta especialización, el desarrollo científico y técnico de nuestra sociedad y la consolidación de nuestra industria en actividades de mejor futuro y más valor añadido.

Su visión es la de aspirar a representar a todo el sector aeronáutico y espacial vasco y a ser una referencia internacional como asociación cluster que da respuesta a los retos estratégicos del sector mediante la cooperación.

### Organización

#### 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 son designados por la Asamblea General y son:

José Luis Osoro -Presidente- AERNNOVA  
Ignacio Mataix -Vicepresidente- ITP  
Jorge Unda -Secretario- SENER  
Inmaculada Freije -Vocal- GOBIERNO VASCO  
Juan Antonio Alberdi -Vocal- NUTER  
Carlos Olabe -Vocal- PCB  
Lara Cuevas -Vocal- SPRI  
José Juez Lángara - Director de HEGAN

#### Comité Ejecutivo

Este comité, delegado de la Junta Directiva, actúa como órgano ejecutivo en las actuaciones del Cluster, se reúne bimestralmente y sus miembros 2009 fueron:

Alfredo Esquisabel -Presidente- AERNNOVA  
Juan José Martín - AEROMECA  
Juan Miguel López Uria - GOBIERNO VASCO  
Xabier Berasategi - GRUPO TTT  
Plácido Márquez - ITP  
Juan Antonio Alberdi - NUTER  
Carlos Olabe - PCB  
Javier Viñals - SENER  
Javier Gabilondo - SPRI  
José Juez Langara - Director de HEGAN  
Martín Fdez. Loizaga - Director Adjunto de HEGAN

#### Grupos de trabajo

A partir de 2005 los comités permanentes de HEGAN sufrieron una reestructuración pasando a ser grupos de trabajo temporales y flexibles dedicados específicamente a actuaciones 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 2009, los grupos de trabajo más activos fueron el Comité Estratégico, el Grupo de Trabajo de la Agenda de Innovación Sectorial, y el Grupo de Trabajo del Aula Aeronáutica.

#### 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  
Ana Rodríguez, Responsable de Operaciones

# Kluster elkartea - HEGAN

## Elkartea

### Misioa eta Ikuspegia

HEGAN euskal enpresak biltzen dituen irabazi asmorik gabeko elkarte pribatua da, Euskal Autonomia Erkidegoko sektore aeronautikoaren eta espazialaren ehuna indartzeko, sustatzeko eta bultzatzeko sortutakoa.

Especializazio handiko lanpostuak sortzea, gure gizarteko garapen zientifikoa eta teknikoa bultzatzea eta gure industrian etorkizunera begira aukera zabalagoa eta balio erantsi handiagoa izango dituzten jarduerak finkatzen laguntzea da elkartearen misioa.

EAEko sektore aeronautiko eta espazial osoa ordezkatu nahi du, eta nazioartean erreferentzia izan nahi du kluster elkarte gisa, sektoreko dema estrategikoei lankidetzan oinarritutako erantzuna eskainiz.

### Antolamendua

#### Biltzar nagusia

Hauxe da elkartearen organo gorena. Bazkide guztiek osatzen dute, eta beraz, bazkideen asmo eta gogoak adierazteko foroa da.

#### Zuzendaritza batzordea

Administrazioko eta Zuzendaritzako Taldeko Organoa da. Honako hauek dira bertako kideak, Biltzar Nagusiak 2009rako izendatutakoak:

José Luis Osoro -Lehendakaria- AERNNOVA  
Ignacio Mataix -Lehendakariordea- ITP  
Jorge Unda -Idazkaria- SENER  
Inmaculada Freije -Batzordekidea- EUSKO JAURLARITZA  
Juan Antonio Alberdi -Batzordekidea- NUTER  
Carlos Olabe -Batzordekidea- PCB  
Lara Cuevas -Batzordekidea- SPRI  
José Juez Lángara - HEGANeko Zuzendaria

#### Batzorde betearazlea

Zuzendaritza Batzordearen ordezkarri den talde hau organo betearazlea da klusterraren jardueretan, bi hilean behin batzen da, eta hauek dira 2009ko kideak:

Alfredo Esquisabel -Lehendakaria- AERNNOVA  
Juan José Martín - AEROMECA  
Juan Miguel López Uria - EUSKO JAURLARITZA  
Xabier Berasategi - GRUPO TTT  
Plácido Márquez - ITP  
Juan Antonio Alberdi - NUTER  
Carlos Olabe - PCB  
Javier Viñals - SENER  
Javier Gabilondo - SPRI  
José Juez Langara - HEGANeko Zuzendaria  
Martín Fdez. Loizaga - HEGANeko Zuzendari Laguntzailea

#### Lan taldeak

2005. urtetik aurrera, HEGANeko batzorde iraunkorrak berregituratu egin ziren, eta horien ordez behin-behineko lan talde malguak, ekintza zehatzetara zuzendutakoak, sortu ziren, Batzorde Betearazlearekin lotuta. Lan talde horiek bazkideen nahierara sortzen eta desagertzen dira, unean uneko behar berezien arabera. 2009an, Estrategia Batzordea, Berrikuntza Sektorialeko Agendako Lan Taldea eta Aeronautika Gelako Lan Taldea izan dira lan talde aktiboak.

#### HEGANeko taldea

Elkartearen talde iraunkorra honako hauek osatzen dute:

Mentxu Díaz, Administrazio Arduraduna  
Martín Fdez. Loizaga, Zuzendari Laguntzailea  
José Juez Langara, Zuzendaria  
Ana Rodríguez, Eragiketen Arduraduna

# The Cluster association - HEGAN

## The Association

### Mission and Vision

HEGAN is a private, non-profit association that groups together a number of Basque entities, and was set up to foster, promote and stimulate the aeronautics and space sector of the Basque Country.

It aims to contribute to the creation of highly-specialised jobs, promotes the scientific and technical development of our society and the consolidation of our industry through activities that ensure a better future and greater added value.

HEGAN aspires to represent the entire aerospace sector of the Basque Country and to be an international model of a cluster association that, through cooperation, provides collective response to the strategic challenges of the sector.

### Organisation

#### General Assembly

This is the highest-ranking body of the Association. It is made up of all member companies and is therefore the body that represents their wishes.

#### Governing Council

This is the Collegial Body of Administration and Management. Appointed by the General Assembly, its members in 2009 were as follows:

José Luis Osoro –President- AERNNOVA  
Ignacio Mataix –Vice president - ITP  
Jorge Unda –Secretary- SENER  
Inmaculada Freije –Member- BASQUE GOVERNMENT  
Juan Antonio Alberdi –Member- NUTER  
Carlos Olabe –Member- PCB  
Lara Cuevas –Member- SPRI  
José Juez Langara - Managing Director of HEGAN

#### Executive Committee

This committee, delegated by the Board of Directors, acts as executive body in the activities pursued by the Cluster. It meets on a two-monthly basis and its members in 2009 were as follows:

Alfredo Esquisabel -President- AERNNOVA  
Juan José Martín - AEROMECA  
Juan Miguel López Uria – BASQUE GOVERNMENT  
Xabier Berasategi - Grupo TTT  
Plácido Márquez - ITP  
Juan Antonio Alberdi - NUTER  
Carlos Olabe - PCB  
Javier Viñals - SENER  
Javier Gabilondo - SPRI  
José Juez Langara - Managing Director of HEGAN  
Martín Fdez. Loizaga - Deputy Director of HEGAN



*General Assembly 2009*

#### Workgroups

As of 2005, the permanent committees of HEGAN were restructured in temporary and flexible workgroups dedicated to a number of specific actions, reporting to the Executive Committee. These workgroups are created and dissolved according to the wishes of associate members and in accordance with their specific needs at each moment in time. In 2009, the most active workgroups were the Strategic Committee, the Sector Innovation Agenda Workgroup, and the Aeronautics Classroom Workgroup.

#### HEGAN's Team

Members of the permanent team of the Association are as follows:

Mentxu Díaz, Administration  
Martín Fdez. Loizaga, Deputy Director  
José Juez Langara, Director  
Ana Rodríguez, Head of Operations



## The members - Los asociados - Bazkideak Industry



**AERNNOVA**  
www.aernnova.com  
Parque Tecnológico de Álava  
Leonardo da Vinci, 13  
01510 MIÑANO-Álava  
Ph.: +34 945 185 600  
**Contact:** Alfredo Esquisabel  
alfredo.esquisabel@aernnova.com



**AEROSPACE ENGINEERING GROUP**  
www.aerospaceengineeringgroup.com  
Pol Ind. EL Campillo, bloque 1D  
48509 ABANTO-Bizkaia  
Ph.: +34 946 363 711  
**Bizkaia-Headquarter contact:**  
Román Arrasate  
roman.arrasate@aegeurope.net  
**Seville contact:** Yolanda Boto  
y.boto@aegeurope.net



**ITP**  
www.itp.es  
Parque Tecnológico, 300  
48170 ZAMUDIO-Bizkaia  
Ph.: +34 944 662 100  
**Technological contact:** Plácido Márquez  
placido.marquez@itp.es  
**Public Relations:** Iratxe de Madariaga  
iratxe.madariaga@itp.es



**AEROVISION**  
www.aerovision-uav.com  
Parque Tecnológico  
Mikeletegi Pasealekua, 2  
20009 San Sebastian-Gipuzkoa  
Ph.: +34 943 247 278  
**Contact:** Silvia García  
silvia@aerovision-uav.com



**SENER**  
www.sener.es  
Avda. Zugazarte, 56  
48930 LAS ARENAS-Bizkaia  
Ph.: +34 944 817 500  
**Contact:** Javier Viñals  
javier.vinals@sener.es



**AIBE**  
www.aibe.es  
Gisastu-bide, 3  
20600 EIBAR-Gipuzkoa  
Ph.: +34 943 120 500  
**Commercial contact:** Jose Agustin Zabala  
agustin@aibe.es  
**Technological contact:** Jon Ezpeleta  
jon@aibe.es



**ACITURRI AERONÁUTICA**  
www.grupoaciturri.com  
Pol. Ind. La Corzanilla  
01218 BERANTEVILLA-Álava  
Ph.: +34 947 049 622  
**Innovation Manager:** Ester Porras  
ester.porras@grupoaciturri.com  
**Commercial Manager:**  
Mª Eugenia Clemente  
mariaeugenia.clemente@grupoaciturri.com



**ALESTIS**  
www.alestis.aero  
Parque Tecnológico de Álava  
Marie Curie, 2  
01510 MIÑANO MENOR-Álava  
Ph.: +34 945 299 096 / +34 955 343 020  
**Programmes and Business Development**  
**Director:** Diego García Galán  
diego.garcia@alestis.aero



**ADS**  
www.ads-gyro.com  
Parque Tecnológico de Álava  
Edificio CEIA - oficina 215  
Albert Einstein, 15  
01510 MIÑANO-Álava  
Ph.: +34 945 000 366  
**Contact:** Iñaki Ruiz de Ocenda  
iruiz@ads-gyro.com



**MICROFUSION DE ALUMINIO**  
www.alfalan.es  
Torrekua, 3  
20600 EIBAR-Gipuzkoa  
Ph.: +34 943 708 522  
**Commercial manager:** Alberto Badiola  
badiola@alfalan.es  
**Commercial contact:** Bibiana Gómez  
bibiana@alfalan.es



**AEROMEC**  
www.aeromec.es  
Pol. Ind. Arriandi (La Pilastra)  
48215 IURRETA-Bizkaia  
Ph.: +34 946 218 147  
**Contact:** Juan José Martín  
jjm@aeromec.es



**ALTRAN**  
www.altran.es  
Parque Tecnológico de Álava  
Albert Einstein, 44 Edif. E6 Of.112  
01510 VITORIA-GASTEIZ-Álava  
Ph.: +34 945 298 227  
**Contact:** Iñigo Ezquerro  
inigo.ezquerro@altran.es



**ARATZ**  
[www.sea.es/aratz](http://www.sea.es/aratz)  
 Pol. Ind. Gamarra,  
 Barratxi, 37  
 01013 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 122 200  
**General Manager :** Javier Balsategui  
[jbalsategui-aratz@sea.es](mailto:jbalsategui-aratz@sea.es)  
**Technical Manager:** Karlos Balsategui  
[kbalsategui-aratz@sea.es](mailto:kbalsategui-aratz@sea.es)



**ELECTROHILO**  
[www.electrohilo.es](http://www.electrohilo.es)  
 Olabide, 8 Pab. A-1/A-2/A-3  
 48600 SOPELANA-Bizkaia  
 Tel.: +34 946 764 002  
**Contact:** Pedro Luis Díez  
[pedrol.diez@electrohilo.es](mailto:pedrol.diez@electrohilo.es)



**ASTORKIA**  
[www.astorkia.com](http://www.astorkia.com)  
 Polg. Ind. Uai 4, Parcela 13  
 48215 IURRETA-Bizkaia  
 Ph.: +34 946 812 230  
**Contact:** Iñaki Astorkia  
[mecanizados@astorkia.com](mailto:mecanizados@astorkia.com)



**GRUPO TTT**  
[www.grupottt.com](http://www.grupottt.com)  
 Ctra de Elgeta, s/n  
 20570 BERGARA-Gipuzkoa  
 Ph.: +34 943 764 844  
**General Manager-Grupo TTT:**  
 Xabier Berasategi  
[xberasategi@grupottt.com](mailto:xberasategi@grupottt.com)  
**Managing Director-Iontech:** Iñaki Manero  
[iontech@grupottt.com](mailto:iontech@grupottt.com)



**AYZAR**  
[www.ayzar.com](http://www.ayzar.com)  
 Pol. Ind. Ali-Gobeo,  
 San Miguel de Acha, 16  
 01010 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 241 454  
**Quality Assurance:** Arrate Rueda  
[calidad@ayzar.com](mailto:calidad@ayzar.com)  
**Commercial Manager:** Emilio Quílez  
[comercial@ayzar.e.telefonica.net](mailto:comercial@ayzar.e.telefonica.net)



**MESIMA**  
[www.mesima.com](http://www.mesima.com)  
 Ctra. N-240, km. 12,5  
 48960 USANSOLO-GALDAKAO-Bizkaia  
 Ph.: +34 944 575 330  
**Technical contact:** Raúl Pérez  
[rperez@mesima.com](mailto:rperez@mesima.com)  
**Commercial contact:** Ana Esparza  
[aesparza@mesima.com](mailto:aesparza@mesima.com)



**BURDINBERRI**  
[www.burdinberri.com](http://www.burdinberri.com)  
 Pol. Ind. Ali-Gobeo,  
 Zorrostea, 4  
 01010 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 242 300  
**Contact:** José Manuel Gárate  
[burdinberri@burdinberri.com](mailto:burdinberri@burdinberri.com)



**METRALTEC**  
[www.metaltec.com](http://www.metaltec.com)  
 Pol. Ind. Betoño. Eibar, 13. Aptdo 3099  
 01013 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 277 788  
**General Manager:** Alberto Ortiz de Mendibil  
[amendibil@metaltec.com](mailto:amendibil@metaltec.com)  
**Technical Manager:** José Ramón García  
[jrgarcia@metaltec.com](mailto:jrgarcia@metaltec.com)



**BURULAN**  
[www.webburulan.com](http://www.webburulan.com)  
 Portal de Zurbano, 27  
 01013 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 286 786  
**Contact:** Juan José Urrutia  
[burulan@burulan.com](mailto:burulan@burulan.com)



**NIVAC**  
[www.nivac.es](http://www.nivac.es)  
 Pol. Ind. Betoño. Escalmendi, 5  
 01013 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 121 490  
**Technical & Commercial Director:**  
 Cristina Sanz  
[cristina.sanz@nivac.es](mailto:cristina.sanz@nivac.es)



**DMP**  
[www.dmp.aero](http://www.dmp.aero)  
 Pol. Ind. Kurutz-gain, 12-13  
 20850 MENDARO-Gipuzkoa  
 Ph.: +34 943 757 040  
**Contact:** Philippe Roulet  
[philippe@dmp.aero](mailto:philippe@dmp.aero)



**NOVALTI**  
[www.novalti.es](http://www.novalti.es)  
 Edificio Interspace José Vara, 13  
 48903 BARAKALDO-Bizkaia  
 Ph.: +34 944 474 271  
**Contact:** Ander Loizaga  
[novalti@novalti.es](mailto:novalti@novalti.es)



## Industry



### NUTER

[www.sagola.com/nuter](http://www.sagola.com/nuter)  
Pol. Ind. Ali-Gobeo. Urartea, 7  
01010 VITORIA-GASTEIZ-Álava  
Ph.: +34 945 248 144  
**Contact:** Juan Antonio Alberdi  
[nuter@nuter.es](mailto:nuter@nuter.es)



### TECNASA

[www.tecnologias-aerospaciales.com](http://www.tecnologias-aerospaciales.com)  
Pol. Ind. de Jundiz. Zurrupitieta, 7  
01015 VITORIA-GASTEIZ-Álava  
Tel.: +34 945 290 737  
**Contact:** Mikel Lekue  
[info@tecnologias-aerospaciales.com](mailto:info@tecnologias-aerospaciales.com)



### PCB

[www.pcb.es](http://www.pcb.es)  
Paseo del Ferrocarril s/n  
48901 BARAKALDO-Bizkaia  
Tel.: +34 944 184 310  
**Contact:** Imanol Arrizabalaga  
[comercial@pcb.es](mailto:comercial@pcb.es)



### TEY

[www.industriastey.com](http://www.industriastey.com)  
Pol. Ind. Artia  
48291 ATXONDO-Bizkaia  
Tel.: +34 946 215 590  
**Contact:** José Valentín Olabegogeaskoetxea  
[administracion@industriastey.com](mailto:administracion@industriastey.com)



### QAES

[www.qaes.net](http://www.qaes.net)  
Parque Tecnológico de Álava  
Edificio CEIA-Oficina 133  
Albert Einstein, 15  
01510 MIÑANO-Álava  
Ph.: +34 607 297 822/+34 945 065 310  
**Contact:** Sergio André  
[sandre@qaes.net](mailto:sandre@qaes.net)



### TPS

[www.grupotamoin.com](http://www.grupotamoin.com)  
Ribera de Axpe (Altza), 47  
48950 ERANDIO-Bizkaia  
Ph.: +34 944 356 550  
**Contact:** Antonio Barrenechea  
[grupotamoin@grupotamoin.com](mailto:grupotamoin@grupotamoin.com)



**SIEGEL S.A.**

### SIEGEL

[www.siegel-sa.es](http://www.siegel-sa.es)  
Zorrozaurre, 15-Apdo. 1048  
48014 BILBAO-Bizkaia  
Ph.: +34 944 757 540  
**Contact:** Ernesto Pérez  
[siegel@infonegocio.com](mailto:siegel@infonegocio.com)



### WEC

[www.wallair.es](http://www.wallair.es)  
Pol. Ind. Boroa. Parcela 3B  
48340 AMOREBIETA-Bizkaia  
Ph.: +34 946 305 161  
**Contact:** Borja Emparan  
[bes@tecnichapa.com](mailto:bes@tecnichapa.com)



### SISTEPLANT-GOLDGYM

[www.sisteplant.com](http://www.sisteplant.com)  
Parque Tecnológico de Bizkaia, Edif. 607  
48160 DERIO-Bizkaia  
Ph.: +34 946 021 200  
**R&D Department Director:** Mario Insunza  
[minsunza@sisteplant.com](mailto:minsunza@sisteplant.com)  
**Marketing Manager:** Sonia Ercoreca  
[sercoreca@sisteplant.com](mailto:sercoreca@sisteplant.com)



**CTA**  
[www.ctaero.com](http://www.ctaero.com)  
 Parque Tecnológico de Álava  
 Juan de la Cierva, 1  
 01510 MIÑANO-Álava  
 Ph.: +34 945 296 924  
**CEO:** Ignacio Eiriz  
[cta@ctaero.com](mailto:cta@ctaero.com)  
**Programmes Director:** Sergio Schneider  
[cta@ctaero.com](mailto:cta@ctaero.com)



**IK4 Research Alliance**  
[www.ik4.es](http://www.ik4.es)  
 Avenida Otaola 20  
 20600 EIBAR-Gipuzkoa  
 Ph.: +34 943 820 350  
**Area Manager:** Joseba Pérez Bilbatua  
[jperezbilbatua@ideko.es](mailto:jperezbilbatua@ideko.es)  
**Market Manager:** Juan Otegui  
[otegui@ik4.es](mailto:otegui@ik4.es)



**EUVE**  
[www.euve.org](http://www.euve.org)  
 Parque Tecnológico de Álava  
 Albert Einstein, 28  
 01510 VITORIA-GASTEIZ-Álava  
 Ph.: +34 945 214 646  
**Engineering Manager:** Luis Usatorre  
[lusatorre@euve.org](mailto:lusatorre@euve.org)  
**General Manager:** Pedro Hernández  
[phernandez@euve.org](mailto:phernandez@euve.org)



**TECNALIA**  
[www.tecnalia.info](http://www.tecnalia.info)  
 Parque Tecnológico,  
 Paseo Mikeletegi, 2  
 20009 DONOSTIA-Gipuzkoa  
 Ph.: +34 943 003 700  
**Aerospace Technologies:** Javier Coletto  
[javier.coletto@inasmet.es](mailto:javier.coletto@inasmet.es)  
**Industrial Systems:**  
 Hugo Martínez de Lahidalga  
[hmartinez@fatronik.com](mailto:hmartinez@fatronik.com)



## Resumen de las actividades de HEGAN

Las personas

La estrategia

La promoción y la representación

La inteligencia competitiva

La dinamización de la cooperación

La comunicación

## HEGANeko jardueren laburpena

Pertsonak

Estrategia

Sustapena eta ordezkaritza

Adimen lehiakorra

Lankidetzaren dinamizazioa

Komunikazioa

# Summary of HEGAN activities

3

People

Strategy

Promotion and representation

Competitive intelligence

Fostering cooperation

Communication



## Resumen de las actividades de HEGAN

En 2009, HEGAN, con objeto de intentar mejorar su eficiencia y eficacia operativa, realizó un módulo de EUSKALIT –Fundación Vasca para la Excelencia para la implantación de la gestión por procesos.

Tras los primeros ejercicios de identificación de los procesos, tanto los operativos, como los de apoyo, en los que la Asociación desplegaba sus tareas, nuestro mapa de procesos quedó definido. A continuación, y de forma esquemática, presentamos las actividades llevadas a cabo por HEGAN en 2009 en base a ese mapa.

### Las personas

El mayor valor del que disponemos en las organizaciones son las personas: personas capacitadas y motivadas que sean capaces de aportar lo mejor de sí mismas para el desarrollo sostenible de nuestra sociedad. Con el fin de dotar a HEGAN de personal suficiente, adecuadamente formado y competente para el desarrollo de su actividad en el tiempo, la Asociación se ha adentrado en un plan de desarrollo de personas que comenzó en 2009 y que durará hasta finales de 2010.

Este proceso da soporte a otros operativos en el que destaca el trabajo de dinamización de la cooperación dentro del cluster. Y en el área de personas y formación, nos hemos centrado en difundir la importancia de las personas en las organizaciones, elaborar un nuevo temario para el Aula Aeronáutica de la Escuela Superior de Ingeniería de Bilbao (UPV-EHU), con la aportación de nuevo profesorado procedente de nuestros socios y renovar el convenio que garantice su financiación. También se ha continuado con las relaciones con Bizkaia:Xede para la atracción de talento al País Vasco y con el impulso por responder a las necesidades de formación profesional del sector, la bolsa de empleo interna y algunas actividades de formación agrupada.

### La estrategia

Según el diccionario de la Real Academia, se trataría del arte para dirigir algo. En matemáticas, es el conjunto de las reglas que aseguran una decisión óptima en cada momento. Si las personas son importantes, la estrategia va unida intrínsecamente a las mismas, en cuanto que son ellas las que proporcionan directrices, políticas y actuaciones.

En 2009 acabó el proceso de reflexión estratégica, que permitió establecer el Plan Estratégico de HEGAN 2009-2012 (PE0912) y que se desplegó en el plan de acción anual. Por su parte, también la Asociación realizó un proceso de reflexión interna, cuyo resultado ha sido una Agenda de Innovación que comprende los factores de competitividad de la Asociación, los retos derivados y un plan de actuación que da respuesta a éstos.

### La promoción y la representación

Una de las tareas más palpables de HEGAN es la que realiza intentando consolidar su presencia, y la de los asociados, a nivel internacional en reuniones, ferias, misiones y visitas, participando en encuentros y eventos y dedicando un notable esfuerzo a mantener y profundizar las relaciones con representantes de regiones y empresas identificadas como estratégicas para el sector aeronáutico y espacial vasco que manifiestan interés en conocer la realidad del cluster.

Así, hemos gestionado la participación del Cluster en la feria de Le Bourget de París, coordinamos la presencia vasca en la convención de negocios de Aerosolutions en Burdeos, participamos activamente en el EACP (European Aerospace Clusters Partnership), hemos representado al sector ante el renovado Gobierno Vasco y ante la red de relaciones clave para el sector y nuestros asociados que se va actualizando periódicamente. Entre éstas, estuvimos presentes –como Socios Adheridos– en el proceso de disolución de ATECMA (Asociación Española de Fabricantes de Material Aeroespacial) y la creación de la nueva TEDAE, que aglutina a las empresas, no sólo con actividad aeronáutica y espacial, sino también de defensa, con la que ya trabajamos.

En 2009, también hemos trabajado para que HEGAN siga representando a todos los agentes que desarrollan este sector y fue la alianza tecnológica IK4 la que entró a formar parte de la Asociación.

## HEGANeko jardueren laburpena

2009an, HEGANek, eragiketarako duen eraginkortasuna hobetzeko, EUSKALITeko –Bikaintasunerako Euskal Fundazioa – modulu bat egin zuen, prozesuetan oinarritutako kudeaketa ezarri ahal izateko. Elkartearen xede ziren proiektuak, eraginkorrak izatera nahiz babesa ematera zuzendutakoak, identifikatzeko ariketak egin ondoren, gure prozesuen mapa emateko gai direnak. HEGANek etorkizunean bere jardura garatzeko behar adina langile aditu eta trebe izan ditzan, 2009an abian jarri zen pertsonen garapenerako plan batean sartu da elkartea, eta 2010eko amaiera arte iraungo du planak.

### Pertsonak

Pertsonak dira erakundeetan balio handiena dutenak: prestatutako eta motibatutako pertsonak, gure gizartearen garapen iraunkorrerako duten guztia emateko gai direnak. HEGANek etorkizunean bere jardura garatzeko behar adina langile aditu eta trebe izan ditzan, 2009an abian jarri zen pertsonen garapenerako plan batean sartu da elkartea, eta 2010eko amaiera arte iraungo du planak.

Prozesu hori beste eragile batzuen euskarri da, eta, bereziki, klusterra barnean lankidetzaren esparruan egiten ari den dinamizatzeko lana nabarmendu behar da. Pertsonen eta prestakuntzaren arloetan, pertsonen erakundeetan duten garrantzia zabaltzera bideratu dugu gure lana, eta Bilboko Ingeniaritza Goi Eskolako (UPV-EHU) Aeronautika Gelarako ikasgaien zerrenda berria ere egin dugu, gure bazkide diren etxeetako zenbait kide irakasle lanetan hasi dira, eta horren finantzaketa bermatuko duen hitzarmena berri du. Bizkaia-ekin genituen harremanei ere eutsi zaie: talentua Euskal Herrira erakartzeko gune izan dadin lortu nahi da, sektoreko prestakuntza profesionalaren beharrei, barne enpleguko poltsari eta taldekako prestakuntza jardura batzuei erantzuteko.

### Estrategia

Errege Akademiaren hiztegiaren arabera, zerbait zuzentzeko antzea edo abilezia da. Matematikan, une bakoitzean erabaki egokiena hartuko dela bermatzen duten arauen multzoa da. Pertsonak garrantzitsuak badira, estrategia berez horiei lotuta doa, pertsonak baitira ildoak, politikak eta jarduketak garatzen dituztenak.

2009an, gogoeta estrategikoaren prozesua amaitu zen; prozesu horri esker, HEGANen 2009-2012rako Plan Estrategikoa (PE0912) ezarri zen, eta urteko ekintza planean hedatu zen. Bestalde, elkartea barne gogoeta bat ere egin zuen, eta, gogoeta horren ondorioz, Berrikuntzako Agenda gauzatu zen. Elkartearen lehiakortasun faktoreak, hortik eratorritako erronkak eta horiei erantzuteko jarduketak plana jasotzen ditu agenda horrek.

### Sustapena eta ordezkartza

HEGANek lan handia egiten du bere presentzia eta enpresa elkartuena nazioartean sendotzeko; horretarako, bileretan, azoketan, misioetan eta bisitetan parte hartzen du, eta ahalgin handia egiten du Euskadiko sektore aeronautikorako eta espazialerako estrategikoak diren eskualdeetako eta enpresetako ordezkariekin, klusterra ezagutzeko interesa agertzen duten horiekin, dituzten harremanei eusteko eta horietan sakontzeko. Horrela, Parisko Le Bourget-eko azokan klusterrak izandako parte-hartzea kudeatu dugu, Aerosolutions-ek Bordelen egindako negozioen topagunean euskaldunok izandako presentzia koordinatu dugu, EACPn (European Aerospace Clusters Partnership) parte-hartze aktiboa izan dugu, berri berri den Eusko Jaurlaritzaren aurrean sektorea ordezkatu dugu, bai eta sektorearentzat eta gure bazkideentzat giltzarri den harremanen sarearen aurrean ere, aldian behin eguneratu egiten baita. Horien artean, ATECMAren (Aeroespazioko Material Ekoizleen Espainiako Elkarte Teknikoa) desgite prozesuan izan ginen –bazkide atxiki gisa– eta baita TEDAE berriaren sorreran ere; TEDAEk, aeronautikako eta espazioko enpresez gain, defentsa sektorekoak ere barnean hartzen ditu, sektore horretan lehenik ari bagara ere.

2009an, lanean aritu gara, HEGANek sektore hau garatzen duten eragile guztien ordezkari izaten jarrai dezan, eta IK4 teknologia aliantza elkarteko kide bilakatu da.

## Summary of HEGAN activities

3

With the aim of improving its operating efficiency and efficacy, in 2009, HEGAN did an EUSKALIT Module (Basque Foundation for Excellence) to introduce the process management system. Following an initial identification of the operating and support processes in which the Association is engaged, our process map was defined. The activities carried out by HEGAN in 2009 are set out below schematically.



### People

People are of the greatest assets available to organisations: skilled and motivated people, capable of contributing their very best for the sustainable development of our society. In order to provide HEGAN with sufficient personnel, adequately trained and competent for the development of its activities, the Association has entered upon a personnel development plan which began in 2009 and will continue until the end of 2010.

This process supports other members of staff and highlights the revitalising effect of co-operation within the cluster. In the area of personnel and training, we have tried to disseminate the importance of people in organisations, to draw up a new syllabus for the Aeronautics Classroom of the Higher School of Engineering of Bilbao (UPV-EHU), with the contribution of new teaching staff by our members and to renew the agreement that guarantees its financing. Relations with Bizkaia:Xede have also continued in order to attract talent to the Basque Country and with the aim of responding to the professional training needs of the sector, the internal job pool and a number of group training activities.

### Strategy

According to the Spanish dictionary, the term “strategy” refers to the art of directing something. In mathematics, it is the set of rules that ensure that the best decision is taken at each moment in time. As people are important, strategy is closely linked to them inasmuch as they are the ones who provide guidelines, policies and actions.

2009 saw the end of the strategic reflection process which led to the establishment of the 2009-2012 HEGAN Strategic Plan (PE0912), developed in the annual action plan. For its part, the Association carried out a process of internal reflection, resulting in an Innovation Agenda which sets out the competitiveness factors of the Association, the challenges these pose and an action plan developed as a consequence.

### Promotion and representation

One of HEGAN’s most palpable tasks is to try to consolidate the presence of the Association and its members at an international level at meetings, trade fairs and missions, and visits, taking part in seminars and events and dedicating considerable effort to maintain and develop relations with representatives of those regions and companies identified as being of strategic importance for the Basque aeronautics and space sector and which have shown interest in finding more about the activities of this cluster Association.

We have, in this way, organised the participation of the Association at the Le Bourget fair in Paris, co-ordinated the Basque presence at the Aerosolutions business convention in Bordeaux, taken an active part in the EACP (European Aerospace Clusters Partnership) and represented the sector in dealings with the new Basque Government and the network of key relationships for the sector and our associates, which is updated from time to time. We took part, as full Members, in the dissolution process of ATEC-MA (Spanish Aerospace Material Manufacturers Association) and the creation of the new TEDAE, which groups together the companies (not only engaged in Aeronautics and space activities but also defence) that we deal with.



In 2009, we also worked to ensure that HEGAN continues to represent all the agents engaged in the development of the sector and the IK4 Technology Alliance came to form part of the Association.



## La inteligencia competitiva

La inteligencia competitiva trata de ofrecer el conocimiento necesario para respaldar la correcta toma de decisiones. Este proceso abarca la comprensión del sector y la anticipación de acontecimientos futuros. Mediante herramientas y técnicas específicas, se extraen los datos de distintas fuentes, se depura la información, se estructura en áreas de interés identificadas y se preparan para una efectiva y práctica lectura. HEGAN ha desarrollado, gracias a la iniciativa del EJV, y con el apoyo de centros tecnológicos de la Red Vasca de Tecnología, el sistema de inteligencia competitiva del cluster (SICC); contra, desde hace más de tres años, un recorte de prensa diario amplio, bastante sectorial, y mantiene una intranet privada para el asociado con información relevante y de interés.

## La dinamización de la cooperación

Creemos que hay dos palabras clave para desarrollar el sector y permitirle ser eficiente en el tiempo: INNOVACIÓN y COMPETITIVIDAD. Si además le unimos la COOPERACIÓN, eje principal de la misión de HEGAN, tenemos los ingredientes necesarios para el éxito sostenible del cluster aeronáutico y espacial vasco. Conjugando estos tres conceptos, HEGAN, ha dinamizado a las asociadas para la generación de lo que llamamos la Agenda de Innovación Sectorial. Este documento, fruto del trabajo de los asociados, recoge algunos de los proyectos en colaboración que los miembros del cluster han considerado estratégicos. Proyectos que no sólo entran dentro de la esfera de la tecnología, sino que abarcan otras áreas como son la internacionalización, la transformación empresarial, o el emprendizaje avanzado. Además, HEGAN se encuentra inmerso como cluster piloto en el proyecto de Evaluación Participativa, coordinado por ORKESTRA –Instituto vasco de Competitividad- y que pondrá las bases para crear una herramienta que permita evaluar a los clusters y conocer cómo responden éstos a la mejora de la competitividad de cada uno de los sectores. Finalmente, han sido varias las acciones de sensibilización de calidad y de medioambiente, destacando la participación de HEGAN en el Comité Europeo Asesor de la Calidad Aeroespacial (EAQG).

## Adimen lehiakorra

Adimen lehiakorrak erabakiak zuzen hartzeko beharrezkoa den ezagutza eskaintzea du helburu. Prozesu horrek sektorearen ezagutza eta etorkizuneko gertakariei aurrea hartzea hartzen ditu barnean. Tresna eta teknika berezien bidez, hainbat iturritatik datuak ateratzen dira, informazioa garbitzen da, identifikatutako arlo interesgarrien arabera egituratzen da eta irakurketa eraginkorra eta praktikoa egiteko prestatzen da. HEGANek, EJVren ekimenari esker, eta Teknologiaarako Euskal Sareko teknologia zentroen laguntzaz, klusterraren adimen lehiakorrerako sistema garatu du (SICC); duela hiru urtetik hona egunkarian egunero zati zabal bat kontratatuta du, nahiko sektoriala dena, eta bazkideentzat intranet pribatua du, informazio garrantzitsu eta interesgarria eskaintzen duena.

## Lankidetzaren dinamizazioa

Sektorea garatzeko eta denboran eraginkorra izateko aukera emateko bi gako hitz daudela uste dugu: BERRIKUNTZA eta LEHIAKORTASUNA. Bi hitz horiek LANKIDETZA, hau da, HEGANen misioaren ardatz nagusia dena, gehitzen badiegu, Euskadiko aeronautikako eta espazioako klusterraren arrakasta iraunkorra lortzeko beharrezkoak diren osagai guztiak izango ditugu. Hiru kontzeptu horiek bateratuz, bazkideak dinamizatu ditu HEGANek, Berrikuntza Sektorialeko Agenda sortzeko. Bazkideen lanaren ondorioz sortutako dokumentu horrek lankidetzan oinarritutako proiektu batzuk jasotzen ditu, klusterreko kideek estrategikotzat jotzen dituztenak. Proiektu horiek ez dira teknologiaren esparrukoak soilik, beste arlo batzuk ere hartzen dituzte, besteak beste, nazioartekotasuna, enpresen aldaketa edota ekintzailetza aurreratua. Horrez gain, ORKESTRAK –Lehiakortasunerako Euskal Institutua- koordinatzen duen Ebaluazio Parte Hartzailearen Proiektuan kluster pilotu gisa sartuta dago HEGAN; klusterren ebaluazioa egiteko eta horiek sektore bakoitzaren lehiakortasuna hobetzen nola laguntzen duten ezagutzeko, tresna bat sortzeko oinarriak ezarriko ditu proiektu horrek. Azkenik, kalitateari eta ingurumenari buruzko sentsibilizazioa ekintza ugari egin dira, eta HEGANek Sektore Aeroespazialaren Kalitatetako Europako Taldean (EAQG) izandako parte-hartzea azpimarratu behar da.



## La comunicación

En la actualidad es imprescindible incorporar la comunicación a la estrategia de la empresa, y su vez, implantar un modelo estratégico en la comunicación de la organización. Ésta tiene para HEGAN como fin, informar, pero también influir positivamente para transformar la sociedad. A través de las acciones de comunicación de la Asociación, pretendemos dar a conocer la realidad del sector aeronáutico y espacial vasco: su dimensión, sus capacidades, sus fortalezas y su realidad. Para ello, hemos invertido parte de nuestro tiempo a la creación de la nueva imagen del Cluster; a la implementación de una nueva web, más actual y completa, a la coordinación y gestión de un plan de comunicación cada vez más ambicioso –que permita transmitir la realidad del cluster y su aportación a la sociedad- y a la publicación del informe anual.

## Komunikazioa

Gaur egun ezinbestekoa da komunikazioa enpresaren estrategian txertatzea, eta, aldi berean, erakundearen komunikazioan eredu estrategiko bat ezartzea. HEGANentzat, informatzea du helburu horrek, baina baita gizartearen aldaketan eragin positiboa izatea ere. Elkarrearen komunikazioa ekintzen bidez, Euskadiko aeronautikaren eta espazioaren sektorea ezagutarazi nahi dugu: sektorearen tamaina, gaitasunak, sendotasuna eta errealitatea. Horretarako, gure denboraren zati batean honako alderdi hauek landu ditugu: klusterraren irudi berria sortu dugu, eguneratuagoa eta osoagoa den webgune berria abian jarri dugu, gero eta handinahi handiagoko komunikazio plan bat kudeatu dugu –klusterraren errealitatea eta horrek gizarteari egiten dion ekarpena helarazteko aukera emango duena-, eta urteko txostena argitaratu dugu.

### Competitive intelligence

Competitive intelligence attempts to provide the necessary knowledge to ensure that the correct decisions are taken. This process involves an understanding of the sector and the anticipation of future events. Through specific tools and techniques, data is obtained from different sources, information is filtered and structured in identified areas of interest and prepared for an effective and practical reading. Thanks to an initiative of the Basque Government and with the support of the technology centres of the Basque Technology Network, HEGAN has developed the competitive intelligen-

ce system of the Cluster (SICC). For more than three years, HEGAN has contracted an extensive dossier of daily sector-related press cuttings and maintains a private intranet for members containing relevant and interesting information.

### Fostering cooperation

We believe that there are two keywords to develop the sector and to ensure its efficiency for the future: INNOVATION and COMPETITIVENESS. Together with COOPERATION, the *raison d'être* of HEGAN, these provide the necessary ingredients for the sustainable success of the Basque aeronautics and space cluster. By combining these three concepts, HEGAN has encouraged members to generate what we call the Sector Innovation Agenda. This document, the result of the work of our members, contains some of the collaboration projects that cluster members consider to be strategic. These projects are not limited to the realm of technology but include other

areas such as internationalisation, business transformation and advanced learning. Moreover, as a pilot cluster, HEGAN is immersed in the Participative Evaluation project, co-ordinated by ORKESTRA –Basque Competitiveness Institute- which will establish the basis for the creation of a tool which will enable clusters to be evaluated and determine how these respond to improvements in the competitiveness of each one of the sectors. Finally, there have been a number of actions to increase awareness of quality and environmental issues. One of the most important was HEGAN's participation in the European Aerospace Quality Advisory Committee (EAQG).



### Communication

Today it is essential to include communications in any business strategy and in turn, introduce a strategic model in the communications of an organisation. For HEGAN, the aim of communications is to inform but also to exert a positive influence in order to transform society. Through the communications actions of the Association, our aim is to provide information about the situation of the Basque Aeronautics and Space sector: its

dimensions, its capacities, its strengths and its situation. To do this, we have invested a part of our time to creating a new image for the Cluster, to the introduction of a new, more modern and complete website, to the coordination and management of a evermore ambitious communications plan that will allow us to transmit the situation of this sector and its contribution to society – as well as the publication of the annual report.



## Principales actividades de los asociados

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# Main activities of members

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# Large aircraft



AIRBUS A350XWB

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
ALTRAN	Weights and masses engineering	AIRBUS	AIRBUS	A30X
ACITURRI	Stringer and coatings	AIRBUS ESPAÑA	AIRBUS	A320
AERNNOVA	Main landing gear doors / Elevator / leading edges / S18 covers / box spars HTTP (composite)	AIRBUS	AIRBUS	A320
ALESTIS	TIP's HTP	AIRBUS ESPAÑA	AIRBUS	A320
ALESTIS	BBAA HTP & VTP	ARIES COMPLEX	AIRBUS	A320
ALESTIS	Panels and Formers S18 / HTTP Box	EADS-CASA	AIRBUS	A320
ALESTIS	TTP's	AERNNOVA	AIRBUS	A320
ALFA MICROFUSION	Elementary parts Section 18 (Lost-wax process in aluminium, machining and painting)	AIRBUS SAS	AIRBUS	A320
ALFA MICROFUSION	Elementary parts Section 18 (Lost-wax process in aluminium)	TAI	AIRBUS	A320
ALFA MICROFUSION	Elementary parts Section 18 (Lost-wax process in aluminium)	EADS CASA	AIRBUS	A320
ALFA MICROFUSION	Elementary parts Section 18 (Lost-wax process in aluminium)	ALESTIS	AIRBUS	A320
BURULAN	Manufacture of components, surface treatments, assemblies.	AERNNOVA	AIRBUS	A320
CTA	Service life extension tests (ESG) of MLG DOOR,NLG DOOR ELEVATOR and HTTP CENTER JOINT	AIRBUS ESPAÑA	AIRBUS	A320
CTA	Service life extension tests (ESG) of OUTB-FLAP	AIRBUS ALEMANIA	AIRBUS	A320
METRALTEC	Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	FIBERTECNIC	AIRBUS	A320
SENER	Removal of inserts from leading edge.	AIRBUS	AIRBUS	A320
AERNNOVA	Leading edge panels HTTP / Karman fairings / Elevator coatings (composite)	AIRBUS	AIRBUS	A330
ALESTIS	TIP's HTTP	EADS-CASA	AIRBUS	A330
ALESTIS	PAX Door	AIRBUS ESPAÑA	AIRBUS	A330
ALFA MICROFUSION	Elementary parts (Lost-wax process in aluminium, machining and painting)	AIRBUS SAS	AIRBUS	A330
ALTRAN	T2 supplier management	AIRBUS	AIRBUS	A330
AERNNOVA	Leading edge panels HTTP / Karman fairings / Elevator coatings (composite)	AIRBUS	AIRBUS	A340
ALESTIS	TIP's HTTP	EADS-CASA	AIRBUS	A340
ALESTIS	PAX Door and Fan Cowl	AIRBUS ESPAÑA	AIRBUS	A340
SENER	Fatigue analysis and damage tolerance	AIRBUS	AIRBUS	A340/600
AERNNOVA	Conceptual and detailed design and manufacture of horizontal stabiliser and elevator	AIRBUS	AIRBUS	A350 XWB
ALESTIS	Belly Fairing	AIRBUS ESPAÑA	AIRBUS	A350 XWB
ALESTIS	S19.1	AIRBUS ESPAÑA	AIRBUS	A350 XWB
ALTRAN	Wind tunnel model	AIRBUS	AIRBUS	A350 XWB
ALTRAN	S12 development	AIRBUS	AIRBUS	A350XWB
ALTRAN	Cockpit structural dimensioning	AIRBUS	AIRBUS	A350XWB

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
ALTRAN	Development of HTP and S19 processes and materials	AIRBUS	AIRBUS	A350XWB
ARATZ	Composite Tooling	AIRBUS	AIRBUS	A350XWB
BURDINBERRI	Wing stringer moulds	AIRBUS ESPAÑA	AIRBUS	A350XWB
BURDINBERRI	Section 19.1 curing rorencitado test tooling	AIRBUS ESPAÑA	AIRBUS	A350XWB
BURDINBERRI	Wing spars curing test tooling	AIRBUS REINO UNIDO	AIRBUS	A350XWB
BURDINBERRI	Keel beam side panel curing tooling	AIRBUS FRANCIA	AIRBUS	A350XWB
CTA	HTP Panel Certification Tests	AERNNOVA	AIRBUS	A350XWB
CTA	Panel Joint Configuration Taste	AIRBUS	AIRBUS	A350XWB
CTA	S19 Panel Certification Tests	AIRBUS	AIRBUS	A350XWB
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
SENER	Conceptual design of the Belly Fairing.	AIRBUS	AIRBUS	A350 XWB
SENER	Engineering of the front area of the Belly Fairing and pre-plateau stage of section 19.1	ALESTIS	AIRBUS	A350 XWB
SENER	Conceptual design of the landing gear. Pre-plateau stage	AIRBUS	AIRBUS	A350 XWB
SENER	Belly Fairing A 350xwb front area. Preliminary design	ALESTIS	AIRBUS	A350 XWB
SENER	Support for 19.1 A350 XWB engineering. Preliminary design	ALESTIS	AIRBUS	A350 XWB
ACITURRI	"T" profiles and fittings	EADS-CASA	AIRBUS	A380
ACITURRI	Wing Ribs and HTP, Tail rudder	AIRBUS ESPAÑA	AIRBUS	A380
AERNNOVA	Design and manufacture of the internal metal structure of section19 -Risk partner-	AIRBUS	AIRBUS	A380
AERNNOVA	Design and manufacture of the leading and trailing edge and of their joints to boxes -Risk partner-	AIRBUS	AIRBUS	A380
AERNNOVA	Leading edge HTTP / Stiffeners and angle bars S19.1 / trailing edge covers HTTP (composite)	AIRBUS	AIRBUS	A380
AIBE	Design and manufacture of fastening systems for machining processes and control tools	ACITURRI	AIRBUS	A380
ALESTIS	MLGD / S19.1 / Rear Fairing	AIRBUS ESPAÑA	AIRBUS	A380
ALESTIS	Belly Fairing	EADS-CASA	AIRBUS	A380
ALTRAN	Development of HTP and S19 processes and materials	AIRBUS	AIRBUS	A380

AERNNOVA



BOEING 747-8



## Large aircraft

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
ALTRAN	HNC Fan Cows support engineering	AIRBUS	AIRBUS	A380
ASTORKIA	Structural parts	AERNNOVA	AIRBUS	A380
BURDINBERRI	Object extraction slipway	AIRBUS ESPAÑA	AIRBUS	A380
BURULAN	Manufacture of components, surface treatments, assemblies	AERNNOVA	AIRBUS	A380
CTA	VTP FITTING,CUT OUT and SCREW JACK certification test	AERNNOVA	AIRBUS	A380
CTA	Pylon Engine Rear Attachment certification test	AIRBUS	AIRBUS	A380
NOVALTI	Landing gear trap	AIRBUS	AIRBUS	A380
NOVALTI	Belly Fairing components	AIRBUS	AIRBUS	A380
NUTER	Structural components	AERNNOVA	AIRBUS	A380
SENER	Development of main landing gear traps: justification of strength corresponding to new flight mode groups up to the test support	AIRBUS	AIRBUS	A380
SENER	Development of Belly Fairing and support work	AIRBUS	AIRBUS	A380
SENER	Detailed design of parts such as the elevator for the cargo version	AIRBUS	AIRBUS	A380
SISTEPLANT	Re-engineering of manufacturing processes, handling and assembly	EADS-MTA	AIRBUS	A380
WEC	Structural sheet metal parts for Section 19.1	ITD	AIRBUS	A380
WEC	Engine Nacelle parts	AIRCELLE	AIRBUS	A380
ARATZ	Tooling assembly	AIRBUS	AIRBUS	Familias AIRBUS
AYZAR	Heat treatments	TALLERES ARATZ	VARIOS	Familias AIRBUS
AYZAR	Heat treatments	BURDINBERRI	VARIOS	Familias AIRBUS
AYZAR	Heat treatments	ACITURRI	VARIOS	Familias AIRBUS
Grupo TTT	Heat and surface treatments	Mecanizadores	AIRBUS	Familias AIRBUS
QAES	Supervision of mass production programmes and final adjustments of suppliers	AIRBUS	AIRBUS	Familias AIRBUS
QAES	Quality management	AIRBUS	AIRBUS	Familias AIRBUS
QAES	Supplier audits and Verification	AERNNOVA	AIRBUS	Familias AIRBUS
SISTEPLANT	Improvement in the efficiency of installations	ARESA	AIRBUS	Familias AIRBUS
TEY	HEAT TREATMENTS	EADS-CASA	AIRBUS	Familias AIRBUS
TEY	HEAT TREATMENTS	SENER	AIRBUS	Familias AIRBUS
TEY	HEAT TREATMENTS	WEC	AIRBUS	Familias AIRBUS

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
ACITURRI	Rudder Components	EADS-CASA	BOEING	737
SISTEPLANT	Re-engineering of manufacturing, handling and assembly operations. Rudder	EADS-MTA	BOEING	737
ALTRAN	Structural design and analysis	AERNNOVA	BOEING	747
ALTRAN	Development Pylon Flight test	Pratt&Whitney	BOEING	747
AERNNOVA	Conceptual engineering WING INSPAR RIBS and structures for sections 11, 12 and 42	BOEING	BOEING	747-8
AERNNOVA	Conceptual engineering of the "SWING ZONE"	BOEING	BOEING	747-LCF
AEROMECH	Structural door components. AEROMECH has a contract with Latecoere for the manufacture of 44 types of parts belonging to the doors of the Boeing 787.	LATECOERE	BOEING	787
ALTRAN	Structural design and analysis	AERNNOVA	BOEING	787
ASTORKIA	Structural parts	Several	BOEING	787
SENER	Fuel access covers (FTAC)	BOEING	BOEING	787
SENER	HTP box	BOEING	BOEING	787
AERNNOVA	Design Center Wing Box	BOMBARDIER	BOMBARDIER	C-Series
CTA	Fire certification tests of interior materials	AERONÁUTICA DE GESTIÓN	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	MAZEL INGENIEROS	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	L&L	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	JCB AERO	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	AIR NOSTRUM	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	IACOBUCHI	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	ADHETEC solutions	VARIOS	LÍNEAS AÉREAS
CTA	Fire certification tests of interior materials	SICMA AERO SEAT	VARIOS	LÍNEAS AÉREAS



BURDIN BERRRI



ACITURRI



AEROMECH



## Regional aircraft

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
AERNNOVA	Spolier / interiors (composite)	EADS-SOGERMA	ATR	ATR42
ACITURRI	Composite material parts	AERNNOVA	BOMBARDIER	CRJ700/900
AERNNOVA	Manufacturer of complete Tail section (vertical and horizontal stabilisers) and elevators	BOMBARDIER	BOMBARDIER	CRJ700/900
ASTORKIA	Structural parts	AERNNOVA	BOMBARDIER	CRJ700/900
BURULAN	Manufacture of components, surface treatments, asseblies	AERNNOVA	BOMBARDIER	CRJ700/900
Grupo TTT	Heat and surface treatments	and surface treatments	BOMBARDIER	CRJ700/900
METRALTEC	Manufacture of elementary parts and assembly (sheet metal, machining, heat and surface treatments,painting)	AERNNOVA	BOMBARDIER	CRJ700/900
NUTER	Components	AERNNOVA	BOMBARDIER	CRJ700/900
ACITURRI	Structural fittings equipped with ball and socket joints	AERNNOVA	EMBRAER	170/195
AERNNOVA	Design and manufacture of complete Tail section (vertical and horizontal stabilisers), rudder and elevators - Risk Partner	EMBRAER	EMBRAER	170/195
AERNNOVA	Design and manufacture of rear fuselage - Risk Partner	EMBRAER	EMBRAER	170/195
AEROMEC	Door of structural components	LATECOERE	EMBRAER	170/195
AEROMEC	Door structural components	LATECOERE	EMBRAER	170/195
ALESTIS	Winglet	EMBRAER	EMBRAER	170/190
ALESTIS	Wingstub	EMBRAER	EMBRAER	170/190
BURULAN	Manufacture of components, surface treatments, assem- bly, ball joint stapling	AERNNOVA	EMBRAER	170/195
METRALTEC	Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	AERNNOVA	EMBRAER	170/195
NUTER	Structural components	AERNNOVA	EMBRAER	170/195
AERNNOVA	Design and manufacture of complete wings-Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
AERNNOVA	Design and manufacture of nacelles - Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
AERNNOVA	Design and manufacture of wing to fuselage fairings -Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
ALESTIS	Wing's 4th Station	AERNNOVA	EMBRAER	ERJ135/140/145
METRALTEC	Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatment, surface treatment, painting)	AERNNOVA	EMBRAER	ERJ135/140/145
NUTER	Structural components	AERNNOVA	EMBRAER	ERJ135/140/145
ASTORKIA	Structural parts	AERNNOVA	EMBRAER	Familias EMBRAER
Grupo TTT	Heat and surface treatments	AERNNOVA	EMBRAER	Familias EMBRAER
MESIMA	Materials management and supply	BURULAN	EMBRAER	Familias EMBRAER
MESIMA	Materials management and supply	METRALTEC	EMBRAER	Familias EMBRAER
TEY	Heat treatments	NUTER	EMBRAER	Familias EMBRAER
TEY	Heat treatments	ASTORKIA	EMBRAER	Familias EMBRAER



BOMBARDIER C- Series



EMBRAER LEGACY 600



AEROVISION FULMAR

## General and Business aviation

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
AEROVISION	Ddesign and Manufacturing of low-cost Unmanned Air Systems (UASs)	itself	AEROVISION	FULMAR
ALTRAN	Design and structural analysis Cockpit Panels	MARQUEZ	BOMBARDIER	M145J
METRALTEC	Manufacturer of elementary parts (sheet metal, machining, heat treatment, surface treatments, painting)	TAM	BOMBARDIER	LEARJET 85
ACITURRI	Elevators and HTTP	EADS-CASA	DASSAULT	FALCON 7X
AEROMECH	Structural components front section	LATECOERE	DASSAULT	FALCON 7X
ALESTIS	BBAA HTP	EADS-CASA	DASSAULT	FALCON 7X
SISTEPLANT	Re-engineering of manufacturing, handling and assembly operations: HTTP	AIRBUS	DASSAULT	FALCON 7X
ARATZ	Assembly tools	DASSAULT	DASSAULT	Familia FALCON
AERNNOVA	Design and manufacture of rear fuselage - Risk Partner	EMBRAER	EMBRAER	LINEAGE 1000
AERNNOVA	Design and manufacture of complete wings - Risk Partner	EMBRAER	EMBRAER	Familias LEGACY
AERNNOVA	Design and manufacture of nacelles -Risk Partner	EMBRAER	EMBRAER	Familias LEGACY
AERNNOVA	Design and manufacture of wing to fuselage fairings -Risk Partner	EMBRAER	EMBRAER	Familias LEGACY
ALESTIS	Assemblies Set	EMBRAER	EMBRAER	PHENOM 100/300
ALFA MICROFUSION	Elementary parts (lost wax casting, machining)	IAI	GULFSTREAM	Familias GULFSTREAM

## Defence aviation

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
ALTRAN	Assembly engineering	AIRBUS	AIRBUS	A330 MRTT
ACITURRI	Sponsons	EADS-SOCATA	AIRBUS	A400M
ACITURRI	Spar, Flap and Vanes	AIRBUS FRANCIA	AIRBUS	A400M
ACITURRI	Spar, Flap and Vanes	AIRBUS ALEMANIA	AIRBUS	A400M
AERNNOVA	Stringers / tip HTTP / wing stringers (composite)	EADS-CASA	AIRBUS	A400M
ALESTIS	BBAA HTP	EADS-CASA	AIRBUS	A400M
ALESTIS	Rear Cones	EADS-CASA	AIRBUS	A400M
ALTRAN	Fatigue analysis Nacelles	AIRBUS	AIRBUS	A400M
ALTRAN	T2 supplier management	AIRBUS	AIRBUS	A400M
BURDIN BERRI	Milling and drilling tools housing leading edge VTP	AIRBUS	AIRBUS	A400M
CTA	NLG DOOR certification tests	AIRBUS	AIRBUS	A400M
QAES	Configuration of Flight Test Center & Pre-FAL verification and development of versions	EADS-CASA	AIRBUS	A400M
QAES	Supervision of suppliers of elementary parts, assemblies, composite and equipment & Product Configuration and Verification Management	EADS-CASA	AIRBUS	A400M
QAES	Issuing of quality documentation and Correct Action Management & Quality Management and IPA Management	EADS-CASA	AIRBUS	A400M
SENER	Fuel access covers (FTAC)	AIRBUS	AIRBUS	A400M
SENER	Definition of a new design for fuel access covers (FTAC)	AIRBUS	AIRBUS	A400M

## Defence aviation

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
SENER	HTTP box	AIRBUS	AIRBUS	A400M
SISTEPLANT	Lean Academy	AIRBUS ESPAÑA	AIRBUS	A400M
SISTEPLANT	Re-engineering of manufacturing operations, handling and assembly continuous flow and visual management - line 2 sheet metal + final processes	AIRBUS ESPAÑA	AIRBUS	A400M
ALTRAN	Wing design and integration	EADS DSS	EADS DSS	UAS ATLANTE
AERNNOVA	Forward landing gear traps/ engine housings (composite)	EADS-CASA	EADS-CASA	C295/CN233
ALESTIS	Rear & Central fuselage	EADS-CASA	EADS-CASA	C295/CN235
ALESTIS	HTP / VTP	EADS-CASA	EADS-CASA	C295/CN235
ALESTIS	Cockpit	EADS-CASA	EADS-CASA	C295/CN235
ALESTIS	Sponsons	EADS-CASA	EADS-CASA	C295/CN235
ALESTIS	Baggage Compartment	EADS-CASA	EADS-CASA	C295/CN235
ALFA MICROFUSION	Elementary parts (Last wax casting in aluminium)	AIRBUS MILITARY	EADS-CASA	C295/CN235
QAES	Supervision of suppliers of elementary parts, assemblies, composite and equipment & Product Verification	EADS-CASA	EADS-CASA	C295
QAES	Configuration of Flight Test Center & Pre-FAL verification and development of versions	EADS-CASA	EADS-CASA	C295
QAES	Issuing of quality documentation and Correct Action Management & Quality Management and IPA Management	EADS-CASA	EADS-CASA	C295
SISTEPLANT	Re-engineering of assembly operations: section integration	AIRBUS ESPAÑA	EADS-CASA	C295/CN235
ALESTIS	Center Wing	EADS-CASA	EADS-CASA	C212
ACITURRI	Composite components	EADS-CASA	EUROFIGHTER	TYPHOON
AERNNOVA	Wing covers, housings and conduits (composite)	AIRBUS	EUROFIGHTER	TYPHOON
ALFA MICROFUSION	Elementary parts (Lost Wax Casting in aluminium)	AIRBUS MILITARY	EUROFIGHTER	TYPHOON
METRALTEC	Manufacture of elementary parts (sheet metal, machining, heat treatment, surface treatment, painting)	FIBERTECNIC	EUROFIGHTER	TYPHOON
QAES	Supervision of suppliers of elementary parts, assemblies, composite and equipment & Product Verification	EADS-CASA	EUROFIGHTER	TYPHOON
QAES	Configuration management and Configuration of Flight Test Center & Pre-FAL verification and development of versions	EADS-CASA	EUROFIGHTER	TYPHOON
QAES	Issuing of quality documentation and Correct Action Management & Quality Management and IPA Management	EADS-CASA	EUROFIGHTER	TYPHOON
SISTEPLANT	Re-engineering of manufacturing, handling and assembly processes	AIRBUS ESPAÑA	EUROFIGHTER	TYPHOON
SISTEPLANT	Re-engineering of manufacturing, handling and assembly processes: Dass Pod components	AIRBUS ESPAÑA	EUROFIGHTER	TYPHOON
ALTRAN	Development and monitoring of flight tests	INTA	INTA	UAS DIANA
ACITURRI	Pylon	FLIGHT REFUELLING	SUKHOI	SU-30



MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
TEY	Heat treatments	EADS-CASA	VARIOS	DIVERSOS
TEY	Heat treatments	SENER	VARIOS	DIVERSOS
TEY	Heat treatments	INDRA	VARIOS	DIVERSOS



ACITURRI



EUROFIGHTER TYPHOON

## Helicopters

MEMBER	General Description of the Product/service	DIRECT CLIENT	INTEGRATOR	MODEL
MESIMA	Materials management and supply	AERIS NAVITER	AERIS NAVITER	ENARA
ACITURRI	Sponsons and VT	FOKKER	EUROCOPTER	NH 90
AERNNOVA	Tail cone (composite)	EUROCOPTER	EUROCOPTER	EC135
AERNNOVA	Rear fuselage / HTTP assembly (composite)	EUROCOPTER	EUROCOPTER	TIGRE
AERNNOVA	Lower structure manufacture	EUROCOPTER	EUROCOPTER	AS332 Super Puma
AERNNOVA	Tail Cone manufacture	EUROCOPTER	EUROCOPTER	AS332 Super Puma
AERNNOVA	Design and manufacture of the equipped transition section and tail cone - Risk Partner	SIKORSKY	SIKORSKY	S92
AERNNOVA	Design and manufacture of the main rotor pylon, fairings y engine cowlings -Risk Partner	SIKORSKY	SIKORSKY	S92
AERNNOVA	Design and manufacture of interiors - Risk Partner	SIKORSKY	SIKORSKY	S92
BURULAN	Manufacturer of components, surface treatments, assemblies	AERNNOVA	SIKORSKY	S92
CTA	Fire certification tests of interior materials	AERNNOVA	SIKORSKY	S92
Grupo TTT	Heat and surface treatments	AERNNOVA	SIKORSKY	S92
METRALTEC	Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	AERNNOVA	SIKORSKY	S92



GRUPO TTT



EUROCOPTER NH90

# 4

## Engines

Motores

Motorrak



MEMBER	General Description of the Product/service	DIRECT CLIENT	ENGINE MAKE	PLATFORMS	ENGINE MODEL
NIVAC	Thermal and surface treatments	WEC	CFM	AIRBUS A320 / BOEING 737	CFM56
PCB	Lost wax casting super alloys for Turbine	SNECMA	CFM	AIRBUS A320 / BOEING 737	CFM56
PCB	Lost wax casting super alloys for Turbine	SNECMA	CFM	AIRBUS A320 / BOEING 737	CFM56
WEC	Parts of external equipment of engine	SNECMA	CFM	AIRBUS A320 / BOEING 737	CFM56
WEC	Parts of external equipment of engine	SNECMA	CFM	AIRBUS A320 / BOEING 737	CFM56
PCB	Lost wax casting super alloys for Turbine	MTU	EA	AIRBUS A380	GP7000
ITP	Components	GENERAL ELECTRIC	GENERAL ELECTRIC	EMBRAER 190/LINEAGE 1000	CF34-10
ACITURRI	Struts	ITP	GENERAL ELECTRIC	BOEING 777	GE90-115
ITP	Manufacture of rear turbine structure	GENERAL ELECTRIC	GENERAL ELECTRIC	BOEING 777	GE90-115
WEC	Parts of external equipment of engine	SNECMA	GENERAL ELECTRIC	BOEING 777	GE90-115
ITP	Structural components	HONEYWELL	HONEYWELL	BOMBARDIER CHALLENGER 300	HTF7000
SIEGEL	Components	ITP	IAE	AIRBUS A320	V2500
PCB	Lost wax casting super alloys for Turbine	SNECMA	POWERJET	SUKHOI SUPERJET 100	SaM146
ITP	Components manufacture	P&W CANADA	PRATT & WHITNEY	EMBRAER PHENOM 300	PW535E
ITP	Design and manufacture of the LPT -Risk Partner	P&W CANADA	PRATT & WHITNEY	CESSNA COLUMBUS	PW810
ITP	Parts of external equipment of engine	ROLLS-ROYCE	ROLLS-ROYCE	REGIONAL JETS	BR725
ACITURRI	End Fittings	RMDG Aerospace Ltd	ROLLS-ROYCE	DIVERSOS	DIVERSOS
Grupo TTT	Heat and surface treatments	ITP	ROLLS-ROYCE	DIVERSOS	DIVERSOS
MESIMA	Materials management and supply	ITP	ROLLS-ROYCE	VARIOS	DIVERSOS
MESIMA	Materials management and supply	NOVALTI	ROLLS-ROYCE	VARIOS	DIVERSOS
ALTRAN	Aerodynamics, structural and heat analysis	ITP	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
CTA	Validation tests of Aerodynamic Technologies	ITP	ROLLS ROYCE	AIRBUS A350XWB	Trent XWB
ELECTROHILO	Edging of VANES and BCVs	ITP	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
ITP	Design and manufacture of the low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
ITP	Design and manufacture of the Rear Frame -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
NUTER	Fittings	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
PCB	Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
PCB	Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
SIEGEL	Components	ITP	ROLLS-ROYCE	AIRBUS A350XWB	Trent XWB
ASTORKIA	Engine components	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
ACITURRI	Lugs and vanes	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
ELECTROHILO	HUB drill, Separation Top Core Vane, Vanes erosion	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
ITP	Design and manufacture of the low pressure turbine (LPT) -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A380	Trent 900
ITP	Design and manufacture of the Rear Frame -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A380	Trent 900

## Civil engines

MEMBER	General Description of the Product/service	DIRECT CLIENT	ENGINE MAKE	PLATFORMS	ENGINE MODEL
NOVALTI	Components for the LPT	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
NUTER	Fittings	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A380	Trent 900
PCB	Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
PCB	Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A380	Trent 900
SIEGEL	Components	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
WEC	Ferrule parts	ITP	ROLLS-ROYCE	AIRBUS A380	Trent 900
ACITURRI	Housings	ITP	ROLLS-ROYCE	AIRBUS A330	Trent 700
ITP	Assembly of the LPT and component manufacture	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A330	Trent 700
PCB	Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A330	Trent 700
WEC	Parts of external equipment of engine	ITP	ROLLS-ROYCE	AIRBUS A330	Trent 700
ACITURRI	Housings	ITP	ROLLS-ROYCE	AIRBUS A340	Trent 500
ITP	Design and manufacture of low pressure turbine (LPT) -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A340	Trent 500
ITP	Design and manufacture of the Rear Frame -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A340	Trent 500
NOVALTI	Components	ITP	ROLLS-ROYCE	AIRBUS A340	Trent 500
NUTER	Fittings	ROLLS-ROYCE	ROLLS-ROYCE	AIRBUS A340	Trent 500
PCB	Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	AIRBUS A340	Trent 500
SIEGEL	Components	ITP	ROLLS-ROYCE	AIRBUS A340	Trent 500
WEC	Parts of external equipment of engine	ITP	ROLLS-ROYCE	AIRBUS A340	Trent 500
WEC	Structural parts	ITP	ROLLS-ROYCE	AIRBUS A340	Trent 500
ASTORKIA	Engine components	ITP	ROLLS-ROYCE	BOEING 787	Trent 1000
AIBE	Design and manufacture of clamping systems for machining processes and special machines	ACITURRI	ROLLS-ROYCE	BOEING 787	Trent 1000
CTA	Validation tests of Aerodynamic Technologies	ITP	ROLLS ROYCE	BOEING 787	Trent 1000
ELECTROHILO	LE, TE, vane edging, Bottom Core, Thick Subassy, Bars	ITP	ROLLS-ROYCE	BOEING 787	Trent 1000
ITP	Design and manufacture of low pressure turbine (LPT) -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	BOEING 787	Trent 1000
ITP	Design and manufacture of Rear Frame -Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	BOEING 787	Trent 1000
NOVALTI	Components for the LPT	ITP	ROLLS-ROYCE	BOEING 787	Trent 1000
NUTER	Fittings	ROLLS-ROYCE	ROLLS-ROYCE	BOEING 787	Trent 1000
PCB	Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	BOEING 787	Trent 1000
PCB	Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	BOEING 787	Trent 1000
SIEGEL	Components	ITP	ROLLS-ROYCE	BOEING 787	Trent 1000
WEC	Parts of external equipment of engine	ITP	ROLLS-ROYCE	BOEING 787	Trent 1000
DMP	Transmission shafts Curvic-Coupling	TURBOMECA	TURBOMECA	EUROCOPTER DAUPHIN / SUPERPUMA	ARRIEL / MAKILA
DMP	HP turbine discs	AEROTECH	TURBOMECA	EUROCOPTER DAUPHIN / SUPERPUMA	ARRIEL / MAKILA
DMP	Transmission shafts Curvic-Coupling	TURBOMECA	TURBOMECA	EUROCOPTER EC135	ARRIUS
DMP	HP turbine discs	AEROTECH	TURBOMECA	EUROCOPTER EC135	ARRIUS



MEMBER	General Description of the Product/service	DIRECT CLIENT	ENGINE MAKE	PLATFORMS	ENGINE MODEL
AYZAR	Heat treatments	SPASA	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	ITP	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	AIBE	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	SIEGEL	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	DMP	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	WEC	VARIOS	DIVERSOS	DIVERSOS



ITP



DMP



ROLLS ROYCE TRENT 1000

## Defence engines

MEMBER	General Description of the Product/service	DIRECT CLIENT	ENGINE MAKE	PLATFORMS	ENGINE MODEL
ACITURRI	Lugs and vanes	ITP	EPI	AIRBUS A400M	TP400
CTA	FBS Fire protection Test	TEI	EPI	AIRBUS A400M	TP400
ELECTROHILO	Inner vanes erosion	ITP	EPI	AIRBUS A400M	TP400
ITP	Design and manufacture of low pressure turbine (LPT) -Member of EPI Consortium	AIRBUS MILITARY	EPI	AIRBUS A400M	TP400
ITP	Design and manufacture of the Front Frame and Exhaust System - Member of the EPI Consortium	AIRBUS MILITARY	EPI	AIRBUS A400M	TP400
ITP	Manufacture of Externals -Member of EPI Consortium	AIRBUS MILITARY	EPI	AIRBUS A400M	TP400
ITP	Final assembly of engine - Member of EPI Consortium	AIRBUS MILITARY	EPI	AIRBUS A400M	TP400
NOVALTI	Components for LPT	ITP	EPI	AIRBUS A400M	TP400
NUTER	Fittings	ITP	EPI	AIRBUS A400M	TP400
PCB	Lost wax casting super alloys for intermediate pressure turbine	ROLLS-ROYCE	EPI	AIRBUS A400M	TP400
PCB	Lost wax casting super alloys for theLPT	ITP	EPI	AIRBUS A400M	TP400
SENER	Test gantry	ITP	EPI	AIRBUS A400M	TP400
SIEGEL	Components	ITP	EPI	AIRBUS A400M	TP400
WEC	Parts of external equipment of engine	ITP	EPI	AIRBUS A400M	TP400
ACITURRI	Mounting Rings, Thermals and fittings	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
ACITURRI	Components	WEC	EUROJET	EUROFIGHTER TYPHOON	EJ200
AEROMECH	LPT rings	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
ARATZ	Machined parts	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
ELECTROHILO	TEC segmentation	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200

## Defence engines

MEMBER	General Description of the Product/service	DIRECT CLIENT	ENGINE MAKE	PLATFORMS	ENGINE MODEL
ITP	Design and manufacture of the Diffuser cones and By-Pass Module -Member of the EUROJET Consortium	NETMA	EUROJET	EUROFIGHTER TYPHOON	EJ200
ITP	Design and manufacture of the post burner duct and variable nozzle -Member of the EUROJET Consortium	NETMA	EUROJET	EUROFIGHTER TYPHOON	EJ200
ITP	Manufacture of Externals -Member of the EUROJET Consortium	NETMA	EUROJET	EUROFIGHTER TYPHOON	EJ200
ITP	Final assembly of the engine-Member of the EUROJET Consortium	NETMA	EUROJET	EUROFIGHTER TYPHOON	EJ200
NOVALTI	Components	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
NUTER	Fittings	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
PCB	Lost wax casting super alloys - nozzle	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
PCB	Lost wax casting super alloys - low pressure turbine	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
SIEGEL	Components	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
WEC	Exhaust nozzle parts	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
WEC	TEC parts	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
WEC	Exhaust nozzle parts	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
WEC	Parts of external equipment of engine	ITP	EUROJET	EUROFIGHTER TYPHOON	EJ200
ELECTROHILO	Strut manufacture	ITP	MTRI	EUCOPTER TIGRE	MTR390-E
ITP	Design and manufacture of three LPT -Member of the MTRI Consortium	EUROCOPTER	MTRI	EUCOPTER TIGRE	MTR390-E
ITP	Final assembly of the engine-Member of the MTRI Consortium	EUROCOPTER	MTRI	EUCOPTER TIGRE	MTR390-E
NOVALTI	Engine components	ITP	MTRI	EUCOPTER TIGRE	MTR390-E
PCB	Lost wax casting super alloys - low pressure turbine	ITP	MTRI	EUCOPTER TIGRE	MTR390-E
ITP	Design and validation of the ROLL POST	ROLLS-ROYCE	ROLLS-ROYCE	LOCKHEED MARTIN F-35	F136
TEY	Heat treatments	ITP	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	AIBE	VARIOS	DIVERSOS	DIVERSOS
TEY	Heat treatments	SENER	VARIOS	DIVERSOS	DIVERSOS



EPI TP400



EUROJET EJ200



MTR390E First flight



# Systems and equipments

Sistemas y equipos Sistemak eta ekipiak

4



## Systems and equipments

MEMBER	General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
ACITURRI	Hydraulic Tanks	CESA	Hydraulic System	AIRBUS A380
ACITURRI	Hydraulic actuators	CESA	Hydraulic System	AIRBUS A400M
ACITURRI	Equipped elements	RATIER FIGEAC	Turboprop systems	SEVERAL
ACITURRI	Electrical installation cabinets	SOGEMASA	Electrical system	SEVERAL
AERNNOVA	Logistics container (composite)	DBGT	IRIS T	Aviones Defence
AERNNOVA	Antennas and randomes (composite)	INDRA	RADAR	Aviones Defence
AERNNOVA	Wing conduits (composite)	ALENIA	Sistemas para alas	EUROFIGHTER TYPHOON
AERNNOVA	Flare dispenser (composite)	ALENIA	Special equipment	EUROFIGHTER TYPHOON
AERNNOVA	Ammunition box (composite)	MAUSER	Special equipment	EUROFIGHTER TYPHOON
AERNNOVA	Missile launcher tubes (composite)	MBDA	MILAN / MISTRAL	Defence aircraft
AEROMECH	Auxiliary and main landing gear components	CESA	Landing Gear	EADS-CASA C295
AEROMECH	Main landing gear components	CESA	Landing Gear	EADS-CASA CN235
AIBE	Precision machining of components	SENER	SEVERAL	SEVERAL
ALFA MICROFUSION	Conduits- Air Fittings (Lost wax casting superalloys)	LIEBHERR AEROSPACE	AIR CONDITIONING	AIRBUS A320
ALFA MICROFUSION	Conduits- Air Fittings (Lost wax casting superalloys)	LIEBHERR AEROSPACE	AIR CONDITIONING	AIRBUS A380
ALFA MICROFUSION	Conduits- Air Fittings (Lost wax casting superalloys)	LIEBHERR AEROSPACE	AIR CONDITIONING	BOEING 787
ALFA MICROFUSION	Radar housings (Lost wax casting aluminium)	INDRA	RADAR	EFA
ALFA MICROFUSION	Optronic equipment housings (Lost wax casting aluminium)	SAGEM DEFENSE	OPTRONIC SYSTEM TV-THERMOGRAPHY	EUROCOPTER NH90
ALTRAN	Harness design	AIRBUS Military	Electrical system	EADS-CASA C295 CH01
ALTRAN	Door Actuator Dimensioning	CESA	Door	AIRBUS A400M
CTA	Landing Gear Actuator Qualification Test (NLG and CLG)	CESA	NLG / CLG	AIRBUS A340/600
CTA	Landing Gear Actuator Qualification Test (NLG)	CESA	NLG	AIRBUS A400M
CTA	4 Landing Gear Actuator Qualification Tests and 6 Ramp System Tests.	CESA	NLG / CLG	AIRBUS A400M
CTA	HALT tests PGE vibration equipment	TECNOBIT	PGE	Ground equipment
CTA	HALT tests Perseo vibration equipment	TECNOBIT	PERSEO	Ground equipment
CTA	Fire Certification Tests	INDRA	Electronic boards	AIRBUS A400M
DMP	NLG Kit	MESSIER DOWTY	NLG	BOEING 787
DMP	Main rotor servocontrol kit	GOODRICH	Main rotor	EUROCOPTER DAUPHIN
DMP	Main rotor servocontrol kit	GOODRICH	Main rotor	EUROCOPTER ECUREUIL
DMP	Balancier équipé	MESSIER DOWTY	Main rotor	EUROCOPTER SUPER PUMA
EUVE	Man-Machine interfaces for the AIRBUS plants in PUERTO REAL and EADS SEVILLA Plant	AIRBUS ESPAÑA	Equipment and software	AIRBUS families
EUVE	Drilling and riveting robots autocalibration software	AIRBUS ESPAÑA	Equipment and software	AIRBUS families



MEMBER	General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Grupo TTT	Heat and surface treatments	MESSIER-DOWTY	Landing Gear	AIRBUS A320
NUTER	Components	CESA	SEVERAL	AIRBUS A330
NUTER	Components	CESA	SEVERAL	AIRBUS A400M
NUTER	Components	CESA	SEVERAL	AIRBUS A350
QAES	Equipment verification	EADS-CASA	SEVERAL	Defence aircraft
QAES	Quality Management	EADS-CASA	SEVERAL	Defence aircraft
SENER	Production of the Control Section of aerodynamic fins and fixed wings (Air - Air version)	DBD	IRIS-T	Defence aircraft
SENER	FASS subsystem of drive and control of aerodynamic fins	TAURUS Systems GmbH	TAURUS KEPD 350	Defence aircraft
SENER	Image management unit for two Tactical Recognition systems (RecceLite or Litening Pods)	ZEISS OPTRONICS	IPU 2 / IPU 3	Aviones Defence
SENER	Development and qualification of the Control Section of aerodynamic fins (Ground - Air version)	DBD	IRIS-T SL	Ground equipment
SENER	Complete terminal guidance subsystem, semi-active laser (SALS) and processing for the terminal guidance (software and hardware)	OTO MELARA	VULCANO	Ground equipment
SENER	Production of the Control Section of aerodynamic fins	Kongsberg Defence & Aerospace AS	NSM	Ground equipment
SENER	Development, qualification, industrialisation and production of the Control Section of aerodynamic fins	MBDA-UK	METEOR	Defence aircraft
SENER	Free flight campaign of the TAURUS KEPD 350 in South Africa	MALOG	TAURUS KEPD 350	Defence aircraft
SENER	Integration of the TAURUS KEPD 350 in the EF18 and acquisition of units	MALOG	TAURUS KEPD 350	Defence aircraft



ALFA MICROFUSION



DMP

## Systems and equipments

MEMBER	General Description of the Product/service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
TECNASA	O-RINGS	MARTIN-BAKER	Ejector seats	Defence aircraft
TECNASA	PULL	MARTIN-BAKER	Ejector seats	Defence aircraft
TECNASA	JIGS	MARTIN-BAKER	Ejector seats	Defence aircraft
TEY	Heat treatments	CESA	SEVERAL	SEVERAL
TEY	Heat treatments	EADS-CASA	SEVERAL	SEVERAL
TEY	Heat treatments	NUTER	SEVERAL	SEVERAL
TEY	Heat treatments	INDRA	SEVERAL	SEVERAL
TEY	Heat treatments	WEC	SEVERAL	SEVERAL
TEY	Heat treatments	SENER	SEVERAL	SEVERAL
TEY	Heat treatments	MBDA	SEVERAL	SEVERAL
TEY	Heat treatments	DMP	SEVERAL	SEVERAL
TEY	Heat treatments	MESSIER-DOWTY	SEVERAL	SEVERAL
WEC	AIR BLEED equipment parts	HONEYWELL	AIR CONDITIONING	AIRBUS A320
WEC	Thrust Reverser parts	AIRCELLE	Systems	AIRBUS A380
WEC	Stabilising wings	SENER	IRIS-T	Defence aircraft
WEC	AIR BLEED equipment parts	LIEBHERR	AIR CONDITIONING	BOEING 747-8
WEC	AIR BLEED equipment parts	HONEYWELL	AIR CONDITIONING	AIRBUS A330
WEC	Connection box	SNECMA	CFM 56	AIRBUS A320



TECNASA



AIRBUS A320

# Maintenance

Mantenimiento  
Mantentze lanak



# Maintenance

MEMBER	General Description of the Product/ service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
AERNNOVA	Composite structure repairs	BOMBARDIER & Operators	Tips, fairings, etc	CRJ700/900
AERNNOVA	Inspections, special processes and re-qualifications	Operators	Several	EMBRAER Families
AERNNOVA	Metal structure repairs	Operators	Wings, stabilises, fuselages,etc	EMBRAER Families
AERNNOVA	Inspections, special processes and re-qualifications	Operators	Several	Familias BOMBARDIER
AERNNOVA	Metal structure repairs	Operators	Wings, stabilises, fuselages,etc	Familias BOMBARDIER
AERNNOVA	Composite structure repairs	EMBRAER & Operators	Elevators, Rudders	EMBRAER 170/190
AERNNOVA	Composite structure repairs	EMBRAER & Operators	Flaps, Ailerons, Wing tips, Winglets	EMBRAER ERJ145/135/Legacy
AERNNOVA	Composite structure repairs	EMBRAER & Operators	Landing gear doors, Spoilers, Fairings	EMBRAER ERJ145/135/Legacy
AERNNOVA	Composite structure repairs	Sikorsky	Doors, cowlings, stabilisers	SIKORSKY S-92
AERNNOVA	Technical assistance & Sales of spares 24H/365d	Operators	Several	SEVERAL
AEROSPACE ENGINEERING GROUP	Overhaul and repair of electromechanical components and turning equipment and LRUs	Operators	Electrical/hydraulic/ avionics systems	SEVERAL
AEROSPACE ENGINEERING GROUP	Overhaul and repair of electromechanical components and turning equipment and LRUs	Airlines	Electrical/hydraulic/ avionics systems	SEVERAL
AEROSPACE ENGINEERING GROUP	Overhaul and repair of electromechanical components and turning equipment and LRUs	Spanish Ministry Of Defence	Electrical/hydraulic/ avionics systems	SEVERAL
ALTRAN	Supportability and maintainability management	AIRBUS Military	SEVERAL	AIRBUS A400M
ALTRAN	Supportability and maintainability management	AIRBUS Military	SEVERAL	AIRBUS A330 MRTT
ALTRAN	Supportability and maintainability management	AIRBUS Military	SEVERAL	EADS-CASA C295
ITP	Full Maintenance, Inspection and Repair of the F404 -engine, modules and components- & engine and accessories test	Ministry of Defence	GE F404	BOEING F-18
ITP	Full Maintenance, Inspection and Repair of the PW206 -engine, modules and components- & engine and accessories test	Several	P&W PW206	EUROCOPTER EC135
ITP	Full Maintenance, Inspection and Repair of the EJ200 -engine, modules and components- & engine and accessories test	Ministry of Defence	Eurojet EJ200	EUROFIGHTER TYPHOON
ITP	Full Maintenance, Inspection and Repair of the ATAR -engine, modules and components- & engine and accessories test	Ministry of Defence	SNECMA ATAR	Familias MIRAGE



MEMBER	General Description of the Product/ service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
ITP	Full Maintenance, Inspection and Repair of the T56 -engine, modules and components- & engine and accessories test	Ministry of Defence	RR T56	LOCKHEED MARTIN P3 / C130
ITP	Full Maintenance, Inspection and Repair of the J85 -engine, modules and components- & engine and accessories test	Ministry of Defence	GE J85	NORTHROP F-5
ITP	Resolving incidents	ROLLS-ROYCE	RR Trent 500 / 700 & BR715	SEVERAL
ITP	Full Maintenance, Inspection and Repair of the TFE731 -engine, modules and components- & engine and accessories test	Ministry of Defence	Honeywell TFE731	C-101
ITP	Full Maintenance, Inspection and Repair of the TPE331 -engine, modules and components- & engine and accessories test	Royal Air Force / Ministry of Defence	Honeywell TPE331	TUCANO / C-212
SISTEPLANT	Lean MRO - re-engineering of MRO operations	EADS DEFENCE & SECURITY	Lean MRO	BOEING F-18
SISTEPLANT	Lean MRO in Airforce Arsenal - re-engineering of MRO operations	Spanish Ministry of Defence	Lean MRO	SEVERAL
SISTEPLANT	Lean MRO in civil aviation overhaul workshops	SR Technics		SPANAIR Fleet
TAMOIN POWER SERVICES	Engine disassembly and overhaul	IBERIA Maintenance	CMF56	AIRBUS A320
TAMOIN POWER SERVICES	Engine disassembly and overhaul	IBERIA Maintenance	CMF56	BOEING 737
TAMOIN POWER SERVICES	Engine disassembly and overhaul	IBERIA Maintenance	JT8D	McDONNELL DOUGLAS MD-80 Series



TPE331 MRO



CMF56 MRO

# 4

## Space

Espacio  
Espazioa



MEMBER	General Description of the Product/ service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
ALTRAN	Structural Dimensioning	MIER	On-board equipment	ALPHASAT
ALTRAN	Test development and validation	EADS ASTRIUM	Reflectors	HISPASAT1E
ALTRAN	Structural dimensioning	EADS ASTRIUM	Top Floor Antennas	REDSAT
ALTRAN	Structural dimensioning	EADS ASTRIUM	FSA Antennas	ASTRA1N
ALTRAN	Electronic design of on-board equipment	EADS CRISA	Electronic boxes	AMAZONAS2
ARATZ	Machined parts	SEVERAL	MISCELLANEOUS	MISCELLANEOUS
ARATZ	Components for satellite antennas	SEVERAL	MISCELLANEOUS	MISCELLANEOUS
AYZAR	Heat treatments	ARATZ	MISCELLANEOUS	MISCELLANEOUS
CTA	GAIA satellite vibration tests	SENER	Scientific mission	GAIA
NOVALTI	On-board components and mechanical systems	THALES ALENIA SPACE	AMOS 4-5	AMOS 4
NOVALTI	On-board components and mechanical systems	THALES ALENIA SPACE	EUTELSAT 7	EUTELSAT W3B
NOVALTI	On-board components and mechanical systems	THALES ALENIA SPACE	ARABSAT 5C	ARABSAT 5C
NOVALTI	On-board components and mechanical systems	THALES ALENIA SPACE	GLOBALSTAR 2	GLOBALSTAR 2
NOVALTI	On-board components and mechanical systems	SPACE SYSTEMS/ LORAL	HISPASAT 1E	HISPASAT 1E
NOVALTI	On-board components and mechanical systems	THALES ALENIA SPACE	KOREASAT 6	KOREASAT 6
NOVALTI	On-board components and mechanical systems	THALES ALENIA SPACE	ASTRA	ASTRA
NTE-SENER	Main system contractor	ESA	MARES system to investigate muscular atrophy caused by weightlessness	Columbus
NUTER	Components	SENER	Scientific mission	GAIA
NUTER	Components	SENER	Scientific mission	METEOSAT
PCB	Super alloy components for space shuttle engine	SNECMA	Shuttle	ARIANE 5
SENER	Analysis of different alternatives for planetary vehicle landing gear	ESA	Planetary exploration ship -Scientific Mission	AURORA - Retorno de Muestras de Marte (MSR)
SENER	Mechanism that separates the magnetic disturbance magnetometer of the satellites, as well as the accompanying mobile arm	ESA / JAXA	Planetary exploration ship -Scientific Mission	BEPICOLOMBO
SENER	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	Planetary exploration ship -Scientific Mission	EXOMARS

SENER



SENER



## Space

MEMBER	General Description of the Product/ service	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
SENER	Raman LIBS instrument	INTA / CAB	Planetary exploration ship -Scientific Mission	EXOMARS
SENER	Deployable parasol, precision pointing mechanism in three axes plus two more times of the M2MM mirror of the optical system.	ASTRIUM SAS	Observation satellites - Scientific Mission	GAIA
SENER	Design and verification of a swinging mechanism or FMD (Flip Mirror Device)	JENA OPTRONIK	Observation satellite -Sentinel 3-	GMES
SENER	Attitude and orbit complete control system (AOCS/GNC)	ESA / THALES ALENIA SPACE Italy & France	Observation satellites - Scientific Mission	HERSCHEL - PLANCK
SENER	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)
SENER	High gain antenna pointing mechanisms (HGAG) of the Rover	NASA	Planetary exploration ship -Scientific Mission	MARS SCIENCE LABORATORY
SENER	Development model of the visible camera scanner	EADS ASTRIUM	Observation satellite	METEOSAT Tercera Generación (MTG)
SENER	Attitude Determination and Control system (ADCS)	INTA	Pico-satellite - Navigation	OPTOS
SENER	Complete formation flying system (FF)	ESA	Set of small satellites - Navigation	PROBA 3
SENER	Optical instrument: engineering work of systems and optical and thermal-structural design	CDTI	Optical instrument - Observation satellite	SEOSAT / INGENIO
SENER	Complete Guidance, Navigation and Control system (GNC)	OSSL	Orbital servicing vehicle to prolong the life of satellites - Navigation	SMART - OLEV
SENER	Feasibility study of the ISSIS instrument (Imaging and Slitless Spectroscopy Instrument for Surveys)	CDTI	Optical instrument - Observation satellite	World Space Observatory - Ultra Violet (WSO-UV)
SENER	Complete Guidance, Navigation and Flight control subsystem (GNC)	ESA	Intermediate experimental vehicle for re-entry into atmosphere	IXV
SENER	Main contractor of the formation flying system	ESA	Formation flying system	Proba-3
SISTEPLANT	Lean Design in UK and France plants	ASTRIUM	Satellite	HISPASAT 1E
SISTEPLANT	Lean Design in UK and France plants	ASTRIUM	Satellite	SENTINEL 2
SISTEPLANT	Lean Design in UK and France plants	ASTRIUM	Satellite	SENTINEL 3
SISTEPLANT	Lean Design in UK and France plants	ASTRIUM	Satellite	SEOSAT
TECNALIA	Electronic cabinets in composite for satellite equipment	ASTRIUM	CFRP-K-Multifunctional structures	A5
TECNALIA	Space technology transfer	ESA	Consulting work	DVERSOS
TECNALIA	Power component encapsulating	MIER/TAS	Positioning system	GALILEO
TECNALIA	Propulsion chamber for electrical propulsion motors	SNECMA	BN/SIO2 -SPT1350-	SMART1, PROBA, ALFABUS
TECNALIA	Solid lubricants	CNES, ADR	SiM02-IVAD	TROBOLAB ISS
TEY	Heat treatments	EADS-CASA ESPACIO	SEVERAL	MISCELLANEOUS
TEY	Heat treatments	INDRA	SEVERAL	MISCELLANEOUS
TEY	Heat treatments	NUTER	SEVERAL	MISCELLANEOUS
TEY	Heat treatments	SENER	SEVERAL	MISCELLANEOUS



# R&D Projects

Proyectos de I+D  
I+G proiektuak

4



## R&D Projects

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
ACITURRI	NICE TRIP (Novel Innovative Competitive Effective Tilt Rotor Integrated Project): convertible aircraft-helicopter	Development of a Tilt-Rotor prototype	FP6 - European	Aircraft and Space Engineering
AERNNOVA	CESAR	Cost Effective Small Aircraft	FP7 - European	Aircraft and Space Engineering
AERNNOVA	FRIENDCOPTER	Integration of technologies in support of a passenger and environmentally friendly helicopter	FP7 - European	Aircraft and Space Engineering
AERNNOVA	NICE TRIP (Novel Innovative Competitive Effective Tilt Rotor Integrated Project): convertible aircraft-helicopter	Novel innovative competitive effective tilt rotor integrated project	FP6 - European	Aircraft and Space Engineering
ALTRAN	SOLAR IMPULSE	Development of Aircraft/Energies: Aircraft mission simulation. Complete flight to the earth powered by solar plates	International	Aircraft and Space Engineering
ALTRAN	SOLAR IMPULSE	Development of Central Wing for the SOLAR IMPULSE PT60M	International	Aircraft and Space Engineering
CTA	TEMBACO	Aerodynamics: Development of measurement technologies for low consumption engines	PROFIT - National	Aircraft and Space Engineering



CTA

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
CTA	AEROPTIC	Development of fibre optics applications for Structural Health Monitoring and communications in Aeronautics CTA+UPV	SAIOTEK - Regional	Aircraft and Space Engineering
CTA	AIRHEM	Health Monitoring in Aeronautics	ETORTEK - Regional	Aircraft and Space Engineering
CTA	AISHA II	Aircraft Integrated Structural Health Assessment II	FP7 - European	Aircraft and Space Engineering
CTA	DREAM	Aerodynamics: Validation of Radical Engine Architecture	FP7 - European	Aircraft and Space Engineering
CTA	FANTOM II	Full field Aeronautical Non destructive Technique for On -line and Maintenance applications.	FP7 - European	Aircraft and Space Engineering
CTA	TINVITEN	Developments of nondestructive techniques of TI excitation (Thermoinductive and vibroti)	LIA CENTROS - National	Aircraft and Space Engineering
CTA	VITAL	Aerodynamics: Environmentally Friendly Aero Engine	FP6 - European	Aircraft and Space Engineering
CTA	OPENAER	Aerodynamics: New aircraft and engine configurations for the future system of air transport	CENIT - National	Aircraft and Space Engineering
CTA	FUTURE	Aerodynamics: Flutter-Free Turbomachinery Blades	FP7 - European	Aircraft and Space Engineering
CTA	CALTUM	Aerodynamics: Development of advanced instrumentation calibration methodology for application in low-pressure turbine and complete engine tests.	SAIOTEK - Regional	Aircraft and Space Engineering
CTA	ACTIP	Aerodynamics: Reduction of secondary flows flows in low pressure turbines through active tip clearance control	SAIOTEK - Regional	Aircraft and Space Engineering
CTA	DEXIAL	Aerodynamics: Development of axial spacing optimisation tools between turbine blades	SAIOTEK - Regional	Aircraft and Space Engineering
CTA	FIBERSEN:	Comparative study of fibre-optic tests and traditional structural monitoring sensors under real flying conditions	SAIOTEK - Regional	Aircraft and Space Engineering
CTA	FIRETRAN:	Study of safety requirements in the case of fires of new materials used in advanced transport	SAIOTEK - Regional	Aircraft and Space Engineering
EUVE	PLATINO - COBOR	Simulation of conditions in UAV	PSE	Aircraft and Space Engineering
EUVE	PLATINO - HADA	Visualisation of UAV trajectories in synthetic environment	PSE	Aircraft and Space Engineering

## R&D Projects

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
EUVE	AIRHEM	Electronics for transport: Health Monitoring for structures	ETORTEK	Aircraft and Space Engineering
EUVE	ALICIA	Electronics for transport: Development of the new cabin concept and optimisation of operations under all conditions	FP7-AAT	Aircraft and Space Engineering
IK4	Thermo mechanical fatigue tests with minimum thermal and phase gradients	CICYT		Aircraft and Space Engineering
IK4	MARVEL: structural integrity monitoring with ultrasonic radar built into reusable shuttle vehicles	Sensor systems - Aernnova		Aircraft and Space Engineering
IK4	SINTONIA: non manned systems oriented to minimal environmental impact	alternatives to conventional drive systems in order to minimise consumption / CESA	CENIT - National	Aircraft and Space Engineering
IK4	ELUBSYS: engine lubrication systems technologies	Advanced propulsion plants: Optimisation of oil and fuel consumption, improving engine lubricationr	FP7 - European	Aircraft and Space Engineering
IK4	RC2: quick and cost-cutting manufacturing of functional prototypes for gas turbines made of pile up metallic layers	Manufacture and maintenance: Rapid manufacture of aeronautical turbine blade prototypes by means of "laser cladding" technique	Eureka-Profit	Aircraft and Space Engineering
ITP	AIDA - Agressive 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.	FP6 - European	Aircraft and Space Engineering
ITP	DREAM - Validation of Radical Engine Architecture Systems	Advanced propulsion plants: Study of new architectures for propulsion plants based on the open-rotor concept	FP7 - European	Aircraft and Space Engineering



EUVE ALICIA Project



MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
ITP	FUTURE - Flutter-Free Turbomachinery Blades	Aerodynamics: Technological development to reduce the flutter phenomenon in turbomachinery blade crowns	FP7 - European	Aircraft and Space Engineering
ITP	JTI - Clean Sky	Advanced propulsion plants: Development of new concepts for the future generation of aircraft propulsion plants in accordance with the environmental requirements established by ACARE.	FP7 - European	Aircraft and Space Engineering
ITP	MAGPI - Main Annulus Gas Path Interactions	Interaction of secondary flows with the main flow and effects of cavities in turbomachinery.	FP6 - European	Aircraft and Space Engineering
ITP	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	Aircraft and Space Engineering
ITP	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.	Madrid Region Calls - Regional	Aircraft and Space Engineering
ITP	OPENAER - New engine and aircraft configurations for the future air transport system	Aerodynamics, Methods, Materiales, 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	CENIT - National	Aircraft and Space Engineering
ITP	PREMECCY - Protective Methods for Combined Cycle Fatigue in Gas Turbines	Fatigue prediction: Study of mechanisms and prediction of fatigue in turbomachinery	FP6 - European	Aircraft and Space Engineering
ITP	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.	Madrid Region Calls - Regional	Aircraft and Space Engineering
ITP	TATMO - Turbulence and Transition Modelling for Specigla Turbomachinery	Aerodynamics: Improvements in efficiency by means of non-stationary at aerodynamic analysis	FP6 - European	Aircraft and Space Engineering
ITP	VITAL - Environmentally Friendly Aero Engine	Advanced propulsion plants: Integrated project. Substantial reductions in emissions (-18% of CO <sub>2</sub> ) and noise (-6dB).	FP6 - European	Aircraft and Space Engineering
ITP	ERICKA - Engine Representative Internal Cooling and Applications	Technologies for turbine refrigeration	FP7 - European	Aircraft and Space Engineering
ITP	ELUBSYS - Engine Lubrication System Technologies	New lubrication technologies in gas turbines	FP7 - European	Aircraft and Space Engineering

## R&D Projects

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
ITP	OPENAIR - Optimisation for low Environmental Noise Impact Aircraft	Technologies for reducing noise in aircraft	FP7 - European	Aircraft and Space Engineering
ITP	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	SAE - National	Aircraft and Space Engineering
SENER	Robotic arm for extravehicular activities in space	Robot arm	ESA - European	Aircraft and Space Engineering
SENER	HDR qualification with potentiometers			Aircraft and Space Engineering
SENER	HISAC (Environmentally Friendly High Speed Aircraft)	Assess the feasibility of a small, environmentally friendly and economically feasible supersonic transport aircraft.	FP6 - European	Aircraft and Space Engineering
SENER	Image navigation			Aircraft and Space Engineering
SENER	NICE TRIP (Novel Innovative Competitive Effective Tilt Rotor Integrated Project): convertible aircraft-helicopter	SENER designs the rotor components, the drive system and the nacelle	FP6 - European	Aircraft and Space Engineering
SENER	NOESIS - Aerospace nanotube hybrid composite structures with sensing and actuating capabilities	Development of composite material with carbon nanotubes and with sensorial and drive capacity, by itself for aeronautics applications.	FP6 - European	Aircraft and Space Engineering
SENER	OPENAER	Study new aircraft and engine configurations for the future care transport system.	CENIT - National	Aircraft and Space Engineering
SENER	VULCAN - Vulnerability analysis and new materials and design approaches for aircraft strengthening against fire and blast due to accident or terrorist attacks	Development of improved design for substructures with high energy absorption capacity materials in the presence of fire and explosion.	FP6 - European	Aircraft and Space Engineering
SENER	DEIMOS - Development and innovation of polymeric membrane and solid oxide fuel cells	Fuel piles for aircraft: Development and innovation of fuel piles of polymeric membrane and solid oxide	CENIT - National	Aircraft and Space Engineering
SENER	SENARIO - Advanced sensors and novel concepts for intelligent and reliable processing in bonded repairs	Attitude control systems: Development of innovating sensorial systems linked to intelligent control equipment and aerostructures maintenance methodologies.	FP6 - European	Aircraft and Space Engineering
SENER	AGCFO	Operations on the ground and in captive flight in an air-transported microlauncher	SAE - CDTI	Aircraft and Space Engineering

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
SENER	HEALTH-HM	Real-time monitoring of aeronautical actuators to determine operating failures and operability levels	GAITEK-Regional	Aircraft and Space Engineering
SENER	ELGA	Integrated landing gear system by means of electromechanical drive and control (EMLG – ElectroMechanical Landing Gear)	INNOTEK-Regional	Aircraft and Space Engineering
SENER	SINTONIA	Unmanned zero environmental impact oriented systems.	CENIT- Nacional	Aircraft and Space Engineering
SISTEPLANT	PLATINO - HADA - UAV convertible aircraft-helicopter	Led by INTA, Sisteplant provides the health monitoring system	CDTI - Nacional	Aircraft and Space Engineering
SISTEPLANT	SIMAP - UAV health monitoring system	Design of health monitoring system for UAV	CDTI - Nacional	Aircraft and Space Engineering
TECNALIA	DEIMOS - Development and innovation of polymeric membrane and solid oxide fuel cells	Fuel cells for aircraft: Development of fuel cells for APUs/Collaboration with CESA-EADS/ Consortium also with SENER, CASA, AIRBUS, etc	CENIT - Nacional	Aircraft and Space Engineering
TECNALIA	SUPERSKYSSENSE - Development of a sensorised system for determining the deterioration of the Skydroll	Sensor for systems: Device with sensors to determine online the deterioration of the skydroll/ AIRBUS, INTERLAB, CESA, etc...	FP6 - European	Aircraft and Space Engineering
TEY	Heat treatments	SIEGEL	VARIOS	Aircraft and Space Engineering
TEY	Heat treatments	SENER	VARIOS	Aircraft and Space Engineering
ACITURRI	MAFFIX	Flexible tooling	FP6 - European	Processes and Materials
ACITURRI	RC2	Rapid prototyping for functional tests	FP7 - European	Processes and Materials
ACITURRI	Flexible solutions for producing the aeronautical mechanisms test	Increase in the testing and manufacturing capacity of hydraulic actuators based on the flexibility of the installations	CDTI - Nacional	Processes and Materials
AERNNOVA	ARTIMA	Aircraft Reliability through Intellignet Materials Application	FP7 - European	Processes and Materials
ALESTIS	WINDOW FRAME A380	DEVELOPMENT OF COMPOSITES		Processes and Materials
ALESTIS	PAX DOOR A330	DEVELOPMENT OF COMPOSITES		Processes and Materials
ALESTIS	360° Fabric Composite	DEVELOPMENT OF COMPOSITES		Processes and Materials
BURULAN	More integrated offer	Development of a new plant for surface treatments, primer and final paint, assemblies and stapling of ball and socket joints.	Internal development	Processes and Materials

## R&D Projects

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
CTA	COMPOFIRE	Engineering and Processes: Study of fire behaviour of advanced structural composites estructurales aused in Aeronautics	LIA CENTROS - National	Processes and Materials
CTA	DEMETIR:	Study of thermographic techniques applied to the detection of critical defects in metal components	SAIOTEK - Regional	Processes and Materials
EUVE	VIRTUAL TESTING	Modelling of composites and simulation by means of finite element calculation.	PSE	Processes and Materials
EUVE	ICARO	Analysis of the use of ultrasound for measuring	CENIT	Processes and Materials
IK4	Augmented reality for assembling aeronautical equipment	EADS		Processes and Materials
IK4	VARIPASS	MPB Aerospace and Kennametal Ibérica	PROFIT - National	Processes and Materials
IK4	Manufacturer and prediction of service life in high responsibility parts for aviation turbine is	ITP & PRECAST	INTEK - Regional	Processes and Materials
IK4	OPENAER: New aircraft and engine configurations for the future system of air transport	Predicting service life in critical rotating components - manufacturing strategies (machining) at thickness limit / ITP, Danobat, Lealde and others	CENIT - National	Processes and Materials
IK4	ISAM-A. Materials with auto-sensoral capacity; investigation of magnetorheological damping systems for aircraft		CDTI - National	Processes and Materials
IK4	ASPIRATE	IDEKO-IK4, Ortza S. Coop., Zubiola S. Coop, INVENT GmbH - The main objective of ASPIRATE is to develop an innovative technology for machining carbon and glass fibre reinforced plastic (CFRP and GFRP) parts	FP7 - European	Processes and Materials
IK4	Blade repair workshop	Manufacturing and maintenance: Línea Aérea and Danobat	Profit / Privado	Processes and Materials
IK4	DEIMOS: control and monitoring of hydrogen pile prototype	Reliability and maintenance - CESA	CENIT - National	Processes and Materials
IK4	IÑUDE	Aernnova	ETORGAI - Regional	Processes and Materials
IK4	RAMPE: alternative coatings to environmentally ontaminating heavy metals	Development of highly contaminating tribiological replacement coatings	PROFIT - National	Processes and Materials
IK4	TATEM: technologies and tools for novel maintenance Concepts	Maintenance	FP6 - European	Processes and Materials



MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
IK4	AIRHEM: health monitoring en aeronáutica	Maintenance - Sensorisation and monitoring / CTA	Etortek - Regional	Processes and Materials
IK4	HEMA: actuators health monitoring	Maintenance - sensorisation and monitoring of aeronautical actuators / SENER		Processes and Materials
IK4	ALTERA: alternative treatments to replace Cr and Cd	Steam phase physical deposition of non-contaminating replacement coatings	PROFIT - National	Processes and Materials
IK4	FOREMOST: fullerene-based opportunities for robust engineering: making optimised surfaces for tribology	Creation of nanostructured surfaces through the addition of inorganic fullerenes to improve tribological features	FP6 - European	Processes and Materials
IK4	EUSKESTUR: Basque collaboration project vto manufacture a new generation of turbine radial structures	Modelling of manufacturing process to reduce development time and improve cathode design / PECM Engineering	Etorgai - Regional	Processes and Materials
IK4	MANUFACTURING 0,0	Efficient management of the latest materials and by means of nonconventional electrochemical techniques	ETORTEK	Processes and Materials
ITP	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	FP7 - European	Processes and Materials
ITP	DIALPE - Fatigue life design and verification of the vibration behaviour of gas turbine monocrysal blades	Mechanical technology: Study of fatigue and service life behaviour of small size monocrysal blades for a gas turbine.	Madrid Region Calls - Regional	Processes and Materials
ITP	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 Formig)	FP6 - European	Processes and Materials

IK4



## R&D Projects

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
ITP	MATERIALES - Oxycarbide layers of multicomponent silicon on metal alloys surfaces by plasma spray	Development of the application of coatings by means of plasma spray	PROFIT - National	Processes and Materials
ITP	RAMPE - Alternative coatings to heavy metals (RAMPE)	Residue removal: Development of alternative coatings for removing Cr-VI	PROFIT - National	Processes and Materials
ITP	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)	FP6 - European	Processes and Materials
ITP	EUSKESTUR	Manufacturing technologies: Development of Basque excellence pole for the manufacture of radial structures for aeronautical turbines	Basque Country Calls - Regional	Processes and Materials
NOVALTI	OPENAER	ITP - NOVALTI-WEC	CENIT - National	Processes and Materials
NOVALTI	ADVANTICUT	NOVALTI-IDEKO	MANUNET - European	Processes and Materials
NUTER	Integrated product management			Processes and Materials
SENER	High precision linear actuator (HPLA)	High precision Linear Actuator based on own design, applicable to deployment mechanisms	ESA GSTP - European	Processes and Materials
SENER	DATAFORM - Digitally Adjustable Tooling for manufacturing of Aircraft panels using multi-point FORMing methodology	Development of a flexible technology for the manufacture of metal aircraft panels, based on computer-controlled multipoint tooling methodology	FP7 - European	Processes and Materials
SENER	Definition of component admissibles in carbon fibre and the effects on the fatigue life of hybrid structures			Processes and Materials
SENER	HEMA (Health Monitoring for Actuators)	Definition of a real-time monitoring system for electromechanical actuators for the determination of operating failures and operability level, providing high added value for the final product	SAE - National	Processes and Materials
SENER	Miniaturised Deployment Regulator MDR	Regulator appropriate for the deployment of small appendices or mini satellite panels		Processes and Materials
SENER	Literary Actuator with potentiometers (HDRA_P)	Rotating actuator for space applications (HDRA) incorporating angular position sensors (potentiometers).		Processes and Materials
SENER	HP-SMART-EMA	Development of high energy density electrical actuators	FP7 - European	Processes and Materials

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
SENER	RESTAURAC	Development of a demonstrator for the restoration of degraded images due to high compression levels 2008	COINCIDENTE - National	Processes and Materials
SIEGEL		Research into wire cutting of aeronautical materials		Processes and Materials
SISTEPLANT	ICARO - composite aerostructures	Industrialisation in advanced materials - Led by Airbus, research into materials and manufacturing systems for aerostructures	CDTI - National	Processes and Materials
TECNALIA	NANOMULFUN - Improvement of electrical conductivity of composite laminates by adding nanomaterials	Development of conductive nanocomposites: Development of composite materials with conductivity by means of the use of nanotechnology for electrical dissipation / AIRBUS ESPAÑA; UCIII	LIA CENTROS - National	Processes and Materials
TECNALIA	AGAPAC- Cu-D and Cu-CNT based encapsulates for devices in GaN	Materials for encapsulating Power Electronics based on GaN / Thales Alcatel, Egide, Plansee...	FP7 - European	Processes and Materials
TECNALIA	AMFSS - Multifunctional structures	Sandwich composite materials with embedded electronics and highly thermal dissipation capacity	ESA GSTP - European	Processes and Materials
TECNALIA	EXPERT- Heat protections of shuttle vehicles	Development of inter-metallic materials for use in the experimental re-entry capsule EXPERT	ESA GSTP - European	Processes and Materials
TECNALIA	HIPER - Research into future space propulsion systems	Ceramic materials for thrusters / SNECMA	FP7 - European	Processes and Materials
TECNALIA	ADVITAC - Advanced integrated composite tail cone	Development of new composite materials and technologies for the tail cone of future regional aircraft / DAHER Aerospace, Coriolis, FRT, Univ. Cranfield...	FP7 - European	Processes and Materials
TECNALIA	IAPETUS - Innovative repair of aerospace structures with curing optimization & life cycle monitoring abilities	Development of structural repair processes by means of new materials and technologies / Huntsman, Inasco, HAI, DAHER, Univ. Patras...	FP7 - European	Processes and Materials
TECNALIA	ICARO - Innovation in advanced composite and optimised rear-end	Development of new technologies for future aircraft in composite/ Collaborations with AIRBUS, AERNNOVA, CASA ESPACIO, IDEC, SISTEPLANT	CENIT - National	Processes and Materials
TECNALIA	LAYSA - Multifunctional layer for safer aircraft composite structures	Developments of multifunctional laminated composite materials/ Aernnova, Aries Complex, Inasco, HAI, Univ. Patras, etc...	FP7 - European	Processes and Materials
TECNALIA	VULCAN - Vulnerability analysis and new materials and design approaches for aircraft strengthening against fire and blast due to accident or terrorist attacks	Development of explosion and fire resistant composite materials/ Inasco, Sener, HAI, Univ. Patras, etc...	FP6 - European	Processes and Materials

## R&D Projects

MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
TECNALIA	SENARIO - Advanced sensors and novel concepts for intelligent and reliable processing in bonded repairs	Dielectric sensors in RTM moulds for monitoring composite filling and curing process / Inasco, Bombardier, etc...	FP6 - European	Processes and Materials
TECNALIA	NOESIS - Aerospace nanotube hybrid composite structures with sensing and actuating capabilities	Development of composite materials with autosensing capacity in carbon nanotubes / Inasco, Sener, HAI, Univ. Patras, etc...	FP6 - European	Processes and Materials
TECNALIA	Trechnical feasibility study of the RF technology for the curing of aeronautic grade carbon fibre matrix composite	New composite curing processes: Project commissioned by AIRBUS ESPAÑA on the radiofrequency curing technology of carbon fibre composites		Processes and Materials
TECNALIA	NACAR - Removal of the CD in aeronautical coatings	New treatments : Project developed for BOEING R&T Europe	LIA CENTROS - National	Processes and Materials
TECNALIA	NACAR - Cr-free CONVERSION COATINGS- Technologies for the elimination on non-environmentally friendly elements in the aerospace industry	New treatments for aluminium: Project developed for BOEING R&T Europe	LIA CENTROS - National	Processes and Materials
TEY	Heat treatments	WEC	VARIOS	Processes and Materials
TEY	Heat treatments	ITP	VARIOS	Processes and Materials
WEC	OPENAER	Characterisation of laser weld in parts for aeronautical engines	CENIT - National	Processes and Materials
WEC		Characterisation of optimised laser cutting parameters in aeronautical materials		Processes and Materials
ALESTIS	LEADING EDGE A400M	BIRD IMPACT COMPOSITES		Tests
CTA	ALF	Optimisation and development of new tooling for accelerated life tests	SAIOTEK - Regional	Tests
CTA	Fire certification tests for interior materials		BOEING R&T	Tests
CTA	SPACECAP	Development of the spatial technologies	SAIOTEK - Regional	Tests
CTA	SIMAVANT:	Development of impact systems for the study of advanced composite materials	SAIOTEK - Regional	Tests
NOVALTI	Turbine blades for test RIGs	PTB4++, PTB8, PTB9		Tests
SENER	Generic testbed for Guidance, Navigation and Control systems (GNC / AOCS)	Test bench	ESA - European	Tests



MEMBER	ACRONYM and/or NAME OF THE PROJECT and brief description	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL	Research Area
TECNALIA	PREMECCY - predictive methods for combined cycle fatigue in gas turbine blades	Fatigue tests of engine materials: Development of fatigue test rig for up to 850°C and titanium and nickel base test / Rolls Royce, Turbomeca, SNECMA, ITP, etc...	FP6 - European	Tests
TECNALIA	Pneumostatic linear motion systems with structure based on new generation materials	Tests on composite parts: Development of a linear movement system for a machining system/ INTEK project approved by MNT ERANET/ Commissioned by IDEC	INTEK - Regional	Tests
TECNALIA	Assesment of Cr-free biocide fuel tank paints according a new biocide activity immersion test	Tests on paints in tanks: Development of testing protocols to assess the buyers' side effect of paints without chrome content / AIRBUS ESPAÑA		Tests
ALTRAN	ATLANTIDA: Application of Leader Technologies to UAVs For Research and Development in Air Transit Management (ATM)	Air Traffic Management: The Atlántida project tackles scientific and technological challenges for the introduction of higher levels of automation in the future management of airspace. This project is led by BOEING.	CENIT - National	Air Navigation



ALTRAN SOLAR IMPULSE PF60M

# 5

## Facts & Figures



Members aggregate **turnover** and **employment** were in 2009:

## 1167 million €

and

## 9819 people

(directly generated in all of their  
worldwide facilities)

	2009	% over Sales	Average % over Sales since 1993
Members R&D investment	162M€	13.9%	18%
Members Exports	746M€	63.9%	75.9%

In comparison, these figures are equivalent to:

**1.7%**  
of the **BASQUE**  
GDP(\*)

**6.7%**  
of the **BASQUE**  
Industrial GDP(\*\*)

**3.9%**  
of the **BASQUE**  
industrial EMPLOYMENT(\*\*)

**12.9%**  
of the **BASQUE**(\*)  
R&D INVESTMENT

**27.2%**  
of the **SPANISH**(\*\*) aerospace EMPLOYMENT

**2%**  
**EUROPEAN**(\*\*\*)

**30.1%**  
**SPANISH** (\*\*) aerospace R&D INVESTMENT

**1.4%**  
**EUROPEAN**(\*\*\*)

**17.5%**  
of the **SPANISH**(\*\*) aerospace TURNOVER

**1.1%**  
**EUROPEAN**(\*\*\*)

(\*) EUSTAT 2008    (\*\*) ATECMA 2008    (\*\*\*) ASD 2008

## 58 AEROSPACE ORGANIZATIONS

HEGAN Members

**2** BUSINESS GROUPS  
with more than  
2500 people

**2** ENGINEERING COMPANIES  
with a total of  
600 aerospace employees

**111** FACILITIES  
57 at the Basque Country -  
37 in the rest of Spain -  
17 abroad (Brazil, Malta,  
Mexico, UK, USA)

**1** AEROSPACE CENTRE  
devoted to  
Testing (CTA)

**2** R&D CORPORATIONS  
with 9 R&D Centres  
with aerospace activities

**2** BUSINESS GROUPS  
with more than  
600 people

**6** COMPANIES  
with more than  
50 people

**21** SMEs  
with less than  
50 employees

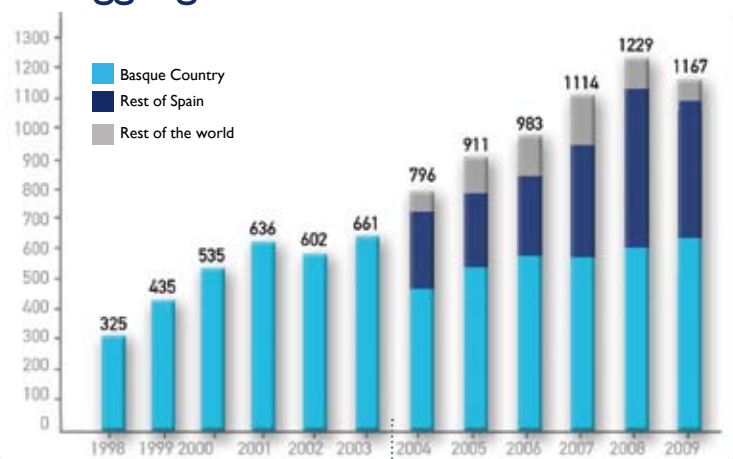
**16** Companies  
more with  
aerospace activities  
representing the  
0.5% of the Euskadi  
aerospace turnover

**5** Universities  
(ETSIB: Aeronautical  
Intensification Course)

Non-Members

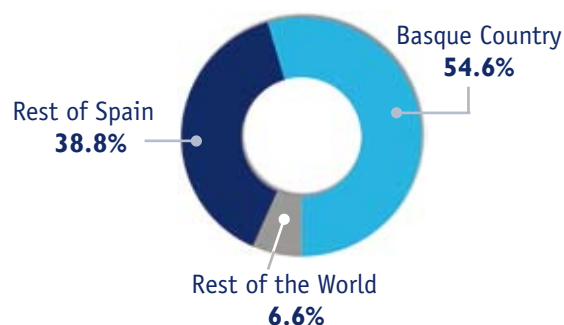


## Aggregate turnover in M€

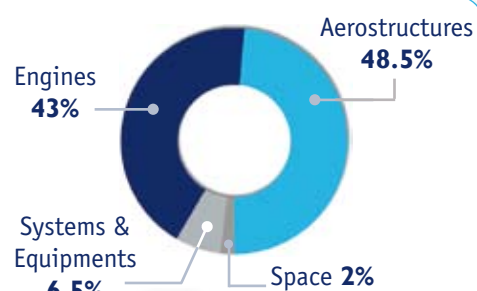


Geographical Turnover breakdown only since 2004

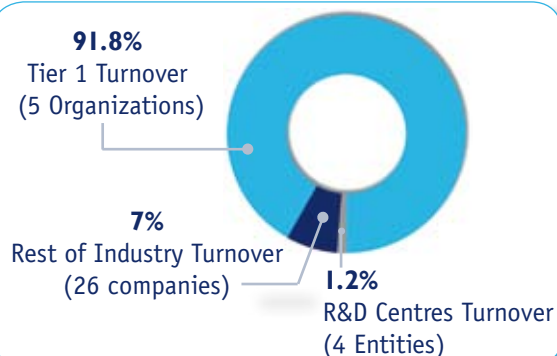
### Geographical distribution of Turnover



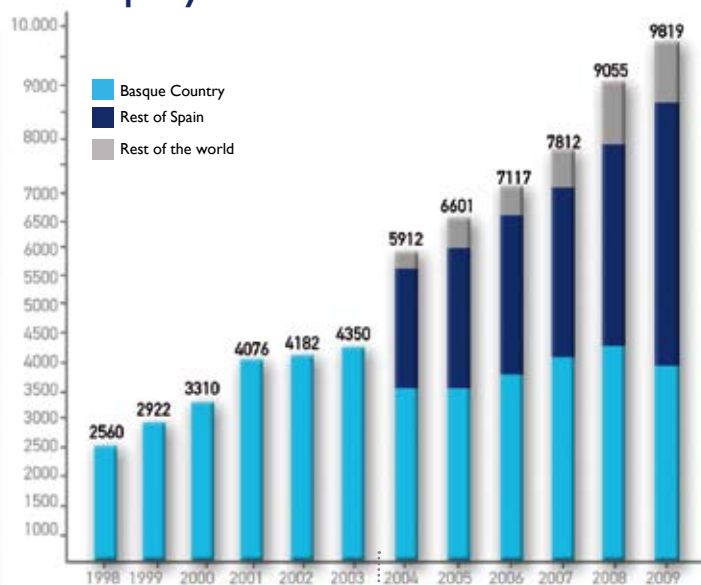
### Turnover according to Subsectors



### Turnover according to Member Size

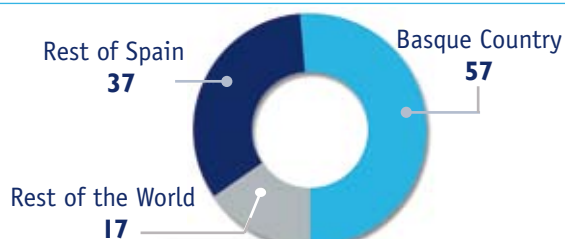


## Employment

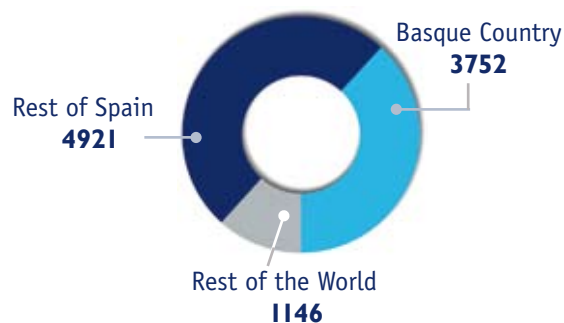


Geographical Employment breakdown only since 2004

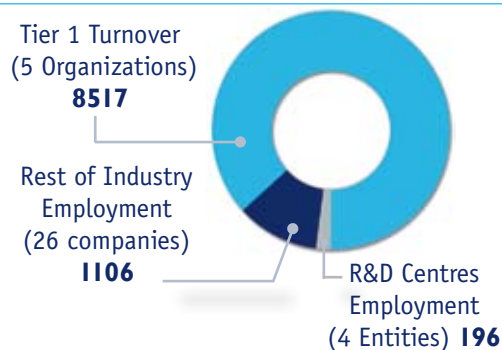
### Members Facilities



### Geographical distribution of Jobs

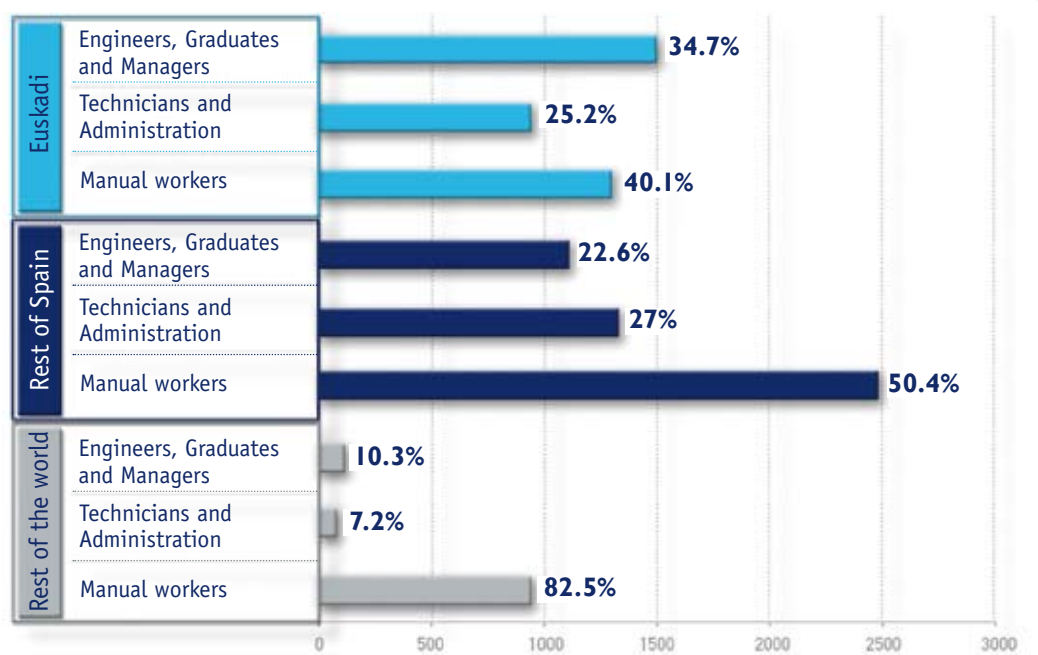


### Employment according to Member Size

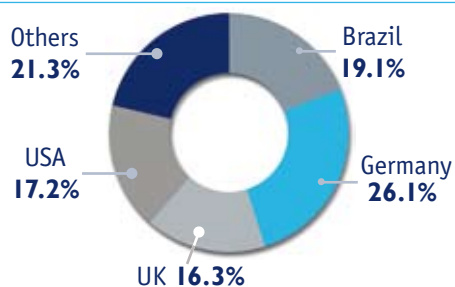




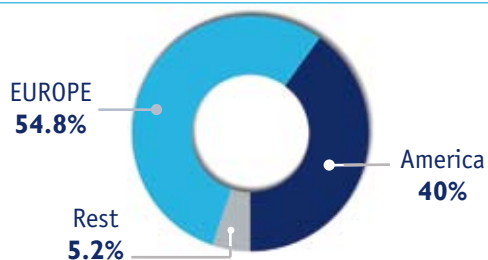
## Employment according to qualification



## Exports according to Countries



## Exports according to Continents



## Exports in M€

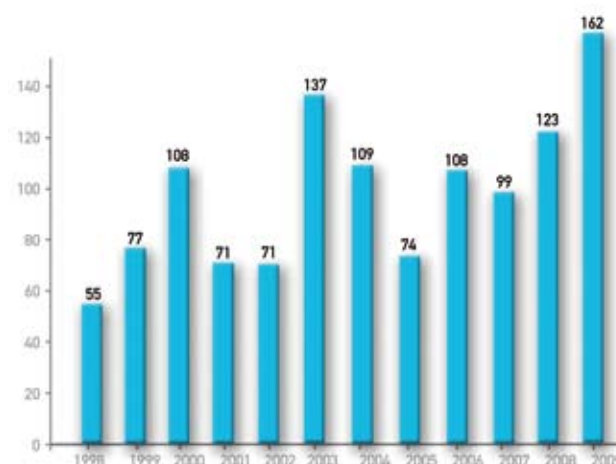


## R&D in M€

R&D Investment over Sales %  
**13.9%**

R&D Self-financing (%)  
**83%**

R&D personeel  
**2097**











## Current and former Programmes & Clients

### Aerostructures

AIRBUS A300/ 310/ 318/ 319/ 320/ 321/ 330/ 330MRTT/ 340/ 350XWB/ 380/ 400M  
 ATR 42, 72  
 BOEING 737, 747-LCF, 747-8, 787, 787-8, E-3 AWACS  
 BOMBARDIER CRJ700/ 900, C-Series  
 DASSAULT FALCON 7X  
 DORNIER DO728  
 EADS C101/ 212/ 295, CN235, TBM700  
 EMBRAER ERJ135/ 140/ 145/ 145LR/ 145XR, LEGACY EXECUTIVE/ SHUTTLE, EMB170/ 175/ 190/  
 195, PHENOM  
 EUROCOPTER AS332, EC135, NH90, TIGRE  
 SIKORSKY S92

### Engines

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 MTR390-Enhanced  
 PRATT & WHITNEY F135, JT8-STD / 200, PT6 / T3, PW535 /150/810  
 ROLLS ROYCE BR 710/715, RB211, TRENT MT30/50, TRENT-500/ 700/ 800/ 900/1000/XWB  
 ROLLS ROYCE NORTH AMERICA A250, A601K, M250, T63  
 SNECMA ATAR 9KPLUS/09C/09K50, CFM 56, SaM146  
 TURBOMECA ARRIEL, MAKILA  
 SINO SWEARINGEN SJ30

### Systems and equipments

AIRBUS Military, AIRCELLE, ALENIA, BAE Systems, BOMBARDIER, CESA, DIEHL-BGT, EADS,  
 EUROCOPTER, EUROFIGHTER, GOODRICH, HONEYWELL, INDRA, LATECOERE, LIEBHERR,  
 MARTIN BAKER, MBDA, MESSIER DOWTY, RATIER FIGEAC, ROLLS-ROYCE, SAGEM, SIKORSKY.

### Space

#### ESA/NASA:

ARTEMIS, AURORA, CLUSTER, CX-OLEV, EGNOS, ENVISAT, EUREKA, GAIA, GTAB, HERMES,  
 HERSCHEL-PANCK, HUBBLE SPACE TELESCOPE, HIPPARCOS, INTEGRAL, ISEE-B/COLUMBUS/CRV,  
 METOP, MSG, ROSETTA, SOHO, 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, KOREASAT 5,  
 METEOSAT, MINISAT, NETLANDER, OLYMPUS, PLEIADES, SPOT-4, SYRACUSE 3B, SUPERBIRD7,  
 SPAINSAT, TURKSAT 3A, YAMAL 200.



## Leading Programmes

**AIRBUS A350XWB - Risk Partners:** AERNNOVA, ACITURRI, ALESTIS

**AIRBUS A380 - Risk Partners:** AERNNOVA, ACITURRI, ALESTIS

**AIRBUS A400M - Risk Partners:** ACITURRI, ALESTIS

**BOEING 787 - Conceptual Design:** ALTRAN, SENER

**BOMBARDIER C-Series - Risk Partner :** AERNNOVA

**DASSAULT Falcon 7X - Risk Partner:** ALESTIS

**EMBRAER 170/190 - Risk Partner:** AERNNOVA

**EMBRAER ERJ 135/145 - Risk Partner:** AERNNOVA

**EMBRAER Legacy - Risk Partner:** ALESTIS

**EMBRAER Phenom - Risk Partner:** ALESTIS

**EPI TP400 - Consortium Member:** ITP

**EUROJET EJ200 - Consortium Member:** ITP

**MTRI MTR390E - Consortium Member:** ITP

**PRATT & WHITNEY PW810 - Risk Partner:** ITP

**ROLLS ROYCE Trent 500/900/1000 - Risk Partner:** ITP

**ROLLS ROYCE Trent XWB - Risk Partner:** ITP

**SIKORSKY S92 - Risk Partner:** AERNNOVA



# 8

## Acknowledgements

Elements of the natural world are present on every page of this report.

When we open it, immediately we find a panoramic view that reminds us of the importance of getting away from the daily grind and of seeing life from a broader perspective.

The magnificence of flight seen from close-up invites us to delve into the living world of our members: the unfolded wings and supporting elements imitate birds; the spirals of the snails remind one of the turning movement and the silence of modern engines. A complex and precise image allows us to enter the world of systems and equipment. A tiny figure reminds us of the importance of maintenance, space regards us in silence and in another well-known animal we discover the work of generating ideas, in cooperation and in networks.

The results of the whole, the sum of each and every one of the people in each member of the Association, build mountains of stones that are apparently the same but are rich in their diversity. There are many small things that contribute to and generate economic growth, social welfare and, especially, personal development. And on the way, we have chanced upon a great variety of clients and programmes on which we have worked from the beginning, from north to south, travelling through infinite landscapes ...

We close the book just as we opened it with an image of one of the most important continental wetlands in the Basque Country next to a photograph of an original flying object. From Euskadi to the entire world, different people who, by joining forces develop themselves and learn something new every day, in an attempt to make progress for the benefit and development of society and to ensure that the world remains alive and clean.

Many thanks to everyone for allowing us to continue along this road.



*The HEGAN team*

## Agradecimientos

Hemos recorrido estas páginas acompañados por la naturaleza.

Al abrir el informe, enseguida nos hemos encontrado con una vista panorámica, que nos ha recordado la importancia de procurar separarnos de nuestra realidad diaria para alcanzar una visión más completa.

La majestuosidad del vuelo ya cercano nos ha invitado a adentrarnos en el mundo viviente de los asociados: las alas desplegadas y los elementos sustentadores imitan a las aves; los giros de las caracolas recuerdan el movimiento rotatorio y el silencio de los motores modernos; una imagen compleja y precisa nos introduce en el mundo de los sistemas y equipos; un figura diminuta en equilibrio nos recuerda la importancia del mantenimiento; el espacio nos mira sin decir palabra; y con otro conocido animal descubrimos los trabajos de generación de ideas, en cooperación y en red.

Los resultados del conjunto - la suma de todas y cada una de las personas de cada una de las entidades de la asociación - logran construir montañas de piedras aparentemente iguales pero ricas en su diversidad. Son los muchos pocos que suman y suman y generan desarrollo económico, bienestar social... y, sobre todo, desarrollo personal. Y en el camino nos hemos encontrado con una gran variedad de clientes y programas con los que se ha trabajado desde el principio de norte a sur, recorriendo parajes infinitos...

Cerramos el libro como lo abrimos, con una imagen de uno de los humedales continentales más valiosos del País Vasco junto a la de un original elemento volador. Desde Euskadi para todo el mundo, personas diferentes que al asociarse se enriquecen y aprenden día a día tratando de vivir la estructura mental de ganar-ganar para que la sociedad que les acoge se enriquezca y siga manteniéndose viva y limpia.

Gracias a todos por ayudarnos a seguir recorriendo estas sendas.

## Esker onez

Naturan murgilduta egin dugu orri hauetako ibilbidea.

Txostena irekitzean, berehala, bista panoramiko batekin egin dugu topo, eta ikuspegi osoagoa lortzeko eguneroko errealitateetik aldentzen saiatzeak duen garrantzia gogorarazi digu horrek.

Jada gertu dugun hegaldiaren handitasunak bazkideen mundu bizian sartzera gonbidatu gaitu: zabaldutako hegoek eta elementu eusleek hegaztiak imitatzeko; oskolen birek motor modernoek higidura birakaria eta isiltasuna orotarazten dute, eta irudi konplexu eta zehatz batek sistemen eta ekipoen munduan murgiltzen gaitu; orekan dagoen irudi niniño batek, berriz, mantentze lanen garrantzia dakarkigu gogora; eta ezaguna dugun beste animalia baten laguntzaz, lankidetzan oinarrituta eta sarean ideiak sortzeko egindako lanak aurkituko ditugu.

Multzoaren emaitzek -elkarteko erakunde bakoitzeko pertsona bakoitzaren eta guztien baturak osatzen du multzo hori- harrizko mendiak eraikitzea lortzen dute, itxura batean berdina izan arren, aniztasunean benetan aberatsak direnak. Gutzikako horiek batuz eta batuz eratutako andana horiek dira garapen ekonomikoa, gizartearen ongizatea eta, batez ere, garapen pertsonala sorrarazten dutenak. Bidean, askotariko bezero eta programekin egin dugu topo, eta lehenengo unetik iparraldetik hegoalderaino lan egin dugu horiekin, amaigabeko bazterretan barrena...

Liburua ireki dugun modu berean itxiko dugu: Euskal Herrian dugun balio handieneko hezegune kontinental baten irudia dugu, elementu hegalaria baten irudiaren ondoan. Euskaditik mundu osoarentzat, elkartean sartzen direnean aberastu egiten diren pertsonak ditugu, etengabe ikasten ari direnak, babesten dituen gizartea aberasten dutenak, bizirik eta garbi iraun dezan; azken finean, egunez egun irabazi-irabazi kontzeptuan oinarritako buruko egitura bizitzeko ahalegintzen direnak.

Eskerrik asko guztioi bazter hauetan barrena ibiltzen lagundu diguzuelako.