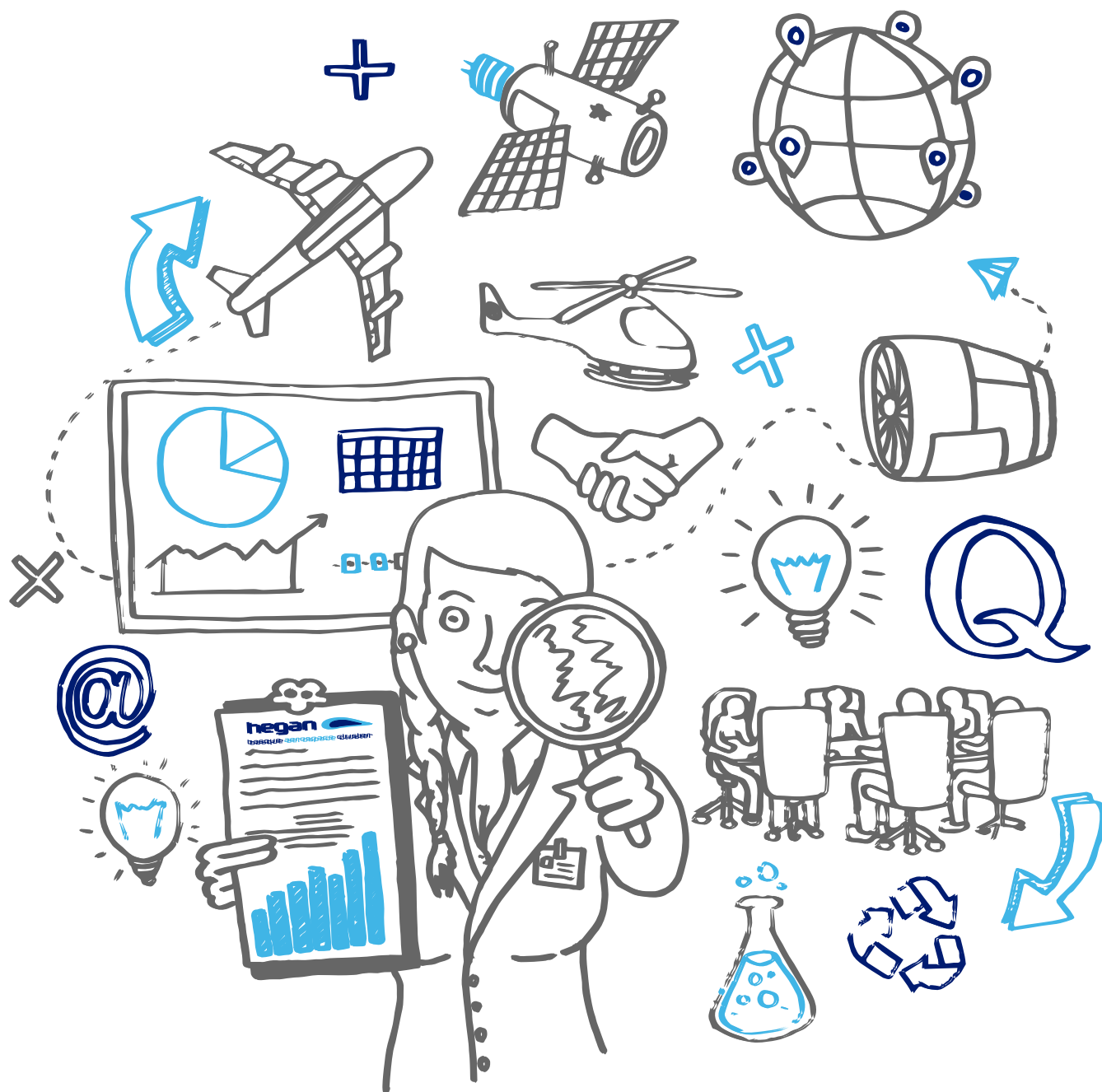


Annual Report 2015

Informe Anual 2015.ko Urteko Txostena



+ trust= + collaboration = + value

hegan  is

→ **Member of**

European Aerospace Cluster Partnership



→ **Collaborator member of**



→ **Registered at**



Informe Anual 2015.ko Urteko Txostena



BRONZE

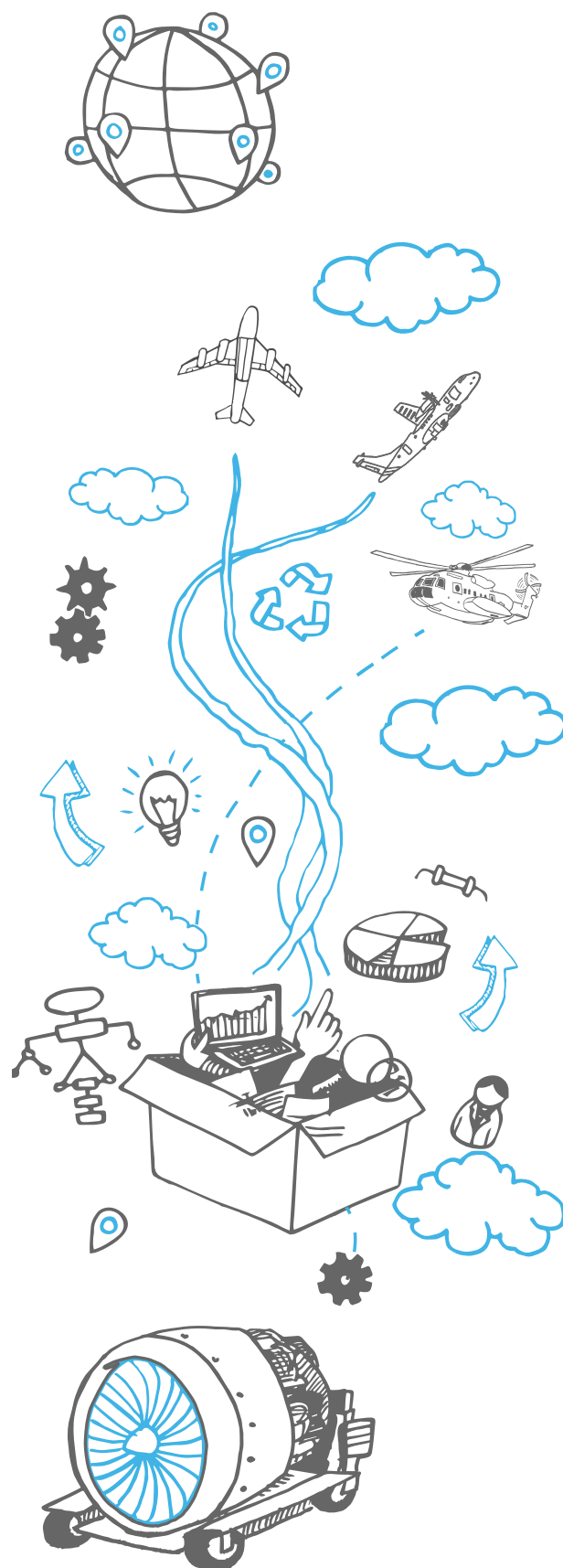


**Cluster
Management
Excellence**

STRIVING FOR CLUSTER EXCELLENCE

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1 - PRESENTATION

Presenting **hegan's** annual report is always a great source of pride. For another year running, we represent a group that has been able to continue contributing to the development of the economy and of the aviation and aerospace industry in particular.

With a growth in turnover of more than 10% compared to 2014, the member organisations of the Basque Aeronautics and Space Cluster - HEGAN - had a good year in 2015 with total sales figures amounting to 1,935 million euros in all their plants throughout the world. The aerospace sector now represents **6.1% of the Basque Country's industrial GDP**.

For the third consecutive year, total exports passed the 1,000 million euro mark, reaching a figure of 1,226 million euros and representing 65% of total turnover. Companies located in Germany are the main destinations for our products, followed by those in the United Kingdom and the United States.

R&D investment has held its own compared to the previous year, in line with the phases of the different programmes that we are involved in, and has reached 162.5 million euros, which represents 9.4% of our turnover. Of that amount, the high level of self-financing practiced by our companies amounts to some 86%.

With regards to overall employment, this has fallen, mainly abroad, by 0.9% as a result of reductions in certain work packages by clients. In the Basque Country, the number of jobs is virtually the same, with 4,225 directly employed professionals and more than 14,300 indirect jobs.

Moreover, with regard to the future, the major airlines forecast an annual increase in demand of 5% over the next 20 years, which always involves an increase in the production of aircraft.

In the medium and long term, the situation of airlines and manufacturers provides a stable framework for the further development of the aviation industry, with an annual increase of 5% in passenger traffic over the next 20 years. This demand will continue to contribute to increased aircraft production. Our optimistic predictions for the next decade are based on large ongoing programmes, which will ensure high manufacturing activity

throughout the industry's value chain. According to different manufacturers, until 2033 there will be a need to build between 32,000 and 38,000 new commercial aircraft with more than 100 seats. In practice, this will mean doubling the current fleet. In the regional aircraft segment, from 70 to 130 seats, it is estimated that there will be a demand for between 6,250 and 7,000 units over the next 20 years (2014-2033) in order to cover the increases in market demand and to replace older aircraft.

Logically, the sector aims to **continue maintaining and improving its competitiveness**. Among the main challenges that we face, one of the most important issues is the increasingly rapid development of the sector, which is characterised by ever greater technological demands (greater aircraft safety, more environmentally friendly aircraft that are lighter and consume less) that have a profound impact on the chain. Moreover, we must seek to maintain the leadership of Tier-1 companies in technology and innovation and develop the value chain, so that all agents contribute to our aim of securing an excellent industry. Some of the variables to be taken into account now and in the future include: the need for specific financial means in order to be able to launch new programmes, the development of good relations with professionals in order to increase competitiveness with the cooperation of all involved and the continued diversification of the portfolio of companies, with their entry into new aeronautical markets and programmes, by taking advantage of large manufacturers outsourcing their work.

The **hegan** Association maintains its **commitment to helping to find solutions through cooperation**. We invite you to read about these aspects and the main activities of our associates, as set out in this document. Many thanks.



Iñaki López Gandásegui
President



Jose Juez
Director

PRESENTACIÓN

Poder presentar el informe anual de HEGAN es siempre motivo de orgullo pues un año más representamos a un colectivo que ha podido seguir contribuyendo al desarrollo de la economía, y en particular de la industria aeronáutica y espacial.

Con un crecimiento de la facturación superior al 10% sobre 2014, las organizaciones asociadas al Cluster de Aeronáutica y Espacio del País Vasco - HEGAN - han alcanzado en el ejercicio 2015 una cifra de ventas de 1.935 millones de euros en todas sus plantas repartidas por todo el mundo. Así, este sector supone ya el **6,1% del PIB industrial de Euskadi**.

Las exportaciones totales superaron por tercer año consecutivo los 1.000 millones de euros, alcanzando la cifra de 1.226 millones de euros, el 65% de la facturación total. Las empresas ubicadas en Alemania son los principales destinos de los trabajos, seguidas de las de Reino Unido y Estados Unidos.

La inversión en I+D se ha mantenido en cifras similares al año pasado, en consonancia con las fases de los diferentes programas en los que participamos, y han alcanzado los 162,5 millones de euros que representa el 9,4% de la facturación. De esa cantidad el elevado esfuerzo de autofinanciación de las empresas alcanza el 86%.

En cuanto al empleo total, éste ha descendido un 0,9%, principalmente en el extranjero, como consecuencia de reducciones de algunos paquetes de trabajo por parte de clientes. En Euskadi prácticamente se ha mantenido el número de empleos, dejando la cifra en 4225 profesional directos y más de 14300 empleos indirectos.

Además, en cuanto al futuro, las previsiones realizadas por las líneas aéreas hablan de un incremento anual de la demanda aérea del 5% durante los próximos veinte años, lo que siempre conlleva un incremento de la producción de aviones.

A medio y largo plazo, la situación de aerolíneas y fabricantes proporcionan un marco estable para continuar desarrollando la industria aeronáutica, con un aumento anual de 5% del tráfico de pasajeros durante los próximos veinte años. Esta demanda continuará contribuyendo al aumento de producción de los aviones. Las expectativas optimistas de la próxima década se basan en los grandes programas en curso, que van a garantizar una gran actividad de fabricación en toda la cadena de valor de la industria. Así según los diferentes constructores, hasta el año 2033 será necesario construir entre 32.000 y 38.000 nuevos aviones comerciales de más de 100 plazas, lo que en la práctica supondrá doblar la flota actual de aviones. En el segmento de aviones regionales, de 70 a 130 asientos, se estima una demanda de entre 6.250 y 7.000 unidades para los próximos 20 años (2014-2033) con el fin de cubrir los aumentos de demanda del mercado y reemplazar los aparatos más antiguos.

Lógicamente, el objetivo del sector es **seguir manteniendo y mejorando la competitividad**. Y entre los principales retos con que nos enfrentamos, destacamos la cada vez más rápida evolución del sector, caracterizado por grandes exigencias tecnológicas –mayor seguridad de las aeronaves, aviones más respetuosos para el medio ambiente, con menor peso y consumo– que impactan en toda la cadena. Además, debemos seguir manteniendo el liderazgo de los Tier-1 en tecnología e innovación y desarrollar la cadena de valor, para que todos los agentes contribuyan con su aportación al objetivo de conseguir una industria excelente. La necesidad de contar con medidas financieras específicas para poder abordar el lanzamiento de nuevos programas, el buen entendimiento entre los profesionales para construir competitividad entre todos, y el continuar la diversificación de la cartera de las empresas, con la entrada en mercados y programas aeronáuticos nuevos, aprovechando la externalización de trabajo de los grandes fabricantes son otras variables a tener en cuenta en nuestro devenir.

Desde la asociación HEGAN, mantenemos el **compromiso de ayudar a encontrar soluciones en cooperación**. Os invitamos a que las conozcáis, junto a las principales actividades de nuestros asociados, con la lectura de estas páginas. Muchas gracias.

Iñaki López Gandáségui
Presidente

Jose Juez
Director

AURKEZPENA

Ohere handia da guretzat HEGANeko urteko txostena aurkeztea, eta harrotasunez egiten dugu gainera, beste urte batez ekonomiaren garapenari, eta bereziki aeronautikaren eta espazioaren industriaren garapenari, laguntzen jarraitu duen kolektibo bat ordezkatzeko baitugu.

Fakturazioa % 10 hazi da 2014koarekin alderatuta, eta Euskadiko Aeronautika eta Espazioko Kluster Elkartearen -HEGAN- biltzen diren enpresek 1.935 milioi euroko salmentak lortu dituzte munduan zehar banatuta dituzten planta guztietan, 2015eko ekitaldian. Horrela, sektore honi dagokio **Euskadiko industriako BPGren % 6,1**.

Esportazioek 1.000 milioi euroko muga gainditu dute hirugarren urtez segidan, eta 1.226 milioi euroko zifrara iritsi dira, fakturazio osoaren % 65era. Alemanian kokatuko enpresak dira lanen helmuga nagusiak, eta, horien ondotik, Erresuma Batuan eta Estatu Batuetan kokatutakoak datoz.

I+G arloko inbertsioari eutsi egin zaio, iazkoen antzeko zifrak izan baitira, parte hartzen dugun programen faseekin bat etorrita, eta 162,5 milioi eurora iritsi da, hots, fakturazioaren % 9,4ra. Zenbateko horren % 86 enpresek autofinantzatzeko egiten duten ahalegin izugarriari dagokio.

Enplegu osoari dagokionez, % 0,9 jaitsi da, atzerrian bereziki, bezeroek lan sorta batzuk murriztu dituztelako. Euskadin, enpleguen kopuruari eutsi zaio, eta 4.225 zuzeneko profesional eta 14.300 zeharkako enplegu baino gehiago ditu.

Gainera, etorkizunari begira eta aireko lineek egindako aurreikuspenen arabera, % 5 haziko da urtero aireko eskaria datozen hogeitun urteotan, eta hegazkinen produkzioa areagotzea dakar horrek beti.

Epe ertainera eta luzera, aireko lineen eta ekoizleen egoerak esparru egonkor bat eskaintzen du industria aeronautikoa garatzen jarraitzeko, urtero bidaia kopurua % 5 haziko baita datozen hogeitun urteotan. Eskari horrek hegazkinen produkzioa areagotzen lagunduko du berriro ere. Datoren hamarkadako igurikimen baikorrak abian diren programa handietan oinarritzen dira, ekoizpen-jarduera handia bermatuko baitute industriaren balio-kate osoan. Horrela, hainbat eraikitzaileen arabera, 2033. urtera arte 100 plazako 32.000-38.000 hegazkin komertzial berri egin beharko dira, hau da: bikoiztu egin beharko da gaur egungo hegazkin-flota. 70 eserlekutik 130era bitartean dituzten eskualdeko hegazkinen alorriari dagokionez, datozen hogeitun urteotan 6.250-7.000 unitateko eskaria izango dela jotzen da (2014-2033), merkatuan gero eta gehiago diren eskariei erantzuteko eta hegazkin zaharrenak ordeztzeko.

Logikoki, sektorearen helburua **lehiakortasunari eustea eta hobetzea da**. Eta, aurrez aurre ditugun erronken artean, sektorearen bilakaera gero eta azkarragoa azpimarratu nahi dugu, gero eta eskakizun teknologiko zorrotzagoak baititu –aireontzien segurtasun handiagoa, ingurumena gehiago errespetatzen duten hegazkinak, pisu eta kontsumo gutxiagokoak–, eta horrek kate osoari eragiten baitio. Gainera, teknologiaren eta berrikuntzaren esparruetan, Tier-1 mailako lidergoari eutsi behar diogu, eta balio-katea garatu behar dugu eragile guztien ekarpenaren bidez, industria bikaina lortzen laguntzeko. Programa berriak abian jartzeko aparteko neurri finantzarioak izatea, guztien artean lehiakortasuna sustatzeko lan-munduko eragileekin ongi moldatzea, eta aeronautikaren merkatu eta programa berrietan sartuz eta ekoizle handien lana kanporatuz enpresen zorroa zabaltzen jarraitzea dira gure bilakaeran kontuan hartu beharreko beste aldagai batzuk.

HEGAN elkartekook **erronka horiei irtenbidea lankidetzan oinarrituta bilatzeko konpromisoari eusten** diogu. Orri hauek irakurri, gonbidapena egin nahi dizuegu irtenbide horiek eta gure bazkideen jarduera nagusiak ezagutzeko. Mila esker.

Iñaki López Gandáségui
Lehendakaria

Jose Juez
Zuzendaria

2 - THE CLUSTER ASSOCIATION

2.1 ORGANIZATION

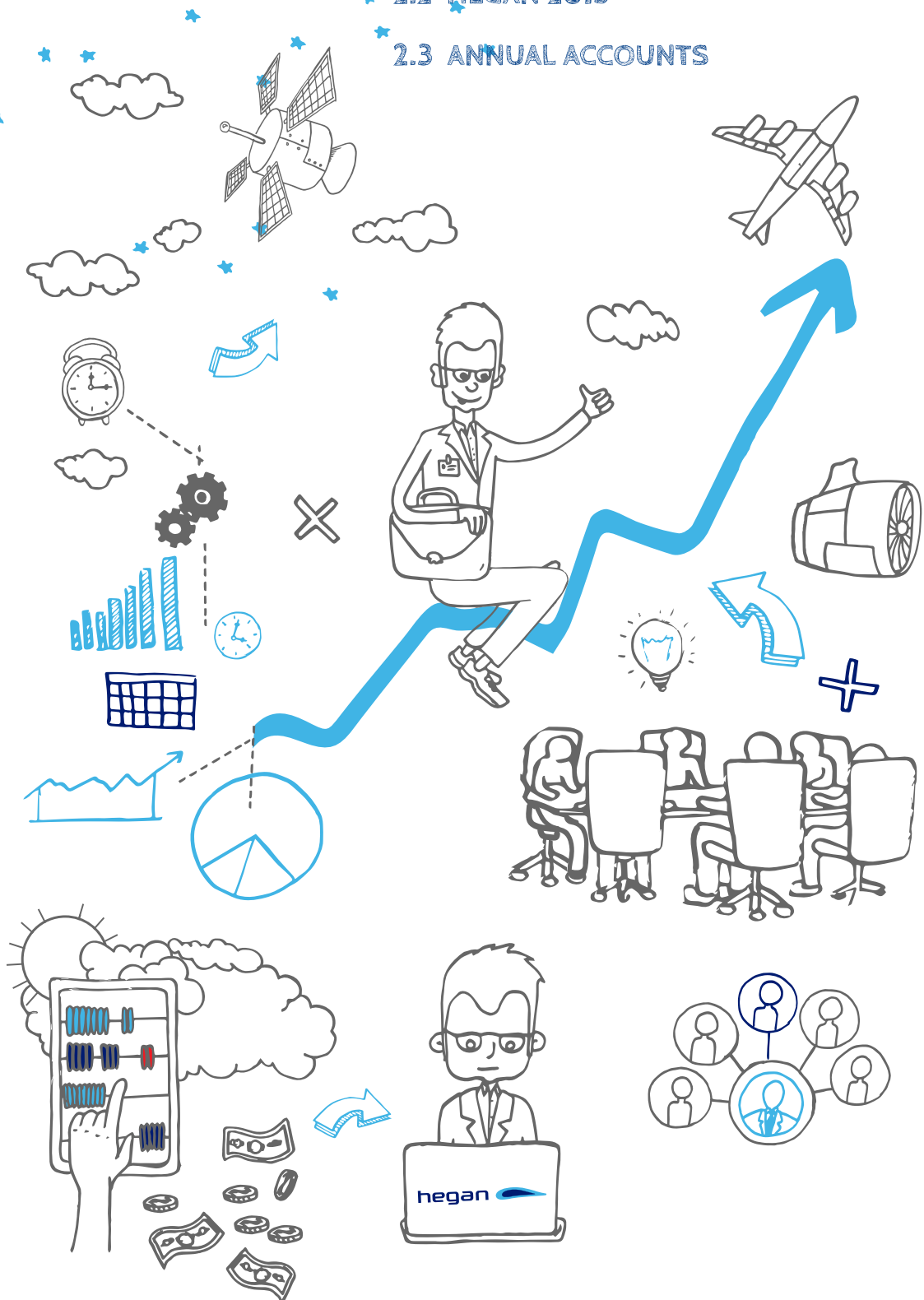
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★ 2.2 HEGAN 2015

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★ 2.3 ANNUAL ACCOUNTS

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2.1 ORGANIZATION

hegan is a private, non-profit association that brings together the Basque aeronautics and space sector. It was created with the aim of representing and stimulating the sector to further its competitiveness in the short, medium and long term through co-operation and innovation between companies and other agents, providing collaborative responses to its strategic challenges.



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.

BOARD OF DIRECTORS

This is the Collegial Body of Administration and Management. Appointed by the General Assembly, its members in 2015 were as follows:

Íñaki López Gandasegui -President-, AERNNOVA
Ignacio Mataix -Vice President-, ITP
Jorge Unda -Secretary-, SENER
Íñigo Ezquerro, ALTRAN
Ignacio Eiriz, CTA
Íñaki Tellechea, SPRI / BASQUE GOVERNMENT
Borja Emparan, WEC
José Juez Langara, HEGAN

EXECUTIVE COMMITTEE

This committee, delegated by the Board of Directors, is the body responsible for strategic monitoring of the activities pursued by the Cluster. It meets on a quarterly basis and its members in 2015 were as follows:

Javier Fdez. de Retana -President-, AERNNOVA
Íñigo Ezquerro, ALTRAN
Eduardo Junkera, DMP
Plácido Márquez, ITP
Koldobika Grajales, LTK GRUPO
Javier Viñals, SENER
Susana Larrea, SPRI / BASQUE GOVERNMENT
Borja Emparan, WEC
José Juez Langara - Managing Director of HEGAN
Martín Fernández Loizaga, Associate Director of HEGAN.

We would also like to make special mention of Jon Larrinaga, who sat on this Committee as a representative of AERNNOVA during the last five years before retiring. We wish to thank him for his work, support and enthusiasm in achieving the objectives of the Association and the cluster.

WORKING GROUPS

As of 2005, the permanent committees of HEGAN were restructured into temporary and flexible workgroups dedicated to a number of specific activities, 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 2015 there were two new processes in which more than half the member companies were involved: Implementation of the Innovation Plan and Client/Country Teams. These have resulted in lines of action in which several stakeholders have started working together on different priority areas of technological and business innovation, as well as internationalization.

HEGAN'S TEAM

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

- Mentxu Díaz, Administration Supervisor
- Martín Fernández Loizaga, Associate Director
- José Juez Langara, Managing Director
- Ana Rodríguez, Head of Operations
- Ana Villate, Cooperation Projects Manager

ORGANIZACIÓN

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

ASAMBLEA GENERAL

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

JUNTA DIRECTIVA

Es el Órgano Colegiado de Administración y Dirección. Sus miembros en 2015, designados por la Asamblea General, fueron:

Iñaki López Gandasegui –Presidente-, AERNNOVA

Ignacio Mataix –Vicepresidente-, ITP

Jorge Unda –Secretario-, SENER

Íñigo Ezquerro, ALTRAN

Ignacio Eiriz, CTA

Iñaki Tellechea, SPRI / GOBIERNO VASCO

Borja Emparan, WEC

José Juez Langara, HEGAN

COMITÉ EJECUTIVO

Este comité, delegado de la Junta Directiva, actúa como órgano de seguimiento estratégico de las actuaciones de la Asociación Cluster, se reúne trimestralmente y sus miembros 2015 fueron:

Javier Fdez. de Retana –Presidente-, AERNNOVA

Íñigo Ezquerro, ALTRAN

Eduardo Junkera, DMP

Plácido Márquez, ITP

Koldobika Grajales, LTK GRUPO

Javier Viñals, SENER

Susana Larrea, SPRI / GOBIERNO VASCO

Borja Emparan, WEC

José Juez Langara, Director de HEGAN

Martín Fernández Loizaga, Director adjunto de HEGAN

Queremos hacer mención especial a Jon Larrinaga, que fue miembro de este Comité en representación de AERNNOVA durante los últimos 5 años y que se jubiló durante este periodo. Queremos agradecerle su trabajo, apoyo y entusiasmo en la consecución de los fines de la Asociación y del cluster.

GRUPOS DE TRABAJO

Desde 2005, los comités permanentes de HEGAN sufrieron una reestructuración pasando a ser grupos de trabajo temporales y flexibles dedicados específicamente a actividades puntuales y reportando al Comité Ejecutivo. Estos grupos de trabajo se crean y desaparecen a voluntad de los asociados y según sus necesidades específicas del momento. En 2015, queremos destacar dos procesos nuevos que reunieron a más de la mitad de los socios: Despliegue Plan de Innovación y Equipos Cliente/País. De los mismos han surgido líneas de trabajo en las que varios grupos de interés han comenzado a colaborar en diferentes ámbitos priorizados de innovación tecnológica y empresarial; y de internacionalización.

EQUIPO DE HEGAN

El equipo permanente de la Asociación es el siguiente:

- Mentxu Díaz, Responsable de Administración
- Martín Fernández Loizaga, Director Adjunto
- José Juez Langara, Director Gerente
- Ana Rodríguez, Responsable de Operaciones
- Ana Villate, Responsable de Proyectos en Cooperación

ANTOLAMENDUA

Aeronautika eta espazioaren sektoreko euskal enpresak biltzen dituen irabazi asmorik gabeko elkarte pribatua da **hegan**. Sektorea ordezkatzeko eta dinamizatzea da elkartearen misioa, horrela, enpresen eta beste eragile batzuen arteko lankidetzaren eta berrikuntzaren bidez, epe motzera, ertainera eta luzera sektorearen lehiakortasuna sendotzeko, sektoreko dema estrategikoei lankidetzan oinarritutako erantzuna eskainiz.

BILTZAR NAGUSIA

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

ZUZENDARITZA BATZORDEA

Administrazio eta zuzendaritzako kide anitzeko organoa da. Honako hauek dira bertako kideak, Batzar Nagusiak 2015erako izendatutakoak:

Iñaki López Gandasegui –lehendakaria-, AERNNOVA

Ignacio Mataix –lehendakariordea-, ITP

Jorge Unda –idazkaria-, SENER

Íñigo Ezquerro, ALTRAN

Ignacio Eiriz, CTA

Iñaki Tellechea, SPRI / EUSKO JAURLARITZA

Borja Emparan, WEC

José Juez Langara, HEGAN

BATZORDE BETEARAZLEA

Zuzendaritza Batzordearen ordezkari den talde hau Kluster Elkartearen jardueren jarraipen estrategikorako organo gisa aritzen da. Hiru hilabetearen behin biltzen da, eta 2015ean, hauek izan dira batzorde horretako kideak:

Javier Fdez. de Retana –lehendakaria-, AERNNOVA

Íñigo Ezquerro, ALTRAN

Eduardo Junkera, DMP

Plácido Márquez, ITP

Koldobika Grajales, LTK TALDEA

Javier Viñals, SENER

Susana Larrea, SPRI / EUSKO JAURLARITZA

Borja Emparan, WEC

José Juez Langara, HEGANeko zuzendaria

Martín Fernández Loizaga, HEGANeko zuzendari laguntzailea

Aipamen berezia egin nahi diogu Jon Larrinagari; azken 5 urte hauetan batzarreko kide izan da AERNNOVAren ordezkari gisa, eta ekitaldi honetan hartu du erretiroa. Gure eskerrik beroenak eman nahi dizkiogu, elkartearen eta klusterraren helburuak lortzeko egin duen lanagatik, eskaintako laguntzagatik eta erakutsitako berotasunagatik.

LANTALDEAK

2005. urtetik aurrera, berregituratu egin ziren HEGANeko batzorde iraunkorak, eta, horien ordezkari gisa, ekintza zehatzetara zuzendutako behin-behineko lantalde malguak sortu ziren, Batzorde Betearazleari ere laguntza emanez horrela. Lantalde horiek bazkideen beharren arabera sortzen eta desagertzen dira, une bakoitzean beroriek dituzten ikuspegi eta iritziak aintzat hartuta. 2015ean, bazkideen erdiak baino gehiago elkartearen proiektu berri azpimarratu nahi ditugu: Berrikuntza Planaren Hedapena eta Bezero/Herritar Taldeak. Horietatik, lan-ildoak sortu dira, eta interes-talde batzuk berrikuntza teknologikoan eta enpresaren berrikuntzan lehentasuna duten hainbat esparrutan lanean hasi dira jada, bai eta nazioartekotzean ere.

HEGANeko TALDEA

Honako hauek osatzen dute elkarteko talde iraunkorra:

- Mentxu Díaz, administrazio-arduraduna
- Martín Fernández Loizaga, zuzendari laguntzailea
- José Juez Langara, zuzendari gerentea
- Ana Rodríguez, eragiketa-saileko arduraduna
- Ana Villate, kooperazio-proiektuen arduraduna

2.2 HEGAN 2015

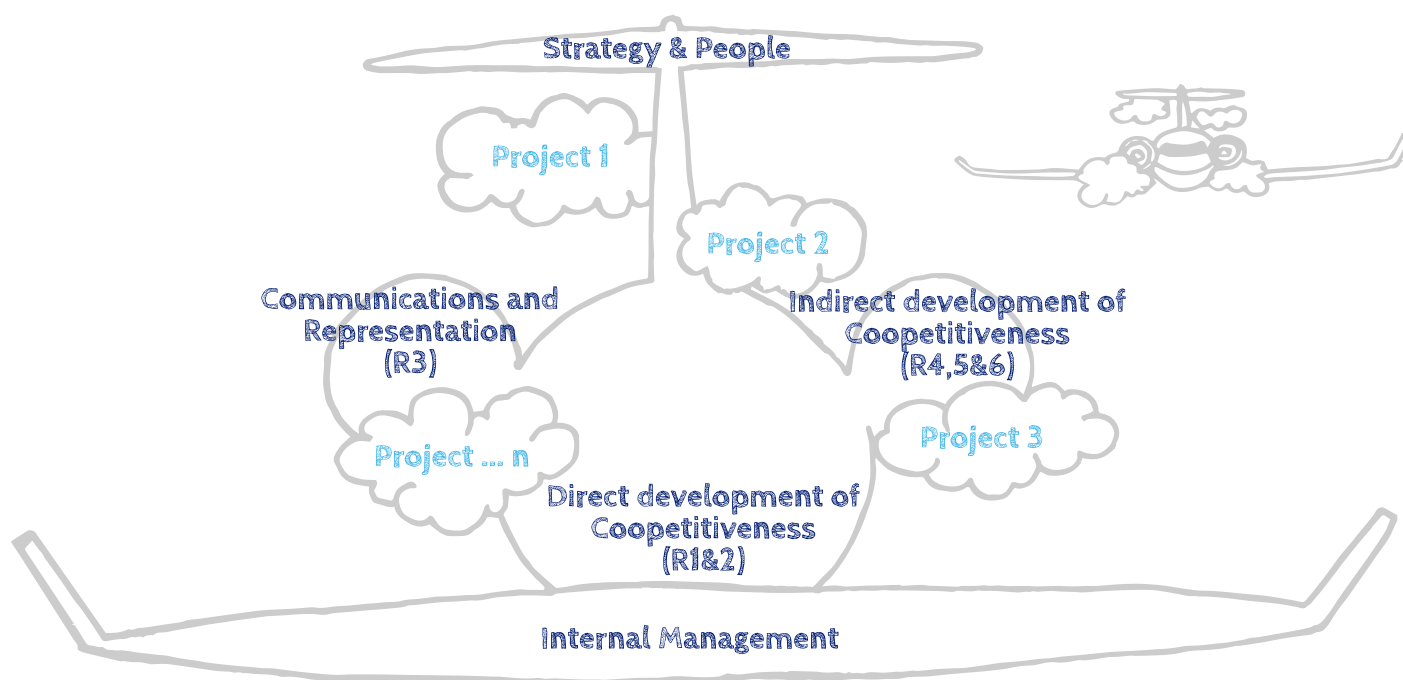
As we indicated three years ago in this section, in spring 2012 we began another process of strategic reflection. This process set out the general lines of action to be developed until 2016.

It was a rapid and effective process. Not surprisingly, by the autumn of 2012, we had already detected the challenges facing the sector for which HEGAN could provide its members with support:

- Reinforce the value chain
- Improve our positioning in the market
- Communication & Representation
- Give Context to take strategic decisions
- Generate, retain and attract Talent
- Specific Training

And all of these activities were based on a common principle: generating a culture of cooperation.

A complete review was also made of our organization. Since then we have worked according to processes and projects. In 2015 a new version of the model was drawn up, which now looks like this:



Although during this three-year period we have tried to focus on the first two challenges (those we considered to be linked directly to improving the competitiveness of our members), we have also worked on the others (they are all inter-dependent). These were the most significant activities in 2015:



Reinforce the value chain (R1)

Innovation Plan: In March, six areas were being worked on. Expansive work sessions in the General Assembly and AeroTxoko, as well as other more specific work groups.

Sessions on Opportunities for the Local Value Chain: the session organized with the Aernnova chain was completed and another was held with Aciturri, which was attended by 63 people from 54 organizations.

Detection of gaps in the chain: 23 gaps were detected and work is being done to resolve them. Noteworthy aspects: Special processes (training in ENDS and AEIs project) and Additive Manufacturing (AEIs project).

Learning Communities (CCA): two were implemented (the first with industrial supervisors and the second with managers) leaving the attendees greatly satisfied, and four are being arranged for 2016 (heads of innovation, sales reps, the second with industrial supervisors and the third with managers).

Solutions for the cluster: civil liability insurance policies for the Aero sector (8 members participated in the Compitte solution; as well as another 38 companies (10 Basque) from the sector).

Aeronautics Advanced Manufacturing Centre (CFAA): HEGAN and AFM presented a proposal to take charge of the technical secretariat of the association of businesses linked to the CFAA.

HEGAN was chosen to stimulate the initiative of the Basque Ecodesign Centre promoted by Ihobe, and to collaborate in Elkarlanean – the innovation network promoted by the Provincial Council of Bizkaia (DFB).

Virtually all of the member companies have taken part in one or all of HEGAN's Challenge 1 activities in 2015!



Improve our positioning in the market (R2)

Four internationalization actions: group participation in Le Bourget-Paris and Aerotrends-Bilbao (managed wholly by HEGAN); and in AIF-Bordeaux and Airtec-Munich (supporting the management of the Álava chamber of commerce as a representative of the Eusko Ganberak Basque chambers of commerce).

Client/Country Teams: Meeting with ten member companies to stimulate the Client/Country Teams: two teams created.

Three quarters of the member companies have taken part in one or all of HEGAN's Challenge 2 activities in 2015!

Communication & Representation (R3)

Regular actions: website maintenance, promotional support and Annual Report (2014). Some twenty active representation actions have been ongoing.

Press releases, media appearances, etc.

EACP: Active participation in the private initiative EACP – European Aerospace Cluster Partnership.

MoU signed with Aeromontreal in Paris Airshow 2015.

We uphold the brand image and the quality of our collective image!

Give Context to take strategic decisions (R4)

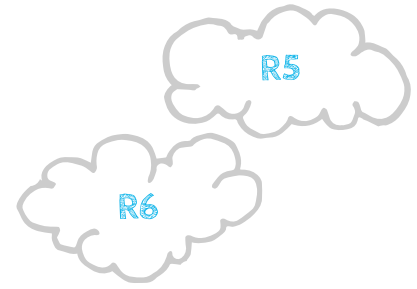
SICC: We continue to provide permanent support for the "Competitive Intelligence System of the Cluster" (SICC, for its Spanish initials).

We have been active in the EAQG (European Aerospace Quality Group) since 2003.

Ad hoc assistance to member companies. 2,000 files uploaded to the SICC and 270 registered users!



Generate, retain and attract Talent (R5) and Specific Training (R6)



HETEL: Participation in talent-related shows and events and the provision of training, in collaboration with HETEL – association of private vocational training centres of the Basque Country – to define areas of vocational training work for the aero sector and coordinating other activities with BIZKAIA TALENT, an entity promoted by the Department of Economic Promotion of the Provincial Council of Bizkaia (DFB-BFA) to attract and keep talent in the Bilbao-Bizkaia-Basque Country area.

A total of **two courses** (ISO 9001 and Visual Inspection (three editions)) and **one training workshop** (Intellectual Property) were given.

The Cluster's new employment database tool already contains 230 CVs managed by the users and made available to all the member companies.

57 professionals have taken part in HEGAN's training activities!

Generate a culture of cooperation and other internal improvement activities

In 2015, eight entities joined HEGAN. Full members: BATZ, DOILAN and KORTA. Collaborating members: EKIN, and the universities of UPV-EHU, Mondragon, Tecnun and Deusto. In 2015 HEGAN grew to 48 members!

At HEGAN, our aim is to welcome all types of member (large and small entities and all the links in the value chain) in order to create an environment of trust that spearheads our collaborative developments, and to live according to our work slogan:

+ trust= + cooperation= + value.



2.2 HEGAN 2015

Como comentamos hace ya tres años en estas mismas líneas, en la primavera de 2012 comenzamos otro proceso de reflexión estratégica. El proceso nos marcó las líneas de trabajo generales que iremos desplegando en acciones concretas hasta el año 2016.

Fue un proceso rápido, y efectivo, no en vano en otoño de 2012 ya teníamos detectados los retos del sector, aquellos en los cuales la existencia de HEGAN podía aportar valor al socio:

- Reforzar la cadena de valor
- Mejorar el posicionamiento ante ciertos clientes
- Comunicación y Representación
- Aportar contexto para la toma de decisiones estratégicas
- Generar, retener y atraer talento
- Formación específica

Y con una idea que estaba presente para trabajar en todos ellos: generar cultura de cooperación.

También se realizó una revisión completa de la organización y desde entonces se trabaja por procesos y proyectos. En 2015 se ha dado una nueva revisión al modelo que ahora obedece a este mapa:



Si bien, en estos tres años hemos tratado de poner foco en los dos primeros retos, aquellos que vemos ligados directamente a la mejora de la competitividad de los asociados, también se ha trabajado en los demás –todos se alimentan entre sí– y estas han sido las actividades más significativas en el año 2015:



Reforzar la cadena de valor (R1)

Plan de Innovación: En marcha, 6 temáticas en proceso. Sesiones de trabajo amplias en Asamblea General y AeroTxoko y en grupos de trabajo más específicos.

Jornadas de Oportunidades para la Cadena de Valor local: Cerrada la organizada con la cadena de Aernnova y realizada una nueva con Aciturri a la que asistieron 63 personas de 54 organizaciones.

Detección de Huecos en la cadena: detectados 23 huecos en los que se está trabajando. Destacamos: Procesos especiales (formación en ENDs y proyecto AEIs) y Fabricación aditiva (proyecto AEIs).

Comunidades de Aprendizaje (CCA): Efectuadas dos (1ª de Responsables industriales y 2ª de Gerentes) con gran satisfacción de los asistentes, y preparando 4 para 2016 (Resp. Innovación, Comerciales, 2ª de Industriales y la 3ª de Gerentes).

Soluciones para el colectivo: Seguros RC Aero (8 socias participan de la solución Compitte; así como otras 38 empresas (10 vascas) del sector). Centro de Fabricación Avanzada Aeronáutica (CFAA): HEGAN, junto a AFM presentan propuesta para hacerse cargo de la secretaría técnica de la Asociación de Empresas ligada al CFAA.

Aeronautics Advanced Manufacturing Centre (CFAA): HEGAN and AFM presented a proposal to take charge of the technical secretariat of the association of businesses linked to the CFAA.

HEGAN fue elegido como agente dinamizador en la iniciativa del Basque Ecodesign Center promovido por Ihobe; así como colaborador en Ikarlanean -red de innovación promovida por la DFB-.

¡Prácticamente el 100% de los socios han participado en una o en todas las actividades de Reto 1 de HEGAN en 2015!



Mejorar el posicionamiento ante ciertos clientes (R2)

Cuatro acciones de Internacionalización: participación agrupada en Le Bourget-París y Aerotrends-Bilbao (gestionadas íntegramente por HEGAN); y AIF-Burdeos y Airtec-Munich (apoyando la gestión de la Cámara de Álava en representación de las Cámaras Vascas-Eusko Ganberak).

Equipos Cliente/País: Equipos Cliente/País: Reunión de 10 socios para dinamizar Equipos de Cliente y/o País: Dos equipos formados.

¡Las ¾ partes de los socios han participado en una o en todas las actividades de Reto 2 de HEGAN en 2015!

Comunicación y representación (R3)

Acciones habituales: Mantenimiento web, Soportes promocionales y Memoria Anual (2014). Se han mantenido una veintena de acciones de Representación activa. Press releases, media appearances, etc.

Notas de prensa, aparición en medios...

Participación activa en la iniciativa privada EACP -European Aerospace Cluster Partnership-

Firmado MoU con Aeromontreal en París Airshow 2015.

¡Mantenemos la imagen de marca y la calidad de la imagen del colectivo!

Aportar contexto para la toma de decisiones estratégicas (R4)

SICC: Continuamos con el Soporte permanente a la herramienta "Sistema de Inteligencia Competitiva del Cluster".

Participamos en el EAQG (European Aerospace Quality Group) desde el año 2003.

Atenciones puntuales a socios.

¡2.000 fichas subidas al SICC y 270 usuarios registrados!



Generar, retener y atraer talento (R5) y formación específica (R6)

HETEL: Participación en jornadas y eventos que vinculan talento y aportan formación, colaborando con HETEL –asociación de centros privados de FP de Euskadi- para definir áreas de trabajo de la FP para el sector aero y coordinando otras actuaciones con BIZKAIA TALENT, entidad impulsada por el Departamento de Promoción Económica de la Diputación Foral de Bizkaia (DFB-BFA) para atraer, vincular y retener talento en el área Bilbao-Bizkaia-País Vasco.

En total **2 cursos** impartidos (ISO9001 e Inspección Visual (3 ediciones)) y **1 taller formativo** (Propiedad intelectual)

La nueva herramienta de **Bolsa de empleo del Cluster** ya cuenta con 230 CVs gestionados por los usuarios y a disposición de todos los socios.

¡57 profesionales han participado en la oferta formativa de HEGAN!

Generar cultura de cooperación y otras actividades de mejora interna

En 2015, se han asociado a HEGAN 8 entidades. Socios de Número: **BATZ, DOILAN y KORTA**. Socios Colaboradores: **EKIN**, Y las Universidades de **UPV-EHU, Mondragon, Tecnun y Deusto**. **¡En 2015, los socios de HEGAN son ya 48!**

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

+ confianza= + cooperación= + valor.



2.2 HEGAN 2015

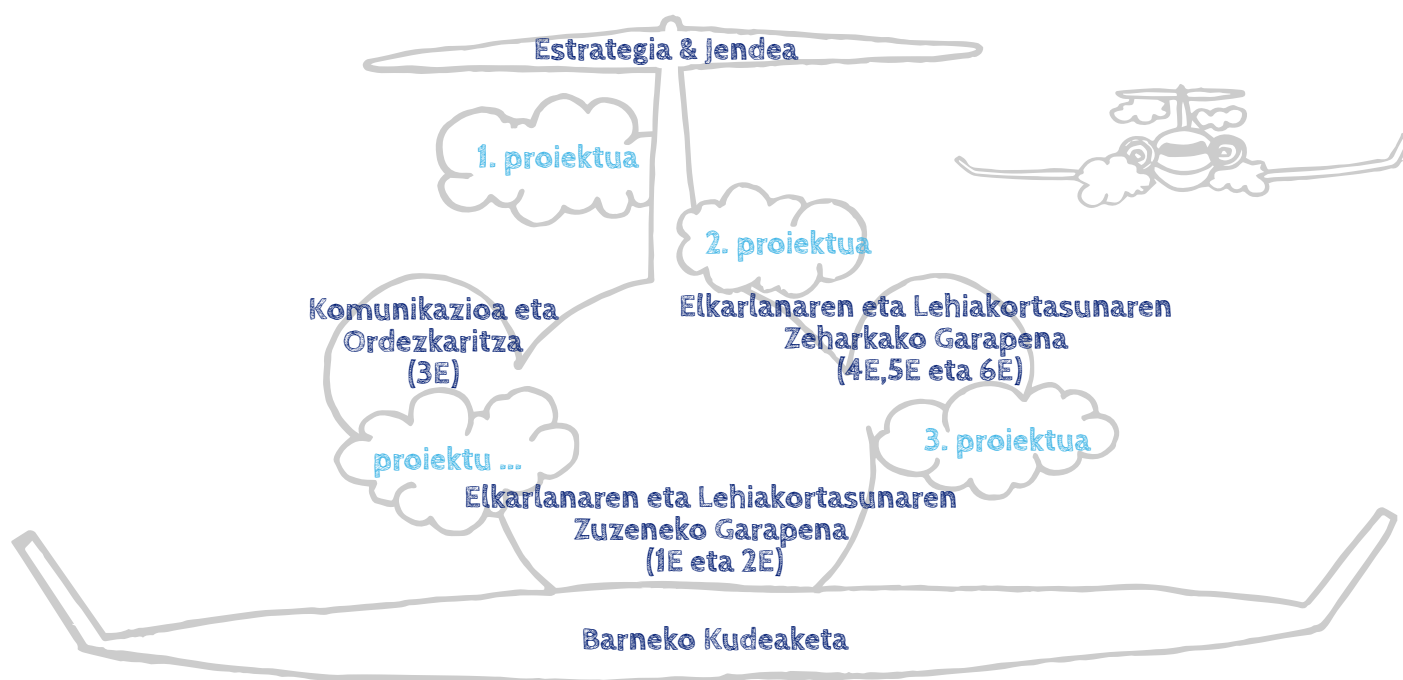
Duela hiru urte adierazi genuenaren ildotik, gogoeta-prozesu estrategiko berri bat lantzen hasi ginen 2012ko udaberrian. 2016. urtera arteko lan-ildoak zehaztu zizkigun prozesu horrek, hain zuzen.

Prozesu bizkor eta eraginkorra izan zen, eta 2012ko udazkenerako jada hautemanda genituen sektorearen erronkak, HEGANek egin zezakeen balio-ekarpena adierazten zuten erronkak, alegia:

- Balio-katea sendotzea
- Zenbait bezeroren aurrean betetzen dugun lekua hobetzea
- Sektorea ordezkatzeko
- Erabaki estrategikoak hartzeko testuingurua eskaintzea
- Talentua sortzea, atxikitzea eta erakartzea
- Prestakuntza espezifikoak

Eta bazen ideia nagusi bat ere, horietan guztietan landu beharko zena: lankidetzaren kultura.

Antolamendua ere osorik berrikusi zen, eta, harrezkero, prozesu eta proiektuen bidez lan egiten da. 2015ean, eredu berrikusi da, eta honako mapa hau zehaztu da:



Azken hiru urteotan arreta bereziki lehenengo bi erronketan jarri badugu ere, hots, zuzenean bazkideen lehiakortasunarekin lotuta daudenetan, gainerako erronketan ere lan egin dugu –elkar elikatzen dute guztiek–; hauek izan dira, hain zuzen, 2015. urteko jardura esanguratsuenak:

1E

Balio-katea sendotzea (1E)

Berrikuntza Plana: abian da dagoneko, eta 6 gai daude prozesuan. Lan-saio zabalak egin dira Batzar Orokorrean eta AeroTxokon, bai eta lantalde zehatzagoetan ere.

Tokiko Balio Katerako Aukerei buruzko Jardunaldiak: itxi da Aernnovaren katearekin antolatutakoa, eta beste bat egin da Aciturriekin; 54 erakundetako 63 pertsona izan ziren azken horretan.

Katean hutsuneak hautematea: 23 hutsune hauteman dira, eta horietan lanean ari gara. Azpimarratzekoak dira: prozesu bereziak (Prestakuntza Saiakuntza Ez Suntsitzaileetan eta Enpresa Talde Berritzaileen Proiektua) eta ekoizpen gehigarria (Enpresa Talde Berritzaileen Proiektua).

Ikaskuntza-komunitateak: bi egin dira (lehenengoa, industria-arduradunena, eta bigarrena, gerenteena); parte hartu dutenak oso gustura agertu dira, eta 2016rako beste lau prestatzen ari gara (berrikuntzaren arduradunena, saltzaileena, industria-arduradunen bigarrena eta gerenteen hirugarrena).

Kolektiboarentzako irtenbideak: RC Aero aseguruak (8 bazkidek parte hartu dute Compitte irtenbidean, eta baita sektoreko beste 38 enpresek ere; 10 euskaldunak dira).

Aeronautikako Fabrikazio Zentro Aurreratua: HEGANek, AFMrekin batera, Aeronautikako Fabrikazio Zentro Aurreratuarekin lotutako Enpresen Elkartearen idazkaritza teknikoaz arduratzeko proposamena egin du.

Ihobek sustatutako Basque Ecodesign Center ekimenean eragile dinamizatzaile gisa aukeratua izan zen HEGAN; eta baita kolaboratzaile gisa ere Ikarlanean sarean –Bizkaiko Foru Aldundiak sustatutako sarea-.

Ia bazkideen % 100ek hartu dute parte HEGANek 2015erako 1. Erronka atalean antolatutako jardueraren batean edo guztietan!

2E

Zenbait bezerorekin betetzen dugun lekua (2E)

Nazioartekotzearen barnean, 4 ekintza burutu dira: taldean parte hartu da Parisko Le Bourget-en eta Bilboko Aerotrends-en (osorik HEGANek kudeatuak); eta baita Bordeleko AIFen eta Municheko Airtec-en ere (Eusko Ganberen ordezkari gisa aritu den Arabako Ganberaren kudeaketa babestuz).

Bezero/Herrialde Taldeak: 10 bazkide bildu dira Bezero/Herrialde Taldeak dinamizatzeko: bi talde osatu dira.

Bazkideen hiru laurdenek hartu dute parte HEGANek 2015erako 2. Erronka atalean antolatutako jardueraren batean edo guztietan!

Komunikazioa eta ordezkaritza (3E)

Ohiko ekintzak: webgunearen mantentze-lanak, sustapen-euskarriak eta Urteko Txostena (2014). Errepresentazio aktiboko hogeitabi ekintza egin dira.

Prentsa-oharrak, agerraldiak hedabideetan...

EACP -European Aerospace Cluster Partnership- ekimen pribatuan modu aktiboan parte hartu dugu.

Elkar Ulertzeko Memoranduma (MoU) sinatu da Aeromontreal-ekin, Parisko Airshow 2015en.

Markaren irudiari eta kolektiboaren irudiaren kalitateari eusten diegu!

Erabaki estrategikoak hartzeko testuingurua eskaintzea (4E)

Klusterraren Adimen Lehiakorrerako Sistema tresnari etengabe laguntzen jarraitzen dugu.

EAQG taldean (European Aerospace Quality Group) parte hartzen ari gara 2003. urtetik.

Bazkideei harrera egin diegu unean-unean.

2.000 fitxa igo dira Klusterraren Adimen Lehiakorrerako Sistemara, eta 270 erabiltzaile erregistratu dira!

4E

Talentua sortzea, atxikitzea eta erakartzea (5E) eta sektoreko prestakuntza espezifikoa sortzea (6E)



Talentua biltzen eta prestakuntza eskaintzen duten jardunaldietan eta ekitaldietan parte hartu dugu; **Gizarte Ekimeneko Lanbide Heziketako Ikastetxeen Elkartarekin (HETEL)** elkarlanean jardun dugu, aeronautikako sektorerako Lanbide Heziketako lan-esparruak definitzeko; eta **BIZKAIA TALENTekin** ere beste jarduketa batzuk koordinatu dira; Bizkaiko Foru Aldundiaren (DFB-BFA) Sustapen Ekonomikorako Sailak bultzatuta eratu zen elkarte hori, Bilbo-Bizkaia-Euskal Herria eremura talentua erakartzeko, elkartzeko eta eusteko.

Guztira, bi ikastaro eman dira (ISO9001 eta Ikuskaritza Bisuala; 3 edizio), eta **prestakuntza-lantegi bat** eman da (Jabetza intelektual).

Klustraren tresna berriak, hau da, **Enplegu Guneak**, dagoeneko 230 CV ditu erabiltzaileek kudeatuta eta bazkide guztien eskura.

57 profesionalak parte hartu dute HEGANen prestakuntza-eskaintzan!

Lankidetzan oinarritutako kultura bat sortzea, eta elkarte barrutik hobetzeko beste jarduera batzuk
2015ean, 8 erakunde egin dira HEGANeko bazkide. Bazkide osoak: **BATZ, DOILAN eta KORTA**. Bazkide laguntzaileak: **EKIN**, eta **EHUko, Mondragoneko, Tecnuneko eta Deustuko unibertsitateak**
2015ean, HEGANek 48 bazkide ditu jada!

HEGAN osatzen dugunok lanean ari gara guztion etxea izan dadin (handiena, txikiena, balio-kateko maila guztiena), elkarlanean garatzen lagunduko diguten konfiantzazko guneak sustatuz, gure lan-esloganarekin bat etorri bizi gaitezen:

konfiantza+=lankidetz+=balio+.



2.3 ANNUAL ACCOUNTS

• THE ASSOCIATION'S 2015

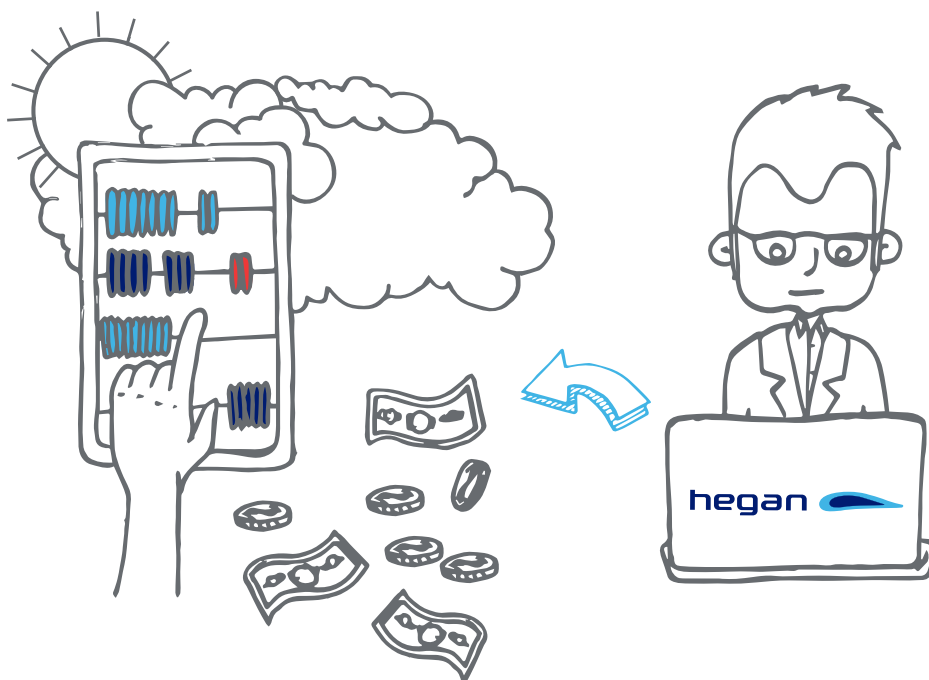
576.8K€

52% Grants (Regional, National and European)
37% Members Quota
11% Others Operating Incomes

[600.2K€]

50,4% Operating Expenses
49,61% Personnel Expenses

[23.4K€]



• THE ASSOCIATION'S BALANCE SHEET

TOTAL: 315.3K€

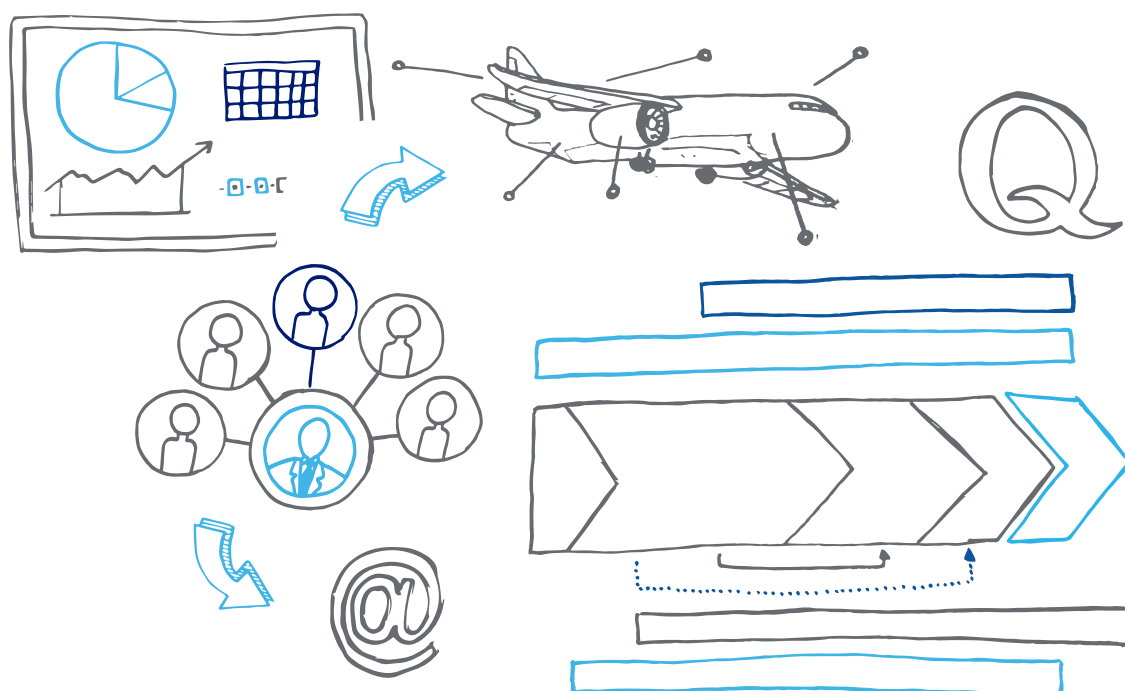
NET ASSETS: 9.4%

GENERAL ASSEMBLY 2015



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 AERNNOVA www.aernnova.com Contact: javier.fderetana@aernnova.com	 ITP www.itp.es Contact: placido.marquez@itp.es	 SENER www.aerospacial.sener.es Contact: javier.vinals@sener.es	 ACITURRI www.aciturri.com Innovation Manager: ester.porras@aciturri.com Commercial Manager: mariaeugenia.clemente@aciturri.com	 AEROMEC www.aeromec.es Contact: jjm@aeromec.es	 AEROSPACE ENGINEERING GROUP www.aerospacengineeringgroup.aero Bizkaia-Headquarter contact: aeg@aegeurope.net	 AIBE www.aibe.es Contact: jon@aibe.es
 ALESTIS www.alestis.aero Contact: info@alestis.aero	 ALFA PRECISION CASTING www.alfalan.es Contact: ajimenez@alfalan.es	 ALTRAN www.altran.com Contact: inigo.ezquerro@altran.com	 ARATZ www.talleresaratz.com Technical Manager: kbalsategui@talleresaratz.com	 ASTORKIA www.astorkia.com Contact: mecanizados@astorkia.com	 AYZAR www.ayzar.com Commercial Manager: comercial@ayzar.com	 BATZ www.batz.com Director: AndoniAlonso@batz.com Commercial Manager: aisusi@batz.es
 BOST MACHINE TOOLS COMPANY www.bost.es Contact: sales@bost.es BOSTMEK MACHINING www.bost.es/es/bostmek Contact: alberto@bost.es	 BURDINBERRI www.burdinberri.com Contact: burdinberri@burdinberri.com	 DANOBAT GROUP www.danobatgroup.com Contact: alusoz@danobatgroup.com GOIMEK Machinig parts www.goimek.com Contact: jgarciasantome@goimek.com	 DMP www.dmp.aero Contact: philippe@dmp.aero	 DOILAN www.doilan.info Contact: jon@doilan.com	 DYFA www.dyfa.es Commercial Manager: joseramon@dyfa.es	 EKIN www.ekin.es Contact: dbernar@ekin.es
 ELECTROHILO www.electrohilo.es Contact: pedrol.diez@electrohilo.es	 EYHER www.eyher.com Contact: ctroaola@eyher.com	 GRUPO TTT www.grupottt.com General Manager: xbersategi@grupottt.com Commercial Contact: cgarcia@grupottt.com	 HAUCK www.hauckht.es Contact: info.paisvasco@hauckht.com	 IMedusa www.imedusa.net General Manager: imedusa@imedusa.net R&D-Technical Oficie: idi@imedusa.net	 INDUSTRIAS METALÚRGICAS GALINDO www.galindosl.com General Manager: juan@galindosl.es Commercial Manager: joseba@galindosl.es	 KORTA www.korta.com Project Manager: aguenetxea@korta.com
 LTK GRUPO www.ltkgrp.com Deputy General Manager: koldo.grajales@ltkgrp.com Business Development: julio.saez@ltkgrp.com	 MATRICI www.matrici.com Business Development Manager: dpzamacona@matrici.com	 MESIMA www.mesima.com Technical contact: rperez@mesima.com Commercial contacts: jalameda@mesima.com aesparza@mesima.com	 METRALTEC www.metraltec.com General Manager: amendibil@metraltec.com Technical Manager: jrgarcia@metraltec.com	 NIVAC www.nivac.es Technical & Commercial Director: cristina.sanz@nivac.es	 NOVALTI www.novalti.es Contact: pmartinez@novalti.es	 NUTER www.nuter.es Contact: ja.alberdi@nuter.es
 ORBITAL CS www.orbitalcs.com General Manager: acruchaga@orbitalcs.com Technical Manager: jrobles@orbitalcs.com	 SARIKI www.sariki.es Contact: sariki@sariki.es	 SIEGEL www.siegel-aero.com Contact: eperez@siegel-sa.es	 SISTEPLANT www.sisteplant.com R&D Department Director: minsunza@sisteplant.com Marketing & Business Development Manager: vcosta@sisteplant.com	 TECNASA www.tecnasa.com.es Chief Commercial Officer: ioseba.monje@tecnasa.com.es	 WALLAIR ENGINE COMPONENTS www.wallair.es Market Manager: azn@wallair.es	 XUBI ENGRANAJES/RENOGEAR/ZUZAO www.xubi.com/www.renogear.net/ www.zuazo.net Contacts: alexander@zuazo.net/aritz@xubi.com/ jgarate@xubi.com
 CTA www.ctaero.com Contact: joseluis.simon@ctaero.com	 IK4 www.ik4.es Market Manager: otegi@ik4.es Technical Coordinator: iserrano@ideko.es	 TECNALIA www.tecnalia.info Business Development Director: Javier.coletto@tecnalia.com Aeronautic Market Manager: Begona.canflanca@tecnalia.com Space Market Manager: Jesus.marcos@tecnalia.com	 EUSKAL HERRIKO UNIBERTSITATEA (UPV/EHU) www.ehu.es/manufacturing Contact: norberto.lzallacalle@ehu.eus	 MONDRAGON UNIBERTSITATEA www.mondragon.edu/es/eps Contact: ru@mondragon.edu	 TECNUN www.tecnun.es Contact: rree@tecnun.es	 UNIVERSIDAD DE DEUSTO www.deusto.es Contact: ingenieria@deusto.es

3.2 - VALUE CHAIN



3.2 - CAPABILITIES

[illegible]

3.3 ACTIVITIES 2015

3.3.1 AEROSTRUCTURES



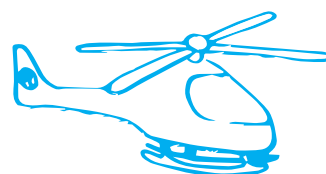
ALESTIS



BURDINBERRI



EYHER



GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
ACITURRI			
Stringer and coatings & Landing gear door	AIRBUS DS	AIRBUS	A320
Section 18 structural assembly	AIRBUS DS	AIRBUS	A320
HTP Torsion box	AIRBUS OPERATIONS	AIRBUS	A320
Leading edge of HTP assembly	AIRBUS DS	AIRBUS	A330
Passenger door structural assembly	ALESTIS	AIRBUS	A330
Leading edge of horizontal stabilizer assembly	AIRBUS DS	AIRBUS	A340
HTP Tips & Passenger door structural assembly	AIRBUS DS	AIRBUS	A340
VTP	AIRBUS OPERATIONS	AIRBUS	A350 XWB
Internal structure of S19	AIRBUS OPERATIONS	AIRBUS	A350 XWB
Belly Fairing (Zones 0,1, 2 , 3.1, 3.2, 3.3 y 4)	AIRBUS DS	AIRBUS	A380
Wing Ribs and HTP, Tail rudder	AIRBUS OPERATIONS	AIRBUS	A380
Sponsons	DAHER-SOCATA	AIRBUS DS	A400M
Spar	AIRBUS FRANCE	AIRBUS DS	A400M
Flap and Vanes	AIRBUS GERMANY	AIRBUS DS	A400M
Central Box: structural assembly and equipment & Tip wings integration	AIRBUS DS	AIRBUS DS	CN235, C295
Sponsons and VT	FOKKER	AIRBUS HELICOPTERS	NH 90
Rudder Components & Integration	AIRBUS DS	BOEING	737
Elevators and HTP	AIRBUS DS	DASSAULT	FALCON 7X
Wing to Fuselage Fairing	EMBRAER	EMBRAER	KC-390
Composite components	AIRBUS DS	EUROFIGHTER	TYPHOON
AERNNOVA			
Elevators Assy /Main Landing Gear Doors Assy / Horizontal Stab. Spars / Fus. Section 18 Covers / Interior dado panels	AIRBUS	AIRBUS	A320
Elevator Components / Karman Fairings. Design Maintenance and Manufacturing of Main Landing Gear Doors Assy	AIRBUS	AIRBUS	A330/340
Conceptual and detailed design and manufacture of HTP horizontal stabiliser fixed parts and Elevators - Risk Partner	AIRBUS	AIRBUS	A350 XWB
Conceptual and detailed design and manufacture of MLG Pressure bulkhead	STELIA	AIRBUS	A350 XWB
Build to print Rudder	AIRBUS	AIRBUS	A350 XWB
Build to Print Passenger Doors	AIRBUS	AIRBUS	A350 XWB
Build to Print Air Inlet	AIRBUS	AIRBUS	A350 XWB
Horizontal Stabilizer: Design and Manufacturing of Leading Edges, Trailing Edges and Box Joint.	AIRBUS	AIRBUS	A380
Rear Fuselage - Section 19: Design & manufacturing of Internal Metallic Structure, including attachment fittings to Vertical Stabilizer.	AIRBUS	AIRBUS	A380

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
Stiffeners and angle bars S19.1 / trailing edge covers HTP (composite)	AIRBUS	AIRBUS	A380
Skin Panels Assembly S-19 (Built to Print)	AIRBUS	AIRBUS	A380
Stringers / tip HTP / wing stringers (composite)	AIRBUS DS	AIRBUS DS	A400M
Forward landing gear traps/ engine housings (composite)	AIRBUS DS	AIRBUS DS	CN235, C295
Upper structure manufacture.	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	EC 225 /725 Super Puma
Lower structure manufacture. Tail cone (composite)	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	EC 225 /725 Super Puma
Tail Cone manufacture	HELIBRAS	AIRBUS HELICOPTERS	EC 225 /725 Super Puma
Build to print Fuselage	AGUSTAWESTLAND	AIRBUS HELICOPTERS	NH 90
Rear fuselage(composite)	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	TIGRE
Spoilers	STELIA	ATR	ATR 72
Manufacture of Complete structure (foward fuselage, cabin and tailboom)	BELL	BELL	Bell 505
Conceptual engineering Wing Inspar Ribs and structures for sections 11, 12 and 42	BOEING	BOEING	747-8I/F
Manufacturing of complete Tail section (vertical and horizontal stabilisers) and elevators	BOMBARDIER	BOMBARDIER	CRJ700/900/1000
Conceptual Design & Manufacture of Central Wing Box (composite)	BOMBARDIER	BOMBARDIER	CSeries
Design & manufacture of Tail Cone (composite)	BOMBARDIER	BOMBARDIER	CSeries
Design and manufacture of complete Tail section (vertical and horizontal stabilizers), rudder and elevators - Risk Partner	EMBRAER	EMBRAER	EMB 170/175/190/195/ LINEAGE 1000
Design and manufacture of rear fuselage - Risk Partner	EMBRAER	EMBRAER	EMB 170/175/190/195/ LINEAGE 1000
Design and manufacture of complete wings-Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
Design and manufacture of nacelles - Risk Partner	EMBRAER	EMBRAER	ERJ135/140/145
Design and manufacture of wing to fuselage fairings -Risk Sharing Partner- Partially Tranfered to Embraer	EMBRAER	EMBRAER	ERJ135/140/145
Design and manufacture of complete wings - Risk Partner	EMBRAER	EMBRAER	LEGACY family
Design and manufacture of nacelles -Risk Partner	EMBRAER	EMBRAER	LEGACY family
Design and manufacture of wing to fuselage fairings -Risk Partner- Partially Tranfered to Embraer	EMBRAER	EMBRAER	LEGACY family
Design and manufacture of rear fuselage - Risk Partner	EMBRAER	EMBRAER	LINEAGE 1000
Design and Manufacturing of Flaps, Ailerons and Rudder	EMBRAER	EMBRAER	KC-390
Design of Rear Fuselage, Pylon, Cargo Ramp and Upper Door	EMBRAER	EMBRAER	KC-390
Design of Wing Box	EMBRAER	EMBRAER	KC-390

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
Design and Manufacturing of Horizontal & Vertical stabilizer	EMBRAER	EMBRAER	E-jets E2
Design of Cockpit	EMBRAER	EMBRAER	E-jets E2
Wing covers, housings and conduits (composite)	AIRBUS DS	EUROFIGHTER	TYPHOON
Design and manufacture of the equipped transition section and tail cone - Risk Partner	SIKORSKY	SIKORSKY	S-92 / H-92
Design and manufacture of the HS - Risk Partner	SIKORSKY	SIKORSKY	S-92 / H-92
Design and manufacture of the main rotor pylon, fairings and engine cowlings - Risk Partner	SIKORSKY	SIKORSKY	S-92 / H-92
AEROMECH			
Pylon Rib	Several	AIRBUS	A320
Stiffeners		AIRBUS	A350
Structural door components.	Several	BOEING	787
Motor pylon supports	Several	BOMBARDIER	Q-Series
Horizontal stabilizer structure & Structural components front section	Several	DASSAULT	FALCON 5X
Door structural components	Several	EMBRAER	170/175/190/195
AIBE			
Precision machining of components	MTORRES	Several	Miscellaneous
ALESTIS			
BBAA HTP & VTP	ACITURRI	AIRBUS	A320/320neo
TIP's HTP	AIRBUS	AIRBUS	A320/320neo
TTP's	AERNNOVA	AIRBUS	A320/320neo
TIP's HTP	AIRBUS DS	AIRBUS	A330
PAX Door	AIRBUS	AIRBUS	A330
Ribs HTP	AIRBUS	AIRBUS	A330
PAX Door	AIRBUS	AIRBUS	A330neo
Ribs HTP	AIRBUS	AIRBUS	A330neo
Belly Fairing - Risk Partner	AIRBUS	AIRBUS	A350 XWB
S19.1 - Risk Partner	AIRBUS	AIRBUS	A350 XWB
MLGD / S19.1 / Rear Fairing	AIRBUS	AIRBUS	A380
Belly Fairing (Structure)	AIRBUS DS	AIRBUS	A380
Assembly tasks	AIRBUS DS	AIRBUS DS	A330MRTT
Elevator	AIRBUS DS	AIRBUS DS	A400M
Cowlings	AIRBUS DS	AIRBUS DS	A400M
Rear fuselage	AIRBUS DS	AIRBUS DS	CN235, C295
HTP / VTP	AIRBUS DS	AIRBUS DS	CN235, C295
Tips & Strakelet	BOEING	BOEING	737

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
Aileron	AIRBUS DS	BOEING	777
Flaperon	AIRBUS DS	BOEING	777
Winglet	EMBRAER	EMBRAER	190/195
Wingstub	EMBRAER	EMBRAER	190/195
Central Fuselage	EMBRAER	EMBRAER	LEGACY450/500
Empennage & Wings	EMBRAER	EMBRAER	LEGACY450/500
Composite parts	EMBRAER	EMBRAER	LEGACY450/500
ALFA PRECISION CASTING			
Secondary structure components	TAI	AIRBUS	A320ceo
Secondary structure components	AIRBUS	AIRBUS	A320neo/ceo / A330
Secondary structure components	AIRBUS DS	AIRBUS DS	C235,C295, EUROFIGHTER TYPHOON
ARATZ			
Composite tooling	AIRBUS	AIRBUS	A350 XWB
LAY UP TOOLING	AIRBUS	AIRBUS	A350 XWB
Assembly tooling	AIRBUS	AIRBUS	AIRBUS families
Assembly tooling	DASSAULT	DASSAULT	FALCON family
Composite tooling	BOMBARDIER	BOMBARDIER	CSERIES CS100
ALTRAN			
Weights and mass engineering	AIRBUS	AIRBUS	A30X
Certification BF A350	ALESTIS	AIRBUS	A350 XWB
Design wing Ailerons and spoilers	AIRBUS	AIRBUS	A350 XWB
Certification S12	STELIA	AIRBUS	A350 XWB
Support engineering HNC	AIRBUS	AIRBUS	A350 XWB
Support engineering HNC Fan Cowls	AIRBUS	AIRBUS	A380
Supplier management Tier1 and Tier2	AIRBUS	AIRBUS	AIRBUS families
Development of processes and materials HTP and S19	AIRBUS	AIRBUS	AIRBUS families
Structural Dimensioning Cockpit	AIRBUS	AIRBUS	GREEN REGIONAL AIRCRAFT
Assembly engineering	AIRBUS	AIRBUS DS	A330 MRTT
Nacelle fatigue analysis	AIRBUS	AIRBUS DS	A400M
Manufacturing tool design KC390	EMBRAER	EMBRAER	KC-390
ASTORKIA			
Structural components	AERNNOVA	AIRBUS	AIRBUS families
Structural components	Several	BOEING	747 / 787
Structural components	AERNNOVA	BOMBARDIER	CRJ700/900
Structural components	AERNNOVA	EMBRAER	EMBRAER families
AYZAR			
Heat treatments	BURDINBERRI	AIRBUS	AIRBUS families
Heat treatments	ACITURRI	AIRBUS	AIRBUS families

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
BURDINBERRI			
A320 Neo Engine Cover Fan Cowl Curing Tools	AIRBUS	AIRBUS	A320neo
HTP Cover Curing Tools	REDUCTIA AEROSPACE	AIRBUS	A320neo
Wing Stringer Curing Tools	REDUCTIA AEROSPACE	AIRBUS	A350 XWB
Curing Barrel S19	REDUCTIA AEROSPACE	AIRBUS	A350 XWB
VTP Leading Edge Curing Tools	ACITURRI	AIRBUS	A350 XWB
Door Rtm Tools	AERNNOVA	AIRBUS	A350 XWB
V1000 Belly Fairing Curing Tools	ALESTIS	AIRBUS	A350 XWB
HTP Cover Curing Tools	AERNNOVA	AIRBUS	A350 XWB
Wing Stringer Curing Tools Transport Jigs	REDUCTIA AEROSPACE	AIRBUS	A350 XWB
Crown Area Fitting Assembly Tools	ASCENT INTEGRATION	AIRBUS	A350 XWB
A380 Engine Cover Fan Cowl Curing Tools	AIRBUS	AIRBUS	A380
KJB JS Curing Tools	ACITURRI	BOEING	787
BURULAN			
Manufacturing of components, surface treatments, assemblies	AERNNOVA	AIRBUS	AIRBUS families
Manufacturing of components, surface treatments, assemblies	AERNNOVA	BOMBARDIER	CRJ700/900
Manufacturing of components, surface treatments, assemblies	AERNNOVA	BOMBARDIER	Cseries family
Manufacturing of components, surface treatments, assembly, ball joint stapling	AERNNOVA	EMBRAER	E-JET Family
Manufacturing of components, surface treatments, assemblies	AERNNOVA	SIKORSKY	H-92
CTA			
Pylon Attachment Tension Fitting	AIRBUS	AIRBUS	A350 XWB
Support 2 continuous rib test	AIRBUS	AIRBUS	A350 XWB
Fire certification tests of interior materials	DIEHL AIRCABIN	AIRBUS	A350 XWB
Fire certification tests of interior materials	TCI CABIN INTERIOR	AIRBUS	A350 XWB
Bir strike on rotor blade	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	EC175
Fire certification tests of interior materials	BOEING R&T EUROPE	BOEING	Airlines
Cseries 4-Bay Fail safety Test	AERNNOVA	BOMBARDIER	Cseries
Cseries CWB In-Cut Out Test	AERNNOVA	BOMBARDIER	Cseries
Panel buckling test	STELIA	BOMBARDIER	GLOBAL 7000
Panel residual strength test	STELIA	BOMBARDIER	GLOBAL 7000
E2 Flap Supports Structural Test	ASCO INDUSTRIES	EMBRAER	E-Jets E2
Flap inboard test	AERNNOVA	EMBRAER	KC-390
Aileron & Rudder tests	AERNNOVA	EMBRAER	KC-390

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
Forward wing tests	SIP	PIAGGIO	P180-MPA3
Flap tests	SIP	PIAGGIO	P180-MPA3
Metallic fitting tests	SIP	PIAGGIO	P180-MPA3
Fire certification tests of interior materials	AIR NOSTRUM LAM	Several	Airliners
Fire certification tests of interior materials	DIEHL AEROSPACE	Several	AIRLINERS
Fire certification tests of interior materials	IACOBUCCI HF AEROSPACE	Several	Airliners
Fire certification tests of interior materials	HUTCHINSON-CENTRE DE RECHERCHE	Several	Airliners
Fire certification tests of interior materials	COMPOSITE INDUSTRIES	Several	Airliners
Fire certification tests of interior materials	PMV INDUSTRIES	Several	AIRLINERS
Fire certification tests of interior materials	JCB AERO	Several	Airliners
Fire certification tests of interior m	INDUSTRIAL NEO-TEX	Several	AIRLINERS
Fire certification tests of interior materials	PINTA INSULATION	Several	Airliners
Fire certification tests of interior materials	VELCRO EUROPE	Several	Airliners
Fire certification tests of interior materials	ROMTEX ANJOU AERONAUTIQUE	Several	Airliners
Fire certification tests of interior materials	SN CENTRAIR	Several	Airliners
Fire certification tests of interior materials	DESSO	Several	Airliners
DYFA			
Machining of components	ACITURRI	AIRBUS	A350XWB
Tooling for Aeronautical manufacturing	AIRBUS	AIRBUS	A320/330/400M
Tooling for aeronautical Assembly	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	NH90
Tooling for aeronautical Assembly	AIRBUS	DASSAULT	Falcon 7X
Machining of Composite (Carbon fiber / Fiberglass) & Metallic components	AERNNOVA	EMBRAER	ERJ170/190, KC-390
Machining of Composite (Carbon fiber / Fiberglass) & Metallic components	Several	Several	Miscellaneous
EYHER			
3 Works Stations for A350 XWB Wing Cover assembly	THYSSEN	AIRBUS	A350XWB
2 Works Stations for A350 XWB Keel Beam new assembly line	ARITEX	AIRBUS	A350XWB
A350 XWB HTP and VTP assembly line	ARITEX	AIRBUS	A350XWB
GRUPO TTT			
Heat and surface treatments	SONACA	AIRBUS	AIRBUS families
Heat and surface treatments	AERNNOVA	AIRBUS	AIRBUS families
Heat and surface Treatments	AIRBUS DS	AIRBUS DS	AIRBUS DS families
Heat and surface treatments	AERNNOVA	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS families
Heat and surface treatments	BHR Helicopter	BHR Helicopter	F360, F290

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
Heat and surface treatments	Several	BOEING	737 / 777 / 787
Heat and surface treatments	Several	BOMBARDIER	BOMBARDIER FAMILIES
Heat and Surface treatments	SONACA	DASSAULT	FALCON family
Heat and surface treatments	AERNNOVA	EMBRAER	EMBRAER families
Heat and surface treatments	AERNNOVA	SIKORSKY	S-92
Heat and surface treatments	SKF	Several	Miscellaneous
HAUCK			
Heat treatments	CESA	AIRBUS	AIRBUS families
Heat treatments	ACITURRI	AIRBUS	AIRBUS families
Heat treatments	AIRBUS DS	AIRBUS DS	AIRBUS DS families
Heat treatments	EMBRAER	EMBRAER	KC-390
Heat treatments	AERNNOVA	FOKKER	Miscellaneous
Heat treatments	AERNNOVA	SIKORSKY	S-92
Heat treatments	CESA	SIKORSKY	S-92
INDUSTRIAS GALINDO			
Tooling manufacturing	INESPASA	AIRBUS	A350 XWB
Tooling manufacturing	ALESTIS	AIRBUS	A350 XWB
Tooling manufacturing	AERNNOVA	AIRBUS	A380
Tooling manufacturing	ACITURRI	AIRBUS	Miscellaneous
Tooling manufacturing	ALESTIS	BOEING	787
Tooling manufacturing	AERNNOVA	EMBRAER	E-JET family
Tooling manufacturing	CTA	Several	Miscellaneous
LTK GRUPO			
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS	AIRBUS	AIRBUS families
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS DS	AIRBUS DS	A330MRTT
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS DS	AIRBUS DS	A400M
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	AIRBUS DS	AIRBUS DS	CN235, C295
Special Aerospace Logistics: Transport, Stock, Handling, Quality control...	ALESTIS	EMBRAER	E-JET family
MATRICI			
Tooling for carbonfiber and metallic parts	AIRBUS OPERATIONS	AIRBUS	Miscellaneous
Tooling for carbonfiber and metallic parts	AIRBUS DS	AIRBUS DS	Miscellaneous
Tooling for carbonfiber and metallic parts	AERNNOVA	Several	Miscellaneous
Tooling for carbonfiber and metallic parts	OPTIMAL	Several	Miscellaneous

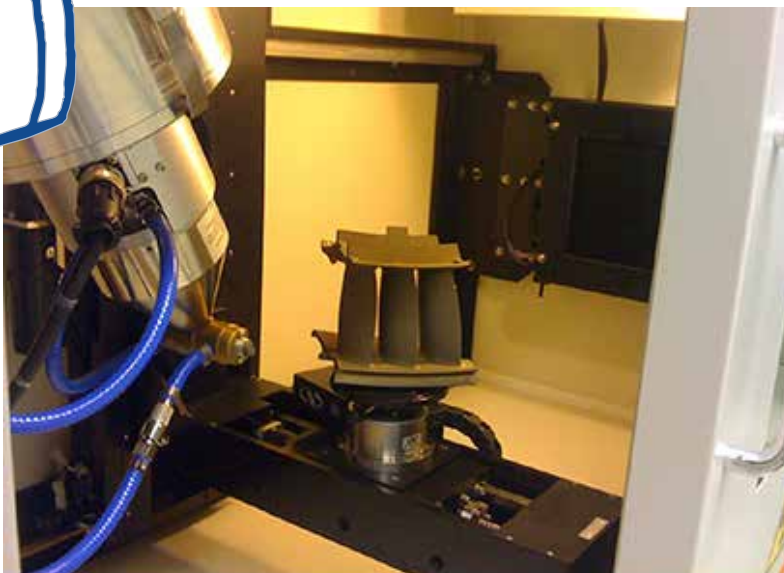
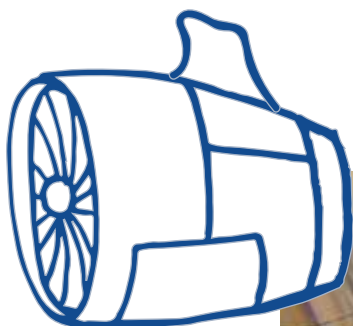
3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
MESIMA			
Materials management and supply	AIRBUS DS	Several	Miscellaneous
METRALTEC			
Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	FIBERTECNIC	AIRBUS	A320
Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	ACATEC	AIRBUS	A320
Manufacture and assembly of elements (Sheet metal working, machining, heat and surface treatments, painting)	AERNNOVA	AIRBUS	A380
Manufacture of elementary parts (machining)	KHEGAL	AIRBUS	A380
Manufacture of elementary parts (sheet metal)	ALESTIS	AIRBUS	A350XWB
Manufacture of elementary parts and assembly (sheet metal, machining, heat and surface treatments, painting)	AERNNOVA	BOMBARDIER	CRJ family, CSERIES
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	AERNNOVA	EMBRAER	EMBRAER families
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	OGMA	EMBRAER	KC390
Manufacture of elementary parts (sheet metal, machining, heat treatment, surface treatment, painting)	FIBERTECNIC	EUROFIGHTER	TYPHOON
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	AERNNOVA	SIKORSKY	S-92
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	MTORRES	Several	Miscellaneous
NOVALTI			
Landing gear trap	AIRBUS	AIRBUS	A380
Belly Fairing components	AIRBUS	AIRBUS	A380
Belly Fairing components	VARIOUS	AIRBUS	A350XWB
Structural components	VARIOUS	EMBRAER	KC390
NUTER			
Structural components	AERNNOVA	AIRBUS	A380
Components	AERNNOVA	BOMBARDIER	CRJ family
Structural components	AERNNOVA	EMBRAER	ERJ family / E-JET family
Structural components	AERNNOVA	SIRKOSKY	S-92

3.3.1 AEROSTRUCTURES

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	OEM	MODEL
SARIKI METROLOGÍA			
Measurement Equipment and Consultancy -supply, maintenance, training and software programming	AIRGRUP / CONSUR	AIRBUS	Miscellaneous
SENER			
Design, construction, installation, transport and start up of the system in which the carbon fibre laminates of the wing stringer positioning line are generated	ARITEX	AIRBUS	A350 XWB
Design and production of HTP assembly stations 70 and 71	THYSSEN GERMANY	AIRBUS	A350 XWB
HTP box for the Getafe production line	AIRBUS	AIRBUS	A350 XWB
Four access platforms for drilling the upper and lower shells of section S19	AIRBUS	AIRBUS	A380
Cseries Wing equipment station elevators	BOMBARDIER	BOMBARDIER	CSeries
Handling system for big mobile aircraft parts	EMBRAER	EMBRAER	KC-390
SISTEPLANT			
Manufacturing Execution System implementation - New features	ALESTIS	AIRBUS	A350 XWB
Brainstorming Factory of the Future	SPACE	AIRBUS	Miscellaneous
Activity measurement	AIRBUS HELICOPTERS	AIRBUS HELICOPTERS	Miscellaneous

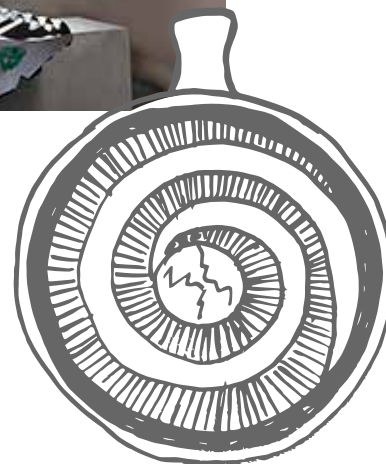
3.3.2 ENGINES



SARIKI



EKIN



GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
ACITURRI				
Mounting Rings, Thermals and fittings	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Components	WEC	EUROJET	EJ200	EUROFIGHTER TYPHOON
Housings	ITP	GENERAL ELECTRIC	F414	BOEING F/A-18E/F
Struts	ITP	GENERAL ELECTRIC	GE90-115	BOEING 777
Housings	ITP	ROLLS-ROYCE	TRENT 700	AIRBUS A330
Housings	ITP	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Lugs and vanes	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Lugs and vanes	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Lugs and vanes	ITP	ROLLS-ROYCE	TP400	AIRBUS A400M
Lugs and vanes & T.Match	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
End Fittings	SL Engineering	ROLLS-ROYCE	Several	Miscellaneous
AEROMECH				
Support ring	Several	CFM International	CFM56	AIRBUS A320 / BOEING 737
LPT rings	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Engine exhaust Zone	Several	ROLLS ROYCE	TRENT XWB	A350XWB
Turbine casing & Thermal	ITP	Several	SEVERAL	Miscellaneous
Engine exhaust zone	Several	SNECMA	SILVERCREST	FALCON 5X / CESSNA CITATION
AIBE				
Design and manufacture of clamping systems and fixtures for machining processes and special machines	ITP	GENERAL ELECTRIC	GE90	BOEING 777
Design and manufacture of clamping systems and fixtures for machining processes and special machines	ITP	ROLLS-ROYCE	TRENT FAMILY	MISCELLANEOUS
ARATZ				
Machined parts	ITP	ROLLS-ROYCE	TRENT 700	AIRBUS A330
ASTORKIA				
Engine components	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Engine components	ITP	ROLLS-ROYCE	TP400	AIRBUS A400M
AYZAR				
Heat treatments	ACITURRI	Several	SEVERAL	MISCELLANEOUS
BATZ				
Hot formed panels for special alloys	WEC	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Hot formed panels for special alloys	WEC	ROLLS-ROYCE	TRENT 1000	BOEING 787

3.3.2 ENGINES

GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Hot formed panels for special alloys	WEC	ROLLS-ROYCE	TRENT XWB	A350XWB
Hot formed panels for special alloys	ITP	ROLLS-ROYCE	TP400	A400M
CTA				
Aerodynamic Technology Acquisition Rig Programme	ITP	Several	SEVERAL	Miscellaneous
DANOBAT GROUP				
Vertical grinding Machine-Tools for aeroengine manufacturing	GENERAL ELECTRIC	Several	SEVERAL	Miscellaneous
DMP				
Carter parts	PCB	CFM International	CFM56	AIRBUS A320 / BOEING 737
CARTER PARTS	PCB	CFM INTERNATIONAL	LEAP	AIRBUS A320NEO / BOEING 737MAX
Thrust struts	Several	EA	GP7200	AIRBUS A380
MAIN SHAFT GE90	AUBERT&DUVAL	GENERAL ELECTRIC	GE90	BOEING 777
Thrust struts	Several	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Thrust struts	Several	Several	SaM146	SSJ100
Main transmission gears	TURBOMECA	TURBOMECA	ALL RANGE	Miscellaneous
Accessory transmission gears	TURBOMECA	TURBOMECA	ALL RANGE	Miscellaneous
Transmission shafts Curvic-Coupling	TURBOMECA	TURBOMECA	ARRIEL / MAKILA	AIRBUS HELICOPTERS DAUPHIN / SUPERPUMA
Transmission shafts Curvic-Coupling	TURBOMECA	TURBOMECA	ARRIUS	AIRBUS HELICOPTERS EC135
Shaft	ITP	TURBOMECA	MTR390	AIRBUS HELICOPTERS TIGRE
EKIN				
Broaching Tools for the manufacture of Fir Tree turbine discs	ITP	Several	ALL RANGE	Miscellaneous
ELECTROHILO				
Inner vanes stubs machining (spark erosion) and Vanes edge cutting (wire)	ITP	EPI	TP400	AIRBUS A400M
TEC segmentation	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Strut manufacture	ITP	MTRI	MTR390-E	AIRBUS HELICOPTERS TIGRE
Edging of VANES and BCVs	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
HUB drill, Separation Top Core Vane, Vanes erosion	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Edging of VANES and BCVs	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB

3.3.2 ENGINES

GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
GRUPO TTT				
Heat and Surface treatments	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Heat and surface treatments	ITP	ROLLS-ROYCE	Several	Miscellaneous
Heat and surface treatments	HISPANO SUIZA	Several	Several	Miscellaneous
Heat and surface treatments	SNECMA	SNECMA	Several	Miscellaneous
Heat and surface treatments	Several	TURBOMECA	Several	Miscellaneous
HAUCK				
Heat treatments	ACITURRI	ITP	TRENT 1000	BOEING 787
Heat treatments	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Heat treatments	WEC	Several	Several	Miscellaneous
Heat treatments	DMP	TURBOMECA	Several	Miscellaneous
Heat treatments	TURBOMECA	TURBOMECA	Several	Miscellaneous
INDUSTRIAS GALINDO				
Manufacturing of Tooling for LPT Components (inter stage seals)	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Manufacturing of Tooling for turbine shafts and static components	ITP	Several	Several	Miscellaneous
Design of Cutting Tools	ITP	Several	Several	Miscellaneous
Design of Cutting Tools	MECACHROME	Several	Several	Miscellaneous
Design of Cutting Tools	SAFRAN	CFM International	LEAP	AIRBUS A320neo / BOEING 737MAX
ITP				
Lost wax casting super alloys for Turbine	SNECMA	CFM International	CFM56	AIRBUS A320 / BOEING 737
Lost wax casting super alloys for Turbine	MTU	EA	GP7000	AIRBUS A380
Design and manufacture of low pressure turbine (LPT) - Member of EPI Consortium	EPI	EPI	TP400	AIRBUS A400M
Design and manufacture of the Front Frame and Exhaust System - Member of the EPI Consortium	EPI	EPI	TP400	AIRBUS A400M
Manufacture of Externals - Member of EPI Consortium	EPI	EPI	TP400	AIRBUS A400M
Final assembly of engine - Member of EPI Consortium	EPI	EPI	TP400	AIRBUS A400M
Lost wax casting super alloys for intermediate pressure turbine	ROLLS-ROYCE	EPI	TP400	AIRBUS A400M
Lost wax casting super alloys for the LPT	ITP	EPI	TP400	AIRBUS A400M

3.3.2 ENGINES

GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Design and manufacture of the Diffuser cones and By-Pass Module - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Design and manufacture of the post burner duct and variable nozzle - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Manufacture of Externals - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Final assembly of the engine - Member of the EUROJET Consortium	NETMA	EUROJET	EJ200	EUROFIGHTER TYPHOON
Lost wax casting super alloys - nozzle	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Lost wax casting super alloys - low pressure turbine	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Components	GENERAL ELECTRIC	GENERAL ELECTRIC	CF34-10	EMBRAER 190/ LINEAGE 1000
Manufacture of rear turbine structure	GENERAL ELECTRIC	GENERAL ELECTRIC	GE90-115	BOEING 777
Structural components	HONEYWELL	HONEYWELL	HTF7000	BOMBARDIER CHALLENGER 300
Design and manufacture of three LPT - Member of the MTRI Consortium	MTRI	MTRI	MTR390-E	AIRBUS HELICOPTERS TIGRE
Final assembly of the engine - Member of the MTRI Consortium	MTRI	MTRI	MTR390-E	AIRBUS HELICOPTERS TIGRE
Lost wax casting super alloys - low pressure turbine	ITP	MTRI	MTR390-E	AIRBUS HELICOPTERS TIGRE
Lost wax casting super alloys for Turbine	SNECMA	POWERJET	SaM146	SUKHOI SUPERJET 100
Modules manufacturing	PRATT & WHITNEY	PRATT & WHITNEY	PW1000G (GTF)	Cseries/MRJ90/ MS-21/A320neo
Components manufacturing	PRATT & WHITNEY CANADA	PRATT & WHITNEY	PW535E	EMBRAER PHENOM 300
Parts of external equipment of engine	ROLLS-ROYCE	ROLLS-ROYCE	BR725	GULFSTREAM G650
Design and validation of the ROLL POST	ROLLS-ROYCE	ROLLS-ROYCE	F136	LOCKHEED MARTIN F-35
Design and manufacture of low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 1000	BOEING 787
Design and manufacture of Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 1000	BOEING 787
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 1000	BOEING 787
Design and manufacture of low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Design and manufacture of the Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 500	AIRBUS A340

3.3.2 ENGINES

GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Assembly of the LPT and component manufacture	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 700	AIRBUS A330
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 700	AIRBUS A330
Design and manufacture of the low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Design and manufacture of the Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TREBNT 900	AIRBUS A380
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Design and manufacture of the low pressure turbine (LPT) - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Design and manufacture of the Rear Frame - Risk Partner	ROLLS-ROYCE	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Lost wax casting super alloys for the LPT	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
Lost wax casting super alloys for the intermediate pressure turbine	ROLLS-ROYCE	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
MATRICI				
Tooling for metallic parts	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Metallic Forming Components	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Metallic Forming Components	LAUAK	CFM International	LEAP	AIRBUS A320neo / BOEING 737MAX
MESIMA				
Materials management and supply	ITP	ROLLS-ROYCE	Several	Miscellaneous
Materials management and supply	WEC	Several	Several	Miscellaneous
NIVAC				
Thermal and surface treatments	Several	Several	Several	Miscellaneous
NOVALTI				
Components for LPT	ITP	EPI	TP400	AIRBUS A400M
Components	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Engine components	ITP	MTRI	MTR390-E	AIRBUS HELICOPTERS TIGRE
Components for the LPT	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
Components for the LPT	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350XWB
NUTER				
Fittings	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Fittings	ITP	EPI	TP400	AIRBUS A400M

3.3.2 ENGINES

GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	OEM	ENGINE MODEL	PLATFORMS
Fittings	ITP	ROLLS-ROYCE	TRENT FAMILY	MISCELLANEOUS
Airfolds & Small Parts	ITP	PRATT & WHITNEY	Several	Miscellaneous
SARIKI METROLOGÍA				
Measurement Equipment and Consultancy-supply, maintenance, training and software programming	ITP	Several	Several	Miscellaneous
SIEGEL				
Components	ITP	EPI	TP400	AIRBUS A400M
Components	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Machined Components	ITP	PRATT & WHITNEY	Several	Miscellaneous
Machined Components	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Machined Components	ITP	GENERAL ELECTRIC	Several	Miscellaneous
WEC				
Parts of external equipment of engine	SNECMA	CFM International	CFM56	AIRBUS A320 / BOEING 737
Parts of external equipment of engine	SNECMA	CFM International	LEAP	AIRBUS A320neo / BOEING 737MAX
Parts of external equipment of engine	ITP	EPI	TP400	AIRBUS A400M
Structural parts	ITP	EPI	TRENT	AIRBUS A400M
Exhaust nozzle parts	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
TEC parts	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Parts of external equipment of engine	ITP	EUROJET	EJ200	EUROFIGHTER TYPHOON
Parts of external equipment of engine	SNECMA	GENERAL ELECTRIC	GE90-115k	BOEING 777
Rings, annular components, combustion chamber components	HONEYWELL	HONEYWELL	Several	Miscellaneous
Fabricated VANES for TEC/TBH	Several	PRATT&WHITNEY	PW1000G (GTF)	Cseries/MRJ90/MS-21/A320neo
TEC Front Cases	GKN Aerospace Engine Systems	ROLLS-ROYCE	Several	Miscellaneous
Structural parts	ITP	ROLLS-ROYCE	TRENT 1000	BOEING 787
Structural parts	ITP	ROLLS-ROYCE	TRENT 500	AIRBUS A340
Parts of external equipment of engine	ITP	ROLLS-ROYCE	TRENT 900	AIRBUS A380
Parts of external equipment of engine	ITP	ROLLS-ROYCE	TRENT family	Miscellaneous
Structural parts	ITP	ROLLS-ROYCE	TRENT XWB	AIRBUS A350
Parts for engine cooling devices	SNECMA	SNECMA	SILVERCREST	DASSAULT FALCON 5X

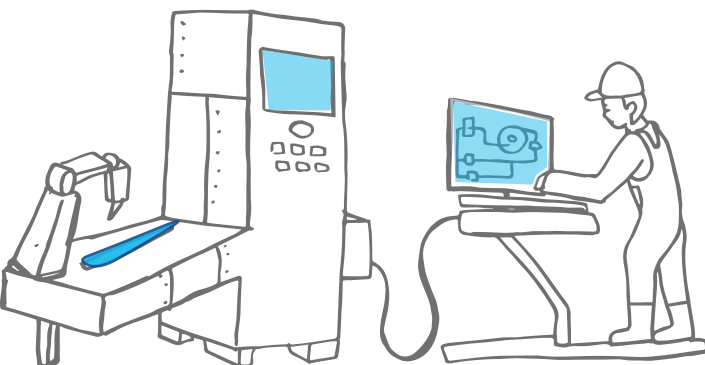
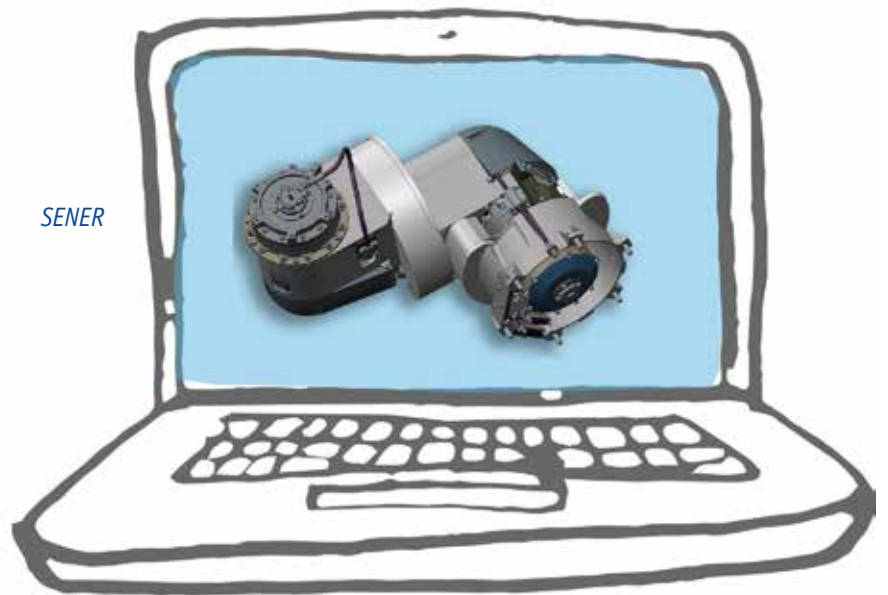
3.3.3 SYSTEMS AND EQUIPMENT



GRUPO TTT



SENER



3.3.3. SYSTEMS AND EQUIPMENT

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
ACITURRI			
Auxiliary Fuel Tanks	AIRBUS DS	Fuel system components	EUROFIGHTER TYPHOON
Hydraulic Tanks	CESA	Hydraulic system	AIRBUS A380
Equipped elements	RATIER FIGEAC	TURBOPROP SYSTEMS	SEVERAL
AEROMECH			
Nose and main landing gear components	Several	Landing Gear	AIRBUS C295
Main landing gear components	Several	Landing Gear	AIRBUS CN235
ALFA PRECISION CASTING			
Conduits- Air Fittings (Lost wax casting superalloys)	IAI	Air conditioning	GULFSTREAM 280
Radar housings (Lost wax casting aluminium)	INDRA	RADARS	EUROFIGHTER TYPHOON
Conduits- Air Fittings (Lost wax casting superalloys)	LIEBHERR AEROSPACE	Air conditioning	AIRBUS A320neo/ ceo /BOEING 787 / CSERIES / COMAC / KC395 / EJET / G7000
Optronic equipment housings (Lost wax casting aluminium)	SAGEM DEFENSE	Optronic systems TV-Thermography	AIRBUS HELICOPTERS NH90
Optronic equipment housings (Lost wax casting aluminium)	SAGEM DEFENSE	OPTRONIC SYSTEMS TV-THERMOGRAPHY	DASSAULT RAFALE
Optronic equipment housings (Lost wax casting aluminium)	THALES GROUP	Engines-Actuators- Electronical equipments	AIRBUS A320/330/380
Optronic equipment housings (Lost wax casting aluminium)	ZODIAC AEROSPACE	Engines-Actuators- Electronical equipments	AIRBUS A320/330/380
ALTRAN			
Training and Simulators	AIRBUS	Simulators	AIRBUS A320/A340/ A380
Landing Gear	CESA	Landing Gear	AIRBUS A400M
Landing gear design	AIRBUS DS	LANDING GEAR	AIRBUS A320/380/400M
Door actuator dimensioning	CESA	Doors	AIRBUS A400M
HARNESS DESIGN	AIRBUS DS	ELECTRICAL SYSTEM	C295 CH01
Autopilot Development	SOLAR IMPULSE	SOLAR IMPULSE	PT60M
Support in the development and mission of the APU	AIRBUS	AIRBUS	Miscellaneous
BOST			
Machine Tools for aero-components manufacturing	Several	Several	Miscellaneous
CTA			
MLG retraction actuator test	CESA	LANDING GEAR	AIRBUS A350 XWB
Landing gear actuators system test	CESA	Landing gear	AIRBUS A400M
Main and Tail Rotor Endurance Tests	INDRA	Rotor	INDRA PELICANO
Shafts	UTC	Landing gear	BOMBARDIER Cseries
Flow Servovalve tests	ZODIAC	Servovalve	MITSUBISHI MRJ
DANOBAT GROUP			
Grinding Machine-Tools for Landing Gears	MESSIER-BUGATTI- DOWTY	Landing gear	Miscellaneous

3.3.3. SYSTEMS AND EQUIPMENT

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
DMP			
Main transmission components	AIRBUS HELICOPTERS	MAIN ROTOR	AIRBUS HELICOPTERS X6
Landing gear components	CESA	Balancier	AIRBUS HELICOPTERS TIGRE
Actuation systems	CESA	Several	AIRBUS CN235/C295
Flight control & actuation systems	CESA	Several	EUROFIGHTER TYPHOON
Engine actuation systems	CESA	Several	EUROFIGHTER TYPHOON
Actuation systems	CESA	Several	SIKORSKY S92
Shock Absorber	MESSIER-BUGATTI-DOWTY	MLG	AIRBUS A330/A340
Shock Absorber	MESSIER-BUGATTI-DOWTY	MLG	AIRBUS A350XWB
Shock Absorber	MESSIER-BUGATTI-DOWTY	MLG	BOEING 787
Shock Absorber	MESSIER-BUGATTI-DOWTY	NLG	BOEING 787
Slider	MESSIER-BUGATTI-DOWTY	NLG	AIRBUS A320
Slider	MESSIER-BUGATTI-DOWTY	NLG	ATR 42/72
Rack	MESSIER-BUGATTI-DOWTY	NLG	AIRBUS A320
Cylinder & Piston	MESSIER-BUGATTI-DOWTY	Retraction actuator MLG	AIRBUS A330
Balancier équipé	MESSIER-BUGATTI-DOWTY	MAIN ROTOR	AIRBUS HELICOPTERS SUPER PUMA
DOILAN			
Component machining	SEVERAL	LANDING GEAR	MISCELLANEOUS
GRUPO TTT			
Heat and surface treatments	BHR Helicopter	Systems	F360, F290
Heat and surface treatments	GOODRICH	SYSTEMS	Miscellaneous
Heat and surface treatments	HISPANO SUIZA	Systems	Miscellaneous
Heat and surface treatments	IAI	Systems	Miscellaneous
Heat and surface treatments	MESSIER-BUGATTI-DOWTY	LANDING GEAR	AIRBUS FAMILIES
Heat and surface treatments	MESSIER-BUGATTI-DOWTY	Brakes	AIRBUS families
Heat and surface treatments	Several	Landing Gear	SIKORSKY
HAUCK			
Heat treatments	AIRBUS DS	Several	Miscellaneous
Heat treatments	CESA	Several	Miscellaneous
Heat treatments	DMP	Several	Miscellaneous
Heat treatments	MESSIER-BUGATTI-DOWTY	Landing Gears	Miscellaneous
Heat treatments	SENER	Several	Miscellaneous

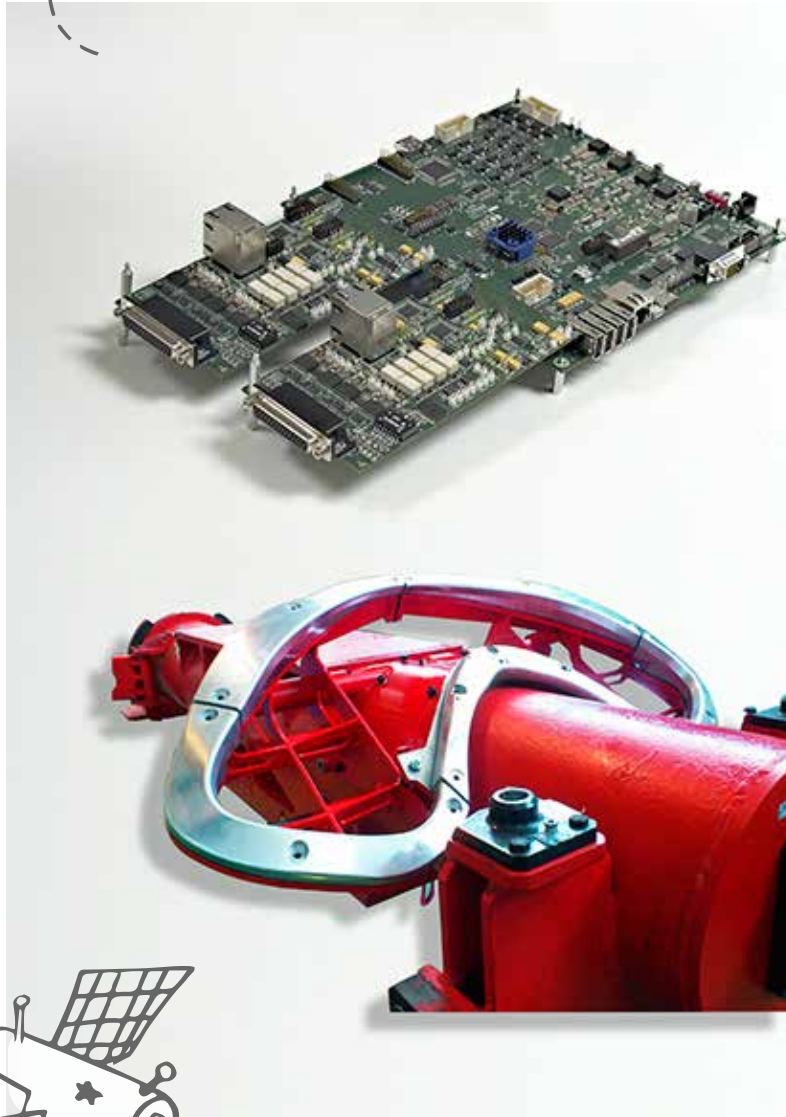
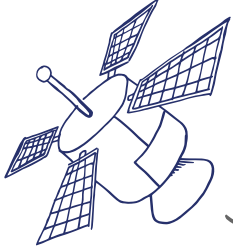
3.3.3. SYSTEMS AND EQUIPMENT

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
INDUSTRIAS GALINDO			
Tooling manufacturing	WEC	Several	Miscellaneous
KORTA			
Ball/Trapezoidal Screws	SENER	Actuators	Miscellaneous
Ball Screws	ZDS	Actuators	Miscellaneous
MATRICI			
Tooling for metallic parts	AUBERT DUVAL	Landing gear	BOEING 737
METRALTEC			
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	SENER	Several	Miscellaneous
NUTER			
Components	CESA	AIRBUS	AIRBUS A330/A350XWB
Components	CESA	AIRBUS DS	AIRBUS A400M
ORBITAL CRITICAL SYSTEMS			
MTF Model and Test Support	AIRBUS DS	Military Test Facilities	AIRBUS A400M
Verification and validation of DASS Display Capabilities	AIRBUS DS	MISSION MANAGEMENT SYSTEM	AIRBUS A400M
SW development, integraton and certification of Tactical Situation System	AIRBUS DS	Tactical Situation Management	AIRBUS A400M
Test Bench Development and production for Tactical Situation Management System	AIRBUS DS	TEST BENCHES	HELIBRAS EC725
Fligh Control System Simulation SW	AIRBUS DS	FCS	EUROFIGHTER TYPHOON
Flight Control System SW and SW/HW Integration, Verification and Validation	AIRBUS DS	Testing	EUROFIGHTER TYPHOON
System integration test bench and supportability for Ground and Flight test	E2S AIRBUS DS	Air to Air Refuelling	AIRBUS A330-MRTT
SW Multifunction Control Display and BOOM Control and Computing System (BCU)	E2S AIRBUS DS	BOOM	AIRBUS A330-MRTT
Design, implementation and integration of critical SW on board --> Communication Management System	E2S AIRBUS DS	Mission Management System	AIRBUS A400M
SW and Firmware design and testing	E2S AIRBUS DS	Audio Management System	AIRBUS A400M
Mission Management System and Communication system verification, validation, certification and test bench integration	E2S AIRBUS DS	MILITARY TEST FACILITIES	AIRBUS A400M
Flight Test and Analysis Defence Aided System	E2S AIRBUS DS	DASS	AIRBUS A400M
Low Level testing for D0178B certification of Mission Management System	E2S AIRBUS DS	Communication System	AIRBUS A400M
Design, implementation, certificatiton and integration of critical SW on board --> Cargo Load Management and Aerial delivery	E2S AIRBUS DS	Mission Management System	AIRBUS A400M

3.3.3. SYSTEMS AND EQUIPMENT

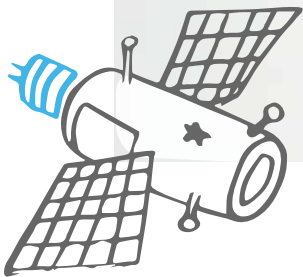
GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Design, implementation, certification and integration of critical SW on board --> MIDS Datalink	E2S AIRBUS DS	Mission Management System	AIRBUS A400M
Avionics Flight Test Telemetry	E2S AIRBUS DS	FLIGHT TESTS TELEMETRY	MISCELLANEOUS
Fly-by-Wire FT4B actuators control system	E2S AIRBUS DS	FT4B	AIRBUS DS C295
Test Bench Development and production for Avionics systems	EMBRAER	Test Benches	HELIBRAS EC725
SENER			
Production of the Control Section of aerodynamic fins and fixed wings (Air - Air version)	DBD	IRIS-T	Defence aircrafts
Development and qualification of the Control Section of aerodynamic fins (Surface Launch version)	DBD	IRIS-T	Ground equipment
Technological teammate of GA-ASI for the integration of the Remotely Piloted Aircraft (RPA) system Predator® B in the Spanish Armed Forces	GENERAL ATOMICS	Predator® B	GENERAL ATOMICS PREDATOR
Program to extend the life of the Spanish Navy's AB212 helicopters	Head of Logistics Support (JAL) - Spanish Navy	Several	AGUSTA-BELL AB 212
Development, qualification, industrialisation and production of the Control Section of aerodynamic fins	MBDA-UK	METEOR	Defence aircrafts
Stabilized Mirror Unit (SMU) of the sight	SAAB Dynamics	RBS 70 NG	Ground equipment
FASS subsystem of drive and control of aerodynamic fins	TAURUS Systems GmbH	TAURUS KEPD 350	Defence aircrafts
179 missile actuator subsystem units and ground support equipment for the South Korean air force	TAURUS Systems GmbH	TAURUS KEPD 350K	Defence aircrafts
Image management unit for two Tactical Recognition systems (RecceLite or Litening Pods)	ZEISS OPTRONICS	IPU 2 / IPU 3	Defence aircrafts
TECNASA			
Firing Handles	MARTIN-BAKER	Ejection Seats	Defence aircrafts
O-RINGS	MARTIN-BAKER	Ejection Seats	Defence aircrafts
JIGS	MARTIN-BAKER	Ejection Seats	Defence aircrafts
WEC			
Connection box	SNECMA	Several	AIRBUS A320
Air Bleed equipment parts	HONEYWELL	Air Treatment Management	"AIRBUS A320/330
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A320/A330/ A400M, CSeries
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A320neo
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A330neo
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	AIRBUS A400M
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	BOEING 747-8
Air Bleed equipment parts	LIEBHERR	Air Treatment Management	DASSAULT F7X

3.3.4 SPACE



ORBITAL CRITICAL SYSTEMS

INDUSTRIAS GALINDO



GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
AIBE			
Precision machining of components	SENER	Several	Miscellaneous
ALTRAN			
Structural dimensioning	AIRBUS DS	Reflectors	AMAZONAS4
Structural dimensioning	AIRBUS DS	Launcher	ARIANNE 5 / ARIANNE 6
Structural dimensioning	AIRBUS DS	Reflectors, Panels and Top Floor Antennas	EUCLID
ARATZ			
Machined Components	Several	Several	Miscellaneous
Components for satellite antennas	Several	Several	Miscellaneous
CTA			
Heat pipes system	IBERESPACIO	Heat pipes system	ALPHASAT
Antenna climatic tests	SENER	Antenna	BEPICOLOMBO
Lander impact tests	SENER	Lander	EXOMARS
Heat pipes system	IBERESPACIO	Heat pipes system	EXOMARS
Mechanisms	SENER	Antenna	SOLAR ORBITER
DYFA			
CAD.CAM , Satellite Panel Machining and Dimensional Control	Several	Satellites	Miscellaneous
GRUPO TTT			
Heat and surface treatments	AIRBUS DS	Propulsion systems	ARIANE
Heat and surface treatments	SENER	Systems	Miscellaneous
HAUCK			
Heat treatments	SENER	Several	ASTRIUM
Heat treatments	AIRBUS DS	Several	Miscellaneous
Heat treatments	INDRA	Several	Miscellaneous
INDUSTRIAS GALINDO			
Tooling manufacturing	THALES ALENIA SPACE	Collars	CSO SATELLITE
ITP			
Super alloy components for space shuttle engine	SNECMA	Shuttle	ARIANE 5
MATRICI			
Tooling for carbonfiber and metallic parts	AIRBUS DS	Several	Miscellaneous
METRALTEC			
Manufacture of elementary parts and assemblies (sheet metal, machining, heat treatments and surface treatments, painting)	SENER	Several	Miscellaneous

3.3.4 SPACE

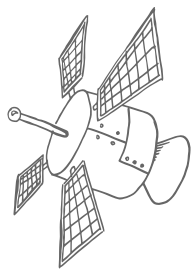
GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
NOVALTI			
On-board components and mechanical systems	THALES ALENIA SPACE	Several	IRIDIUM NEXT GENERATION
On-board components and mechanical systems	TESAT (AIRBUS DS)	Several	Miscellaneous
On-board components and mechanical systems	ESA	Several	Miscellaneous
NUTER			
Components	SENER	Several	GAIA
Components	SENER	Several	METEOSAT THIRD GENERATION
ORBITAL CRITICAL SYSTEMS			
Avionics System SW Demonstrator based on RTEMS	ESA	Avionics System	RTEMS
Full design and development of Scientific Instrument and launch to Space	UAM	IR Camera System	EUSO-Balloon
EXOMARS 2018 DM OBC UT	CRISA	EGSE	EXOMARS 2018 DM
IRCAM System Definition	UAH	IR Camera System	JEM-EUSO
DOORs Data Base Maintenance	EUMETSAT	Meteorological satellite	METEOSAT THIRD GENERATION
UVAS FEE	CISC	UV/UVN FEE System	UVAS CSP SEOSAT
VEGA MFU UT	CRISA	EGSE	VEGA Launcher
SENER			
ALMA Amplitude Calibration Device (ACD)	ESO - European Southern Observatory	Robotic Arm for the ALMA antennas	Atacama Large Millimeter/submillimeter Array (ALMA)
Mechanisms' engineering	ESA	Scientific Mission	ATHENA
Analysis of different alternatives for planetary vehicle landing gear	ESA	Planetary exploration ship -Scientific Mission	AURORA - Mars Sample Return Mission
Mechanism that separates the magnetic disturbance magnetometer of the satellites, as well as the accompanying mobile arm	ESA / AIRBUS DS	Planetary exploration ship -Scientific Mission	BEPICOLOMBO
Communication antennas sub-system (HGA & MGA)	ESA / THALES ALENIA SPACE	Planetary exploration ship -Scientific Mission	BEPICOLOMBO
Main system contractor	ESA	MARES system to investigate muscular atrophy caused by weightlessness	COLUMBUS
Phase C and Phase D of Sentinel-1	ESA / AIRBUS DS	Observation satellites - Scientific Mission	COPERNICUS
Prime contractor for Euclid's AOCS/GNC	ESA / THALES ALENIA SPACE	Scientific Mission	EUCLID
High Gain Antenna Gimbal	ESA / THALES ALENIA SPACE	Scientific Mission	EUCLID

GENERAL DESCRIPTION OF THE PRODUCT/ SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Main contractor and responsible for the support structure and of the help system at the exit of the Rover (SES) onto the Martian surface	ESA /THALES ALENIA SPACE	Planetary exploration ship -Scientific Mission	EXOMARS
In-flight demonstration study of all the functions of the mechanism and Guidance, Navigation and Control system (GNC)	ESA - ESTEC	Docking and joining mechanism -Navigation	IBDM (International Berthing and Docking Mechanism)
FixBox for the ISS	ESA	Fixation Box for a vegetal biology experiment to be performed at the ISS	ISS - International Space Station
Complete Guidance, Navigation and Flight control subsystem (GNC)	ESA	Intermediate experimental vehicle for re-entry into atmosphere	IXV
High gain antenna pointing mechanisms (HGAG) of the Rover	NASA / AIRBUS DS	Planetary exploration ship -Scientific Mission	MARS SCIENCE LABORATORY
Technical and engineering assistance in the project	ESA	MELISSA project for developing a life-support system for long duration space travel and planetary bases.	MELISSA
Scan assembly (FCI and IRS SCA) and the Calibration and Obturation Mechanism (FCI and IRS COM)	ESA / Kayser-Threde	Observation satellite	METEOSAT THIRD GENERATION
Attitude and orbit control system, Special Check Out Equipment (AOCS SCOE)	OHB System	Observation satellite	METEOSAT THIRD GENERATION
Main contractor of the formation flying system	ESA	Formation flying system	PROBA 3
Main contractor of the entire program	ESA	Phases C/D and E1	PROBA 3
Radar deployment system	ESA / AIRBUS DS	Observation satellite - Scientific Mission	SENTINEL 1
Calibration mechanism	ESA / AIRBUS DS	Observation satellite - Scientific Mission	SENTINEL 2
Design and verification of a swinging mechanism or FMD (Flip Mirror Device)	ESA / JENA OPTRONIK	Observation satellite -Sentinel 3-	SENTINEL 3
Optical instrument: engineering work of systems and optical and thermal-structural design	ESA / AIRBUS DS	Optical instrument - Observation satellite	SEOSAT / INGENIO
Communication antennas sub-system	ESA / AIRBUS DS	Scientific Mission	SOLAR ORBITER
Feedthroughs, doors and mechanism subsystem	ESA / AIRBUS DS	Scientific Mission	SOLAR ORBITER
EPD (Energetic and Surathermal Particle Detector Analyzer) instrument	ESA / UNIVERSIDAD DE ALCALÁ DE HENARES	Scientific Mission	SOLAR ORBITER
Instrument Boom	ESA / AIRBUS DS	Scientific Mission	SOLAR ORBITER
So-Phi Instrument	ESA / IAA	Scientific Mission	SOLAR ORBITER
Actuator system for the JST telescope's panoramic camera	Institute of Astronomy, Geophysics and Atmospheric Science of Sao Paulo University	JPCam camera actuator system	T250 or JST (Javalambre Survey Telescope)

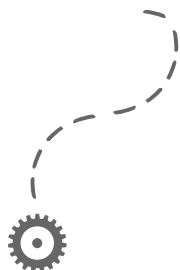
3.3.4 SPACE

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

3.3.5 MAINTENANCE



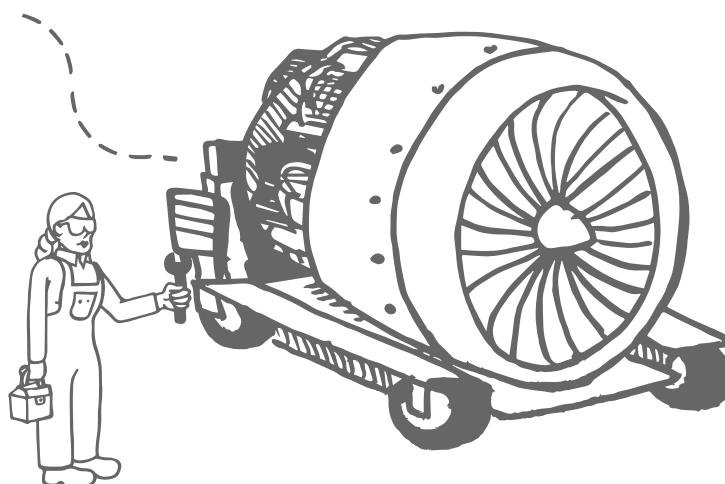
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AERNNOVA



ITP



3.3.5 MAINTENANCE

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
AERNNOVA			
Technical assistance & Sales of spares 24H/365d	AIRBUS	MLGD, HTP, Fuselage, etc	AIRBUS families
Composite & metal structure repairs	AIRBUS	MLGD, Elevators	AIRBUS families
Sales of spares 24H/365d	BEECHCRAFT	wings, flaps, ailerons, etc	BEECHCRAFT families
Composite & metal structure repairs	BOMBARDIER	Tips, fairings, panels, etc	BOMBARDIER families
Technical assistance & Sales of spares 24H/365d	BOMBARDIER	Empenage, fairings, elevators	BOMBARDIER families
Composite & Metal structure repairs	EMBRAER	Elevators, Rudders	EMBRAER 170/190
Composite & Metal structure repairs	EMBRAER	Flaps, Ailerons, Wing tips, MLGD, etc	EMBRAER ERJ145/135/Legacy
Technical assistance & Sales of spares 24H/365d	EMBRAER	Structures and mobile surfaces	EMBRAER families
Maintainability, Reliability Analysis	OEM	Several	Miscellaneous
Technical Publications, SRM, AMM, ITEM, SB, etc	OEM	Several	Miscellaneous
Modifications at Final Assembly of OEMs	OEM	Several	Miscellaneous
Design of repairs	OEM & Operators	Several	Miscellaneous
Design of GSEs	OEM & Operators	Several	Miscellaneous
Sales of GSEs	OEM & Operators	Several	Miscellaneous
Inspections, special processes and re-qualifications	Operators	Several	Miscellaneous
Technical assistance & Sales of spares 24H/365d	Operators	Several	Miscellaneous
Composite & metal structure repairs and modifications	Operators	Several	Miscellaneous
Composite & Metal structure repairs	SIKORSKY	Doors, cowlings, stabilisers	SIKORSKY S-92/ H92
Technical assistance & Sales of spares 24H/365d	SIKORSKY	Doors, cowlings, stabilisers	SIKORSKY S-92/ H92
AEROSPACE ENGINEERING GROUP			
Overhaul and repair of electrical components	MRO, Operators, Air forces, Trading companies	Electrical systems	A320/A340/737/747/757/767/ C212/CN235/C295/MD80/C130/P3/ ATR/FOKKER/CRJ/EMBRAER...
Overhaul and repair of hydraulic components	MRO, Operators, Air forces, Trading companies	Hydraulic systems	A320/A340/737/747/757/767/ C212/CN235/C295/MD80/C130/P3/ ATR/FOKKER/CRJ/EMBRAER...
Overhaul and repair of electrical components	MRO, Operators, Air forces, Trading companies	Fuel systems	A320/A340/737/747/757/767/ C212/CN235/C295/MD80/C130/P3/ ATR/FOKKER/CRJ/EMBRAER...

3.3.5 MAINTENANCE

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Overhaul and repair of avionics components	MRO, Operators, Air forces, Trading companies	Avionics systems	Miscellaneous
ALTRAN			
Supportability and Maintainability Management	AIRBUS DS	Several	AIRBUS A330
Supportability and Maintainability Management	AIRBUS DS	Several	AIRBUS A400M
Supportability and Maintainability Management	AIRBUS DS	Several	AIRBUS C295
DANOBAT GROUP			
Grinding Machine Retrofitting	MRO Operators	Engines	Miscellaneous
GRIUPO TTT			
Heat and surface treatments	MESSIER-SERVICES	Several	Miscellaneous
ITP			
Resolving incidents	ROLLS-ROYCE	RR TRENT 700	AIRBUS A330
Resolving incidents	ROLLS-ROYCE	RR TRENT 500	AIRBUS A340
Resolving incidents	ROLLS-ROYCE	RR BR717	BOEING 717
Full Maintenance, Inspection and Repair of the TPE331 -engine, modules and components- & engine and accessories test	ROYAL AIR FORCE	HONEYWELL TPE331	SHORT TUCANO
Full Maintenance, Inspection and Repair of the PW206 -engine, modules and components- & engine and accessories test	Several	P&W PW206	EUROCOPTER EC135
Full Maintenance, Inspection and Repair of the F404 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	GE F404	BOEING F/A-18
Full Maintenance, Inspection and Repair of the TFE731 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	HONEYWELL TFE731	AIRBUS DS C101
Full Maintenance, Inspection and Repair of the TPE331 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	HONEYWELL TPE331	AIRBUS DS C212
Full Maintenance, Inspection and Repair of the ATAR -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	SNECMA ATAR	DASSAULT MIRAGE Families
Full Maintenance, Inspection and Repair of the EJ200 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	EUROJET EJ200	EUROFIGHTER TYPHOON
Full Maintenance, Inspection and Repair of the T56 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	RR T56	LOOCKHEED MARTIN C130

3.3.5 MAINTENANCE

GENERAL DESCRIPTION OF THE PRODUCT/SERVICE	DIRECT CLIENT	SYSTEM / EQUIPMENT	PLATFORMS
Full Maintenance, Inspection and Repair of the T56 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	RR T56	LOCKHEED MARTIN P-3
Full Maintenance, Inspection and Repair of the J85 -engine, modules and components- & engine and accessories test	Spanish Ministry of Defence	GE J85	NORTHROP F-5
ORBITAL CRITICAL SYSTEMS			
Mission Planning and Maintenance Portable platform in Android	E2S AIRBUS DS	Maintenance System	AIRBUS A300/310
Cargo Load DB Manager (Mozart)	E2S AIRBUS DS	Mission Management System	AIRBUS A400M
SARIKI METROLOGÍA			
Measurement Equipment maintenance, training and software programming	ITP	Several	Miscellaneous

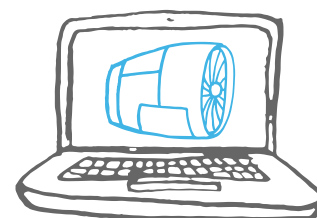
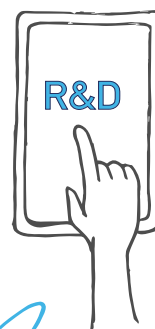
3.3.6 AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS



AERNNOVA



CTA



3.3.6. AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ACITURRI		
E-SEMA	Development of Electric Smart Actuator for Gas Turbine Engine	European - CLEAN SKY
HP-SMART-EMA	Development of High Performance Electromechanical Actuators	European - CLEAN SKY
NICE TRIP (Novel Innovative Competitive Effective Tilt Rotor Integrated Project): convertible aircraft-helicopter	Development of a Tilt-Rotor prototype	European - FP6
TARGET	Sustainable and intelligent technology for composite structure manufacturing	National-CENIT
AERNNOVA		
CLEAN SKY	Smart Fixed Wing Aircraft. High accuracy wing assemblies for Natural Laminar Flow	European - CLEAN SKY
AFLONEXT	Maturation of an integrated set of active flow, load and noise control technologies for the next generation of active wing	European - FP7
CAPPADOCIA	Coordination Action Pro "Production, Avionics, Design" on Cost-efficiency in Aeronautics	European - FP7
DAEDALOS	Dynamics in Aircraft Engineering Design and Analysis for Light Optimized Structures	European - FP7
FLYBAG2	Aircraft Interiors for blasting resistance	European - FP7
HIPOCRATES	European project for self-healing aeronautical composites	European - FP7
LOWFLIP	Low cost flexible integrated composite process	European - FP7
SARISTU	Smart intelligent aircraft structures	European - FP7
PRONTAS	Out of autoclave wing for a solar power UAV	National - INNPACTO
PERIGEO	Out of autoclave UAV airframe development	National - INNPRONTA- CDTI
PROSAVE2	Advanced Systems research for a more eco- friendly aircraft	Regional- GAITEK - Basque calls
ALESTIS		
High-temperature resistant composites	A350XWB Programme Development	Others
Integrated fuselage barrel structures	A350XWB Programme Development	Others
Composite beam optimization	A350XWB Programme Development	Others
ALTRAN		
ARIADNA	Composites Cockpit Acoustic Simulation	Regional- GAITEK - Basque calls
WILPRO	Aerodynamic Design of Large Telescopes	Others
DeSUAVS	Supersonic Target UV Design	Others
VR Flow	3D View of Aerodynamic Simulation	Others

3.3.6. AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
CTA		
E-SEMA	Development of Electric Smart Actuator for gas turbine engines.	European - CLEAN SKY
WINSDOM	Wing Structural Test Development Method	European - CLEAN SKY
VITAL	Aerodynamics: Environmentally Friendly Aero Engine	European - FP6
DREAM	Aerodynamics: Validation of Radical Engine Architecture	European - FP7
E-BREAK	Engine Breakthrough Components and Subsystems	European - FP7
ENOVAL	Engine Module Validators	European - FP7
FUTURE	Aerodynamics: Flutter-Free Turbomachinery Blades	European - FP7
LEMCOTEC	Low Emissions Core-Engine Technologies	European - FP7
VIBRATION	Global in flight health monitoring platform for composite aerostructures based on advanced VIBRATION based methods	European - FP7
OUTCOME	OUT of autoclave COMpositE manufacturing, wing and tail unit components and multifunctional design	European -H2020 (CS-II)
OPENAER	Aerodynamics: New aircraft and engine configurations for the future system of air transport	National-CENIT
TEMPROCEN	Automation technologies for metal empennage	National-CIEN
DIEMETEN	Empennage metal design with new testing technologies	National-RETOS
SPACECAP V	Development of the spatial technologies	Regional - DFA - Basque calls
ACTIMAT	Research and Development of new smart materials	Regional - ELKARTEK- Basque calls
AIRHEM-IV	Health Monitoring in Aeronautical structures and Components throughout their life cycle	Regional - ELKARTEK- Basque calls
AIRHEM-III	Health Monitoring in Aeronautical structures ; Consortium coordinated by CTA	Regional - ETORTEK - Basque calls
ATEAERO	New Generation landing gear door for future single-aisle aircraft	Regional -ETORGAI - Basque calls
INNGAS	INNGAS	Regional -ETORGAI - Basque calls
SUMOCAR	Development of new mobile aircraft surfaces in carbon fibre	Regional -ETORGAI - Basque calls
HAUCK		
Heat treatments	ITP projects	Others
Heat treatments	SENER projects	Others

3.3.6. AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
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.	European - CLEAN SKY
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.	European - FP6
MAGPI - Main Annulus Gas Path Interactions	Interaction of secondary flows with the main flow and effects of cavities in turbomachinery.	European - FP6
PREMECCY - Protective Methods for Combined Cycle Fatigue in Gas Turbines	Fatigue prediction: Study of mechanisms and prediction of fatigue in turbomachinery	European - FP6
TATMO - Turbulence and Transition Modelling for Specigla Turbomachinery	Aerodynamics: Improvements in efficiency by means of non-stationary at aerodynamic analysis	European - FP6
VITAL - Environmentally Friendly Aero Engine	Advanced propulsion plants: Integrated project. Substantial reductions in emissions (-18% of CO ₂) and noise (-6dB).	European - FP6
DREAM - Validation of Radical Engine Architecture Systems	Advanced propulsion plants: Study of new architectures for propulsion plants based on the open-rotor concept	European - FP7
EBREAK - Engine Breakthrough Components and Subsystems	Advanced sealing technologies and oil systems, Engine variability and thermomechanical behaviour, Health monitoring, High temperature materials and abradables, Light weight material	European - FP7
ELUBSYS - Engine Lubrication System Technologies	New lubrication technologies in gas turbines	European - FP7
ERICKA - Engine Representative Internal Cooling and Applications	Technologies for turbine refrigeration	European - FP7
FACTOR - Full Aerothermal Combustor – Turbine Interaction Research	Combustor-turbine interactions design, High-pressure turbine, specific fuel consumption reduction, European test facility, aerodynamic and aerothermal measurement, design simulation	European - FP7
FUTURE - Flutter-Free Turbomachinery Blades	Aerodynamics: Technological development to reduce the flutter phenomenon in turbomachinery blade crowns	European - FP7
LEMCOTEC - Low emissions Core-Engine Technologies	Improvement of core-engine thermal efficiency	European - FP7
OPENAIR - Optimisation for low Environmental Noise Impact Aircraft	Technologies for reducing noise in aircraft	European - FP7
Clean Sky 2	VHBR Engine Intermediate Pressure Turbine Technology	European - H2020
TAG - Feasibility studies for the development of general aviation turbines	Feasibility studies for the development of low pressure turbines, structures and external components in turbines for general aviation	National - SAE
MASIR - Advanced Noiseless Machining	Noise reduction: Techniques to reduce noise in industrial environments engaged in the precision machining and well-being of parts.	National Calls

3.3.6. AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
OPENAER - New engine and aircraft configurations for the future air transport system	Aerodynamics, Methods, Materials, Mechanical design, Manufacture and Control.: Development of technologies for the design and manufacture of components in the hot area of an aeronautical gas turbine in "open-rotor" configuration	National-CENIT
PROSAVE: Eco-efficient aircraft	Leader: CESA	National-CENIT
NOISE MEASUREMENT - Optimisation and validation of techniques for the advanced measurement of noise in a jet engine.	Advanced instrumentation: Optimisation and validation of techniques for the advanced measurement of noise in a jet engine.	Regional - Madrid Region calls
SACMI - Advanced Control and Monitoring System of ITP	Control systems: Development of a control system applied to the fuel control unit of an aeronautical engine.	Regional - Madrid Region calls
MONDRAGON UNIBERTSITATEA		
SafeCer	Safety Certification of software-intensive systems with reusable components	European - ARTEMIS
MONEMECA	Monitoring and diagnostics of electromechanical actuators for aeronautical applications	Regional - Basque calls
AIRHEM-II	Electronics for transport: Health Monitoring for structures	Regional - ETORTEK - Basque calls
NOVALTI		
Turbine blades for test RIGs	PTB4++, PTB8, PTB9	Others
ORBITAL CRITICAL SYSTEMS		
CRYSTAL (ARTEMIS)	CRitical sYSTem engineering AcceLeration	European - ARTEMIS
UAV-RTEMS	Design and development of a UAV (Unmanned Air Vehicle) D0-178B certifiable Health Monitoring System based on RTEMS real-time operating system.	European - ESA TTP
MOBNET	Lead of consortium with development of a system that localize mobiles during emergency situations.	European - H2020
SELENA	Forecast system for electromechanical actuators.	Natiaonal - CDTI
ETH-RTOS	Real time operative system wiht DIMA capability	National - AVANZA
PLATHW	Design and development of a D0-254 certifiable, cost-effective and multipurpose Hardware platform for Avionics subsystem applications.	National - AVANZA
OPENSYS	Design and development of an application programming interface for the communication between IMA partitions and Cockpit Display System	National - CDTI
SARIKI METROLOGÍA		
FUTURALVE	Advanced manufacturing and materials technologies for the new generation of high-speed turbines (Futuralve)	National - CIEN - CDTI

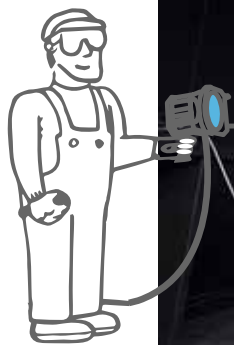
3.3.6. AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
SENER		
E-SEMA - Development of Electric Smart Actuator for gas turbine engines	Development of prototypes for airplane motor actuators Collaboration with TECNALIA, CTA, ACITURRI and MACCON.	European - CLEAN SKY
PEGASUS - Flight Qualification of Deployable Radiator using Two Phase Technology	The main objective of this project is to develop a Deployable Thermal Radiator (DPR) based on Loop Heat Pipes Qualification Model. This includes the design, manufacturing and flight qualification testing to achieve a Technological Readiness Level (TRL) 8. Collaboration with IBERESPACIO, Thales Alenia Space France, Thales Alenia Space Italy, Active Space Technologies and TECNALIA. SENER will contribute with the development of the Deployment Mechanism of the DPR.	European - H2020
ACTUATION 2015 - Health Monitoring in Control and Actuation Systems	Control, diagnosis, and prognosis of the operating function of actuators in order to optimize their operation	European - FP7
LEOSWEEP - Improving Low Earth Orbit Security With Enhanced Electric Propulsion	Develop key technology for the implementation of the Ion Beam Shepherd (IBS) concept and demonstrate the technological feasibility of a first active removal mission of a Ukrainian rocket upper stage, prove its economic viability, and propose a convincing legal and policy implementation to "kick-start" large-scale active debris removal activities in Ukraine, Europe and other space faring nations in the future. Collaboration with UPM, TransMIT, ITM, DRL, SDOY, DME, ISLC, Southampton University, CNRS and UC3M.	European - FP7
HDR qualification with potentiometers	HDR qualification with potentiometers	Others
Image navigation	Image navigation	Others
SISTEPLANT		
SIMAP - UAV healthmonitoring system	Design of health monitoring system for UAV	National-CDTI
TECNO-I PLANT	Definition of a new paradigm for aerospace components manufacturing: intelligent manufacturing, extremely agile flow, leading edge technologies	Others / Internal Developmet
TECNALIA		
VARIES (ARTEMIS)	VARIability In safety critical Embedded Systems	European - ARTEMIS
ARMLIGHT	Design, development and manufacturing of EMA and test setup for advanced landing gear system actuation	European - CLEANSKY
FLIGHT-EMA	Advanced Flight Control System- Design, development and manufacturing of an EMA with associated ECU and dedicated Test Bench	European - CLEANSKY
LIGHTBOX	Lightweight Composite Bus System Housing for Extreme Environments	European - CLEANSKY
SEALEDBOX	Aerospace Housing for extreme environment	European - CLEANSKY
TESTHEMAS	Design and Implementation of a Load Simulator Rig and Ground Test Bench Adaptation Kit for a HEMAS Test Rig	European - CLEANSKY
OUTCOME	Out of autoclave composite manufacturing, wing and tail unit components and multifunctional design	European - CLEANSKY 2

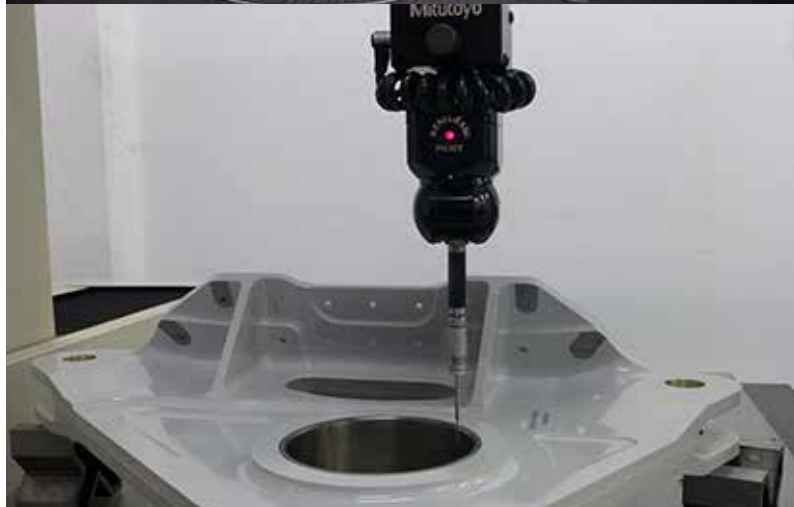
3.3.6. AIRCRAFT AND SPACE ENGINEERING R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ACTUATION 2015- Integrated modular actuation systems for the future all-electric aircraft	"ACTUATION 2015 aims to develop and validate a common set of standardised, modular and scalable EMA resources for all actuators and all types of aircraft. Coordinator: GOODRICH ACTUATION SYSTEMS SAS. Some other participants: AIRBUS, ALENIA, SENER, HISPANO SUIZA, CESA, etc"	European - FP7-AAT
ESPOSA - Integrated approach to efficient propulsion and related aircraft systems for small-size aircraft	"Development and integration of novel design and manufacture technologies for a range of small gas turbine engines up to approx. 1000 kW. Coordinator: PRVNI BRNENSKA STROJIRNA VELKA BITES A.S. Some other participants: AVIO S.P.A, MOTOR SICH JSC, HONEYWELL INTERNATIONAL SRO, PIAGGIO AERO INDUSTRIES SPA, FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V, etc"	European - FP7-AAT
SARISTU- Integrated approach to smart airframe structures	"The project proposal concerns the challenges posed by the physical integration of smart intelligent structural concepts. Coordinator: AIRBUS OPERATIONS GMBH. Some other participants: ALENIA AERONAUTICA SPA, AERNNOVA, SAAB AKTIEBOLAG, SHORT BROTHERS PLC, GKN Aerospace Services Limited, etc"	European - FP7-AAT
EXOMET	Physical Processing of Molten light alloys under the influence of external fields	European - FP7-Space
HYDRA	TPS thermal protection systems for MSR Mars and Moon mission based in ablative materials	European - FP7-Space
THOR- Innovative thermal management concepts for thermal protection of future space vehicles	Design, develop, implement, test and validate disruptive thermal management concepts for atmospheric entry of space vehicles. Partners: DLR, TECNALIA, TUBITAK, FLUID GRAVITY ENGINEERING , SCUOLA UNIVERSITARIA PROFESSIONALE DELLA SVIZZERA ITALIANA, AEROSPACE AND ADVANCED COMPOSITES GMBH , THALES ALENIA SPACE, JAXA	European - FP7-Space
PEGASUS	Flight Qualification of Deployable Radiator using Two Phase Technology	European- H2020-SPACE
PAPP_FPP	Portable and Predictable Performance on Heterogeneous Embedded Manycores	European-H2020-ICT
SELENA	Safer, more electrical and more reconfigurable systems oriented towards a more efficient aircraft by reducing the pilot's workload	National- CIEN
AIRHEM-II	Electronics for transport: Health Monitoring for structures	Regional - ETORTEK - Basque calls

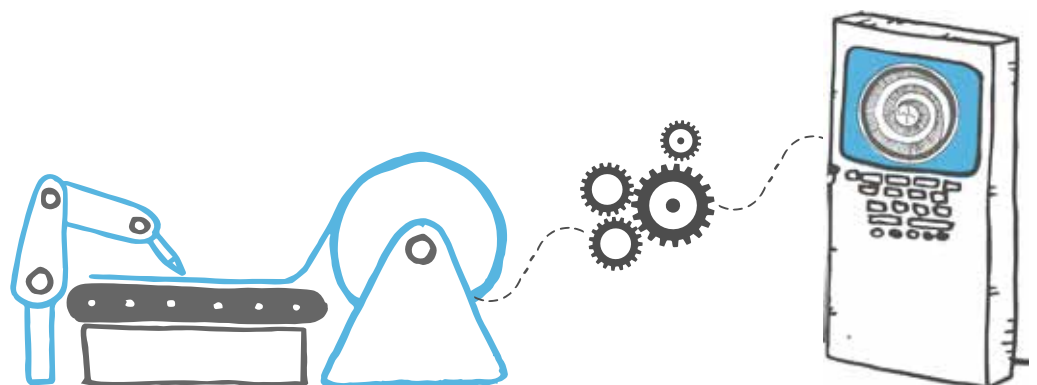
3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS



ITP



BURULAN



3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
ACITURRI		
EMC2-Factory	Eco Manufactured transportation means from Clean and Competitive Factory	European - FP7-FoF
AERNNOVA		
SARISTU	New Materials for Morphing and SHM	European - FP7
DAMTEX	Ultra-thin, non-conventional carbon fibre laminates	National - AirTN
NANOPROT	Nano-ceramic material development	National - INNPACTO
CURVED	Composite processes simulation	National - PID
ISOP	Peen Forming Optimisation	National - PID
PEEN FORMING II	Development of peen forming for metallic structures	National - PID
SUPERCALCULUS	Advanced numerical simulations	National - PID
NANOPROT	Nano ceramic coatings	National - RETOS - Edu. Ministry
ATEA-AERO	New automated composite processes for landing gear doors	Regional - ETORGAI - Basque calls
ESTAVRIL	New composite development for light weight railway trains	Regional - ETORGAI - Basque calls
SUMOCAR	New composite architectures for control surfaces and ground testing validation	Regional - ETORGAI - Basque calls
CVD DIAMANTE	New and more efficient cutting tools for light alloys	Regional- GAITEK - Basque calls
DINA	Neutronic Reserch Disks development	Regional- GAITEK - Basque calls
HIMAT	Super light weight structures for zero emissions vehicle	Regional- GAITEK - Basque calls
INTEGRA	Advanced Inertia Wheels Developments	Regional- GAITEK - Basque calls
ULTRACAP	Development, Testing and Validation of ULTRA-precise and ULTRA-repetitive Retractable Positioning Cannons for assembling wing-type aeronautical structures	Regional- GAITEK - Basque calls
VECTURA	New Aerostructures Assembly and Painting Technologies	Regional- Interconnecta - Andalucía calls
DESTACAR	Development of high performance technologies for the manufacture of multimaterial components	Regional- Interconnecta - Galicia calls
BURULAN		
Internal Development	CNC center for titanium	Others
Internal Development	CNC center for larger parts	Others
EKIN		
DESAFIO II	High production broaches Development	National - MICIN
GRUPO TTT		
PRO-SURFACE	Leader: CESA	National-RETOS

3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
HAUCK		
Heat treatments	SENER projects	Others
IK4		
AEROBEAM	Development of Stator Vanes for Avioindustry	European - CLEANSKY
LIGHTWELD	Characterization of metallurgical joining technologies for Al, Al-Li and Mg joints	European - CLEANSKY
NESMONIC	Net shape Hot Isostatic Pressing of IN718	European - CLEANSKY
RORC	Rolled only IN718 ring-shaped components	European - CLEANSKY
SENTRY	Sustainable Dismantling and Recycling of Metallic Aerostructures	European - CLEANSKY
TIFAN	Manufacturing by SLM of a titanium fan wheel	European - CLEANSKY
WELDMINDT	Open rotor engine WELDED parts insp using MIniaturized NDT	European - CLEANSKY
WILDCRAFT	Design, development and testing of a proof-of-concept demonstrator of a Wireless Sensor Network (WSN) aimed at applications in the aerospace industry	European - CLEANSKY
ACTUATION2015	Development and validation for the standardisation and modularity of EMA in all system (flight control, landing systems, etc.) to reduce general costs of LCC, improved reliability, maturing of technology, weight reduction.	European - FP7
ACTUATION2015	Development and validation for the standardisation and modularity of EMA in all system (flight control, landing systems, etc.) to reduce general costs of LCC, improved reliability, maturing of technology, weight reduction.	European - FP7
DREAMS	Distributed REal-Time Architecture for Mixed Criticality Systems	European-FP7-ICT
E-BREAK	Engine Breakthrough Components and Subsystems	European - FP7-AAT
ENOVAL	ENgine mOdules VALidator	European - FP7-AAT
FourByThree	Highly customizable robotic solutions for effective and safe human robot collaboration in manufacturing applications	European-H2020-EU
IN-LIGHT	Development of electrochromic aircraft Window. EADS	European - FP7
IN-LIGHT	Development of electrochromic aircraft Window. EADS	European - FP7
INTEFIX	INTElligent FIXtures for the manufacturing of low rigidity components	EUROPEAN-FP7-ICT
ISSELUB	Innovative sealing and sensing technologies for extended life of lubricated elements	European-H2020-CS2
MERLIN	Development of Aero Engine Component Manufacturing using Laser Additive Manufacturing	European - FP7-Transport
MULTIPARTES	Multicores partitioning for Trusted Embedded Systems	EUROPEAN-FP7-ICT

3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
OPTIMIZE	Design of Experiments to OPTIMIZE design solutions for a Power reduction Gearbox	European CS1
POCO	Polymer-Matrix Composites based on Carbon Nanotubes (Functionalized, Aligned and Confined)	European - FP7
PROXIMA	Probabilistic real-time control of mixed-criticality multicore and manycore systems	European-FP7-ICT
SMERobotics	The European Robotics Initiative for Strengthening the Competitiveness of SMEs in Manufacturing by integrating aspects of cognitive systems.	European-FP7-EU
3R-COMP	Reprocessable, repairable and recyclable thermoset composites for aerospace applications	National - FEDER Ininterconecta
AEROLICA	Intelligent structures: development and validation of monitoring systems and identification of damage with application in aeronautics and marine wind turbine plants	National - Investigación básica
ENGRANA	Development of flexible and advanced processes for the manufacture of high performance and high responsibility gears. DMP	National - INNPACTO
FUTURALVE	Technical viability of surface inspection in TBHs weldings by means of active thermography.	National - CDTI
PROSAVE2	Research project in advanced systems for eco-efficient aircraft	National - CENIT
RC2	Quick and cost-cutting manufacturing of functional prototypes for gas turbines made of pile up metallic layers: rapid manufacture of aeronautical turbine blades by means of laser cladding techniques	National - PROFIT
SELENA	Safer, more electrical and more reconfigurable systems oriented towards a more efficient aircraft by reducing the pilot's workload	National-CDTI-CIEN
ESTRATEUS	Research into advanced manufacturing technologies in strategic areas for Basque industry	Regional - ELKARTEK - Basque calls
ADDITIVE	New alloys and industrial components created through additive manufacturing for strategic sectors	Regional - ETORGAI - Basque calls
EUSKESTUR:	Basque collaboration project for the manufacture of a new generation of radial turbine structures: modelling of manufacturing process to reduce development time and improve cathode design / PECM Engineering, ITP	Regional - ETORGAI - Basque calls
PROMULENS	Structural product made lightweight by combining multiple materials and hybrid assembly technologies	Regional - ETORGAI - Basque calls
aeroHUMS	Adjusting and validating modelling technologies, microlubrication and health monitoring for small size aeronautic reducers more reliable and economical	Regional - GAITEK - Basque calls
LASCLEAN	Laser surface cleaning in industrial applications. Inser-robótica, PCB	Regional - GAITEK - Basque calls

3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
OPTICAM	Development and implementation in CAD/CAM of models for the simulation of machining processes. AyS, Bundinberri, Talleres Aratz	Regional - GAITEK - Basque calls
PRECISUS	Ultrasonic assisted drilling for high precision holes in aeronautics .Industrias Laip	Regional - GAITEK - Basque calls
PRECISUS	Ultrasonic assisted drilling for high precision holes in aeronautics .Industrias Laip	Regional - GAITEK - Basque calls
SURFER	Development of laser technology applications in the modification and finishing of functional surfaces. AIN, AIMME, AIDO	Others
ELARA	gEnelraLization to assembly oriented authority Augmented ReAlity	Others
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	European - FP7
INTEFIX - Intelligent Fixtures for the manufacturing of low rigidity components	Fixture, intelligent, control, sensor, actuator, mechatronic, adaptronic, simulation, monitoring, machining, vibration, deformation, set-up	European - FP7
MERLIN - Development of Aero Engine Component Manufacture using Laser Additive Manufacturing	The concept of the MERLIN project is to reduce the environmental impact of air transport using Additive Manufacturing (AM) techniques in the manufacture of civil aero engines.	EUROPEAN - FP7
FANTASIA - Flexible and Near-Net-Shape Generative Manufacture Chains and Repair Techniques for Complex Shaped Aero Engine Parts	Repair: advanced processes. New manufacturing and repair techniques based on LMD (Laser Metal Deposition) and LDF (Laser Direct Forming)	European - FP6
VERDI - Virtual Engineering for Robust Manufacturing with Design Integration	Process simulation: Production of scrap during the development stage (virtual tests) and reduction of engine weight (emission reduction)	EUROPEAN - FP6
FUTURALVE - advanced manufacturing and materials technologies for the new generation of high-speed turbines	Development of advanced manufacturing and materials technologies needed to design optimized components for high-speed turbines and to manufacture them making better use of the raw material	National - CIEN
ALEXANDRIA	Development of Damage Inspection Techniques and Methodologies and New Generation Dimensional Metrology for the Aeronautics, Railways, Naval and Wind Power sectors.	National - MICIN
DESAFIO	Development of High Reliability Manufacturing Systems for rotating parts with High Surface Integrity Requirements.	National - MICIN

3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
MATERIALES - Oxycarbide layers of multicomponent silicon on metal alloys surfaces by plasma spray	Development of the application of coatings by means of plasma spray	National - PROFIT
RAMPE - Alternative coatings to heavy metals (RAMPE)	Residue removal: Development of alternative coatings for removing Cr-VI	National - PROFIT
EUSKESTUR	Manufacturing technologies: Development of Basque excellence pole for the manufacture of radial structures for aeronautical turbines	Regional - Basque Country Calls
GENESYS		Regional - Basque Country Calls
PAINT - Aeronautical hub for innovation in turbines	High Performance Manufacturing	REGIONAL - BASQUE COUNTRY CALLS
SAGER - Large-scale Energy Storage Systems for the Electricity Grid	Development of energy storage technologies.	Regional - Basque Country Calls
VANCAST - Next Generation Nozzle Guide Vane Design and Casting Technology	Technologies for the Design and Casting of the New Generation of Low-pressure Turbine Blades.	REGIONAL - BASQUE COUNTRY CALLS
DIALPE - Fatigue life design and verification of the vibration behaviour of gas turbine monocrystal blades	Mechanical technology: Study of fatigue and service life behaviour of small size monocrystal blades for a gas turbine.	Regional - Madrid Region calls
NOVALTI		
AEROTIAL	ALFA-NOVALTI-UNI. MONDRAGON....	European - MANUNET
PAINT	NOVALTI-ITP-UPV/EHU....	Regional-ETORTEK-Basque Calls
ORBITAL CRITICAL SYSTEMS		
Test benches complete Simulation, Acquisition and monitoring SW/HW Enviromnet	System that provides a common environment for running design models, simulations and real equipment to support testing and / or simulation of avionic equipment subsystem or system.	National - CDTI
SARIKI METROLOGÍA		
EUSK-ADDI	Advanced manufacturing with additive processes and equipment made in Euskadi (Eusk-Addi)	Regional - ETORGAI - Basque calls
M+I3d	New generation of materials and 3D printer for advanced manufacturing	Regional - ETORGAI - Basque calls

3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
SENER		
New developments in composite material manufacturing systems	Flexible stacking machine for pattern fabric materials	Others
New developments in composite material manufacturing systems	Manufacturing of fabric reinforced polymer matrix through a combination of liquid infusion and hot drape forming	Others
Rotary Actuator with potentiometers (HDRA_P)	Rotating actuator for space applications (HDRA) incorporating angular position sensors (potentiometers).	Others
SISTEPLANT		
PLATFORM -Open access pilot plants for sustainable industrial scale nanocomposites manufacturing based on buckypapers, doped veils and prepregs	Industrialisation in nanocomposites - Led by TECNALIA and research in relation to aerostructures with FIDAMC (AIRBUS)	European-H2020
ICARO - composite aerostuctures	Industrialisation in advanced materials - Led by Airbus, research into materials and manufacturing systems for aerostuctures	National - CDTI
TECNALIA		
ACOTAAL	Automation concepts and Technologies for Aircraft assembly Lines in the Aircraft Factory of the Future	European - CLEANSKY 2
OUTCOME	Out of autoclave composite manufacturing, wing and tail unit components and multifunctional design	European - CLEANSKY 2
BLINDFAST	Innovative Blind Fastener Monitoring Technology for Quality Control	European - CLEANSKY 2
HIMMOVAL	High speed metallic material removal under acceptable surface integrity for rotating frame	European - CLEAN SKY
AMAZE	FP7 - FoF-ICT-NMP -Collaboration with the European Space Agency (ESA), AVIOprop, AVIO S.p.A, Thales Alenia Space, BAE Systems and Bombardier.	European - FP7
AMAZE	Additive Manufacturing Aiming Towards Zero Waste and Efficient Production of High-Tech Metal Products	European-FP7-FoF
CABLEBOT	FP7 - FoF-ICT-NMP - Parallel Cable Robotics for Improving Maintenance and Logistics of Large-Scale Products. Collaboration with EADS	European - FP7
ELECTRICAL	Novel aeronautical multifunctional composite structures with high electrical conductivity and self-sensing capabilities(Airbus, Univ. Patras, Aernnova, EADS, Short Brothers, Arkema, etc	European - FP7-AAT
HELM- High-frequency Electro-magnetic Technologies for Advanced Processing of Ceramic Matrix Composites and Graphite Expansion	Processing and manufacture of advanced ceramics (ceramic matrix composites) for different industrial sector(including Aerospace). 20 partners: Warrant Group S.r.l, Brembo SGL Carbon Ceramic Brakes S.p.A., Snecma Propulsion Solide , TIMCAL SA , EADS Deutschland GmbH, TECNALIA, etc	European - FP7

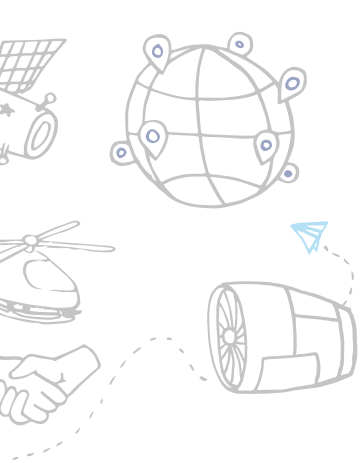
3.3.7 MANUFACTURING, PROCESSES, MATERIALS AND OTHER R&D PROJECTS

ACRONYM AND/OR NAME OF THE PROJECT AND BRIEF DESCRIPTION	PROJECT SUMMARY / RELEVANT DETAILS / CONSORTIUMS	CALL
HIPOCRATES	Self-healing polymers for concepts on self-repaired aeronautical composite. Coordinator: TECNALIA. Some other partners: University of Patras, University of Bristol, GMI SAS, Aernnova...	European - FP7-AAT
LIGHT-TPS	Super light-weight thermal protection system for space application	European-FP7-SPACE
LOCOMACHS	Low Cost Manufacturing & Assembly of Composite and Hybrid Structures. Coordinator: SAAB. Participants: Airbus, GKN Aerospace, Dassault, IAI, DLR, NLR, Tecnomat, Dassault, Bombardier, etc.	European - FP7-AAT
MAAXIMUS- More Affordable Aircraft through eXtended, Integrated and Mature nUmerical Sizing	Fast development and right-first time validation of a highly-optimised composite fuselage thanks to a coordinated effort between virtual structure development and composite technology. Coordinator: AIRBUS. Some other partners: BOMBARDIER; SONACA; TAI; DLR, INASCO, etc	European - FP7-AAT
C3HARME	Next generation Ceramic Composites for Combustion HARsh environMEnts and space	European- H2020-NMP
TEMPROCEN	New generation of materials and 3D printer for advanced manufacturing	National- CIEN
ESTENEA	Study of low-cost technologies and high cadences in composites	National- CIEN
ATEA-AERO - New generation of landing gear door for future single-aisle aircraft	Development of new landing gear door structure	Regional - Basque Calls
DOLOMITE	Development of intelligent assembly systems for the aeronautic industry	Regional - Andalucía Calls
FUTURASSY	Development of robotics solutions for assembly of CFRP aerostuctures. Airbus, Tecnalia, Universidad de Cadiz, Universidad de Sevilla, CATEC	Regional - Andalucía Calls
SIMVA - Development of innovative flight control systems for new generation cargo and regional aircraft	Development of new flight control systems	Regional - Andalucía Calls
VECTURA	New aerostructures assembly and painting technologies	Regional - Andalucía Calls
PYLONCONCEPT	Conceptual solutions for new pylon design automated manufacturing"	Others - Private project
AIRTMC	Hybrid Titanium Matrix Composites (TMC) for aero engines applications"	Others - Private project
WEC		
SELESTUR	New product family for dynamic sealing inter-stages turbine	Regional - ETORGAI - Basque calls
HEGOAK	Vanes manufacturing	Regional - Basque Country Calls
CFAA: Advanced Aeronautics Manufacturing Center	Advanced welding processes	Regional-Public-Private regional enterprise
GREENAIR: swifiting to new processes for fabricated components	Cold forming processes to lower carbone footprint	Others / Internal development

3.4 PROGRAMMES AND CLIENTS

3.4.1 LEADING PROGRAMMES

AIRBUS A350XWB	AERNNOVA, ACITURRI, ALESTIS (Risk Partners)
AIRBUS A380	AERNNOVA, ACITURRI, ALESTIS, NOVALTI (Risk Partners)
AIRBUS A400M	ACITURRI, ALESTIS (Risk Partners)
BOEING 747-8I /F/ Dreamlifter	AERNNOVA
DASSAULT Falcon 7X	ACITURRI, ALESTIS (Risk Partners)
EMBRAER ERJ, E-JET, E-JET E2 Families	AERNNOVA (Risk Partner)
EMBRAER KC-390	ACITURRI, ALESTIS (Risk Partner)
EMBRAER Legacy, Phenom	AERNNOVA (Risk Partner)
EPI TP400	ITP (Consortium Member)
ESA SOLAR ORBITER, MTG, PROBA-3, EUCLID	SENER
EUROJET EJ200	ITP (Consortium Member)
MTRI MTR390E	ITP (Consortium Member)
PRATT & WHITNEY PW1000G	ITP (Risk Partner)
ROLLS ROYCE Trent 500 /900 /1000	ACITURRI, ITP (Risk Partners)
ROLLS ROYCE Trent XWB	ITP (Risk Partner)
SIKORSKY S-92	AERNNOVA (Risk Partner)
TURBOMECA (All range)	DMP (Exclusive transversal agreement for Special Gears)



3.4.2 CURRENT AND FORMER PROGRAMMES & CLIENTS

AEROESTRUCTURES

AIRBUS A300/310/318/319/320/320neo,ceo/321/330/350XWB/380. **AIRBUS DS** A330MRTT/400M, CN235, C295. **AIRBUS HELICOPTERS** AS332, EC135, NH90, TIGRE. **ATR** 42, 72. **BELL** 505 JRX. **BEECHCRAFT** BARON / BONANZA / KING AIR. **BOEING** 737, 747-LCF, 747-8I/F, 777, 787, E-3 AWACS. **BOMBARDIER** Q-Series, CRJ Family, CSeries. **CASA** C101/212. **DAHER-SOCATA** TBM700. **DASSAULT** FALCON 5/7X. **DORNIER** DO728. **EMBRAER** ERJ135/ 140/ 145/ 145LR/ 145XR, LEGACY, 170/ 175/ 190/ 195, E175/190/195-E2, LINEAGE, KC-390, PHENOM. **EUROFIGHTER** TYPHOON. **SIKORSKY** S-92. **SINO SWEARINGEN** SJ30.

ENGINES

CFM INTERNATIONAL CFM56, LEAP. **EPI** TP400. **EUROJET** EJ200. **GENERAL ELECTRIC** CF700, CT7, F404/ 414, GE90-14/ 115, J79, LM2500, T700. **HONEYWELL** AS907, HTF7000, LYCOMING T53/55, GARRETT TPE331/TFE731, TF50. **MTR** MTR390E. **PRATT & WHITNEY** F135, JT8-STD / 200, PT6 / T3, PW535 /150/810/1000G. **ROLLS-ROYCE** BR710/715, RB211, TRENT MT30/50, TRENT 500/ 700/ 800/ 900/1000/XWB. **ROLLS-ROYCE NORTH AMERICA** A250, A601K, M250, T63. **SNECMA** ATAR, 9KPLUS/09C/09K50, CFM 56, SAM146, SILVERCREST. **TURBOMECA** ARRIEL, MAKILA, ARRIUS.

SYSTEMS & EQUIPMENT

AIRBUS MILITARY, AIRCELLE, ALENIA, BAE SYSTEMS, BOMBARDIER, CESA, DIEHL-BGT, EADS, EUROCOPTER, EUROFIGHTER, GOODRICH, HISPANO-SUIZA, HONEYWELL, IAI, INDRA, LATECOERE, LIEBHERR, MARTIN-BAKER, MBDA, MESSIER-BUGATTI-DOWTY, RATIER FIGEAC, ROLLS-ROYCE, SAGEM, SIKORSKY, THALES, ZODIAC AEROSPACE.

SPACE

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

OTHERS AMC21, AMOS3, ARABSAT 4A/B, ARIANESPACE, ASTRA1M, ASTRIUM, CIEL-2, CHINASAT9, EXPRESS AM33/44, GE 11/21, GALAXY 17, GALILEO, HELIOS I/II, HISPASAT 1C/D, KOREASAT5, METEOSAT, MINISAT, NETLANDER, OLYMPUS, PLEIADES, SPOT-4, SYRACUSE 3B, SUPERBIRD7, SPAINSAT, TURKSAT 3A, YAMAL 200.

3.5 FACTS AND FIGURES



TOTAL HEGAN MEMBERS DIMENSION: IN 2015

Members aggregate **turnover** and **employment**

1,935 million € and **12,440 people**

(directly generated in all of their worldwide facilities)

2015 Geographical breakdown	Turnover (M€)	△ 2014	Employment	△ 2014
Basque Country	897	2.7%	4,225	-1.2%
Rest of Spain	861	23.5%	6,409	1.9%
Rest of the World	177	-3.6%	1,806	-8.8%
TOTAL	1,935	10.3%	12,440	-0.8%

2015	M€	% over Sales	Average % over Sales since 1993
MEMBERS R&D INVESTMENT	163	8.4%	15.5%
MEMBERS EXPORTS	1,226	63.4%	69.7%

HEGAN MEMBERS DIMENSION: facilities in Basque Country

1.3% of the GDP (*)	6.1% of the Industrial GDP (*)	2.2% of the Industrial EMPLOYMENT (*)
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HEGAN MEMBERS DIMENSION: facilities in Spain

18.9% of the SPANISH (**)	1% of the EUROPEAN (***)	24.2% of the SPANISH (**)	1.8% of the EUROPEAN (***)	18.9% of the SPANISH (**)	1% of the EUROPEAN (***)
aerospace TURNOVER		aerospace EMPLOYMENT		aerospace R&D INVESTMENT	

2014 Comparison: (*) EUSTAT 2014 (est.), (**) TEDAE 2014, (***) ASD 2014

74 Aerospace Organizations in the natural cluster

9 Global Companies
Aerostructures, Engines, Space
Engineering, Logistics,
Processes Solutions, Treatments

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

1 Aerospace R&D
centre
Certification
Testing and R&D

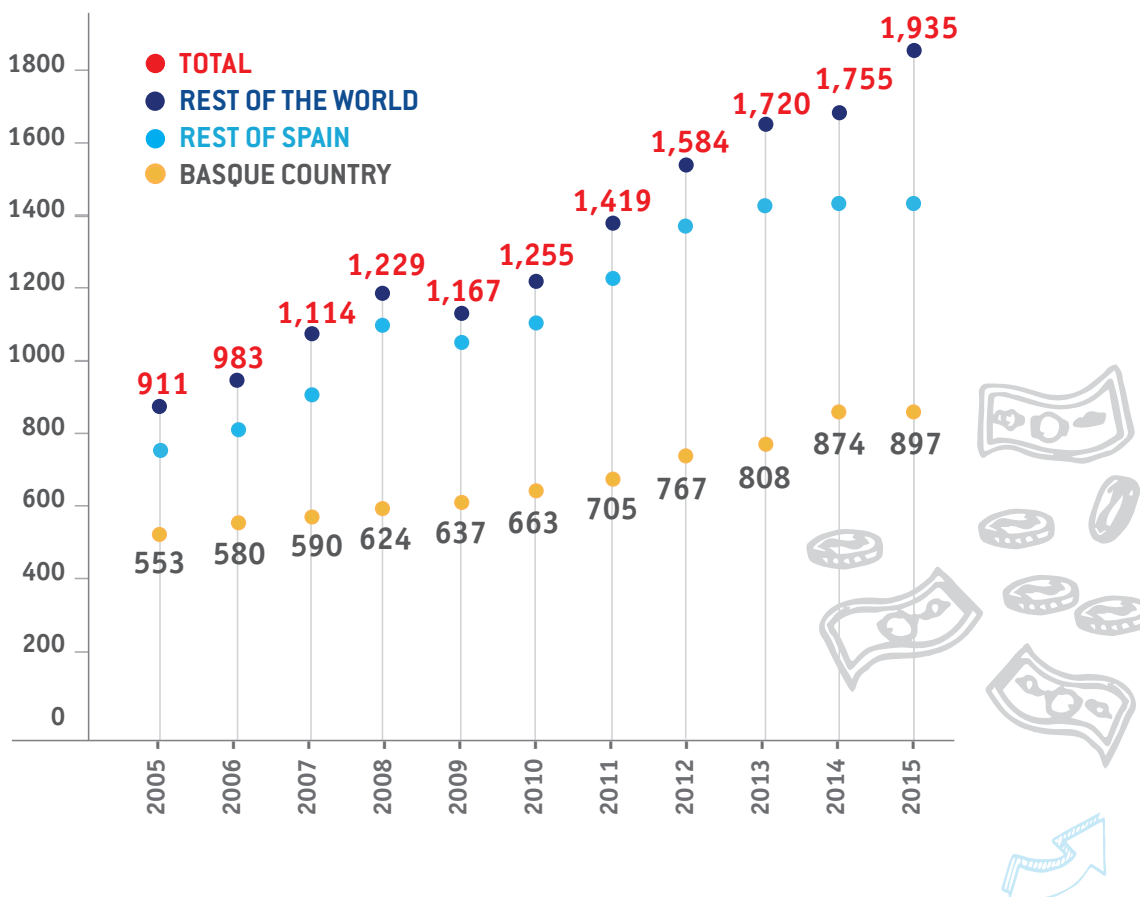
2 R&D Corporations
with
12 R&D Centres
with aerospace
activities

4 Universities
ETSIB: Master in
Aeronautics
Master in Space

173 FACILITIES
100 in the Basque Country
49 in the rest of Spain
24 abroad (Brazil, China,
France, Germany, India,
Malta, Mexico, Poland,
Portugal, Romania, UK,
USA)

3.5.1 TURNOVER

AGGREGATE TURNOVER IN M€ [2005-2015]



GEOGRAPHICAL DISTRIBUTION OF TURNOVER

BASQUE COUNTRY	46%
REST OF SPAIN	45%
REST OF THE WORLD	9%



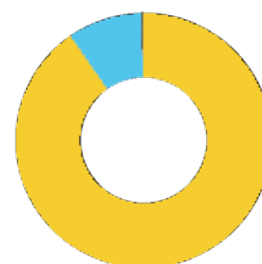
TURNOVER ACCORDING TO SUBSECTORS

AEROSTRUCTURES	53.2%
ENGINES	39.4%
SYSTEMS & EQUIPMENTS	5%
SPACE	2.4%

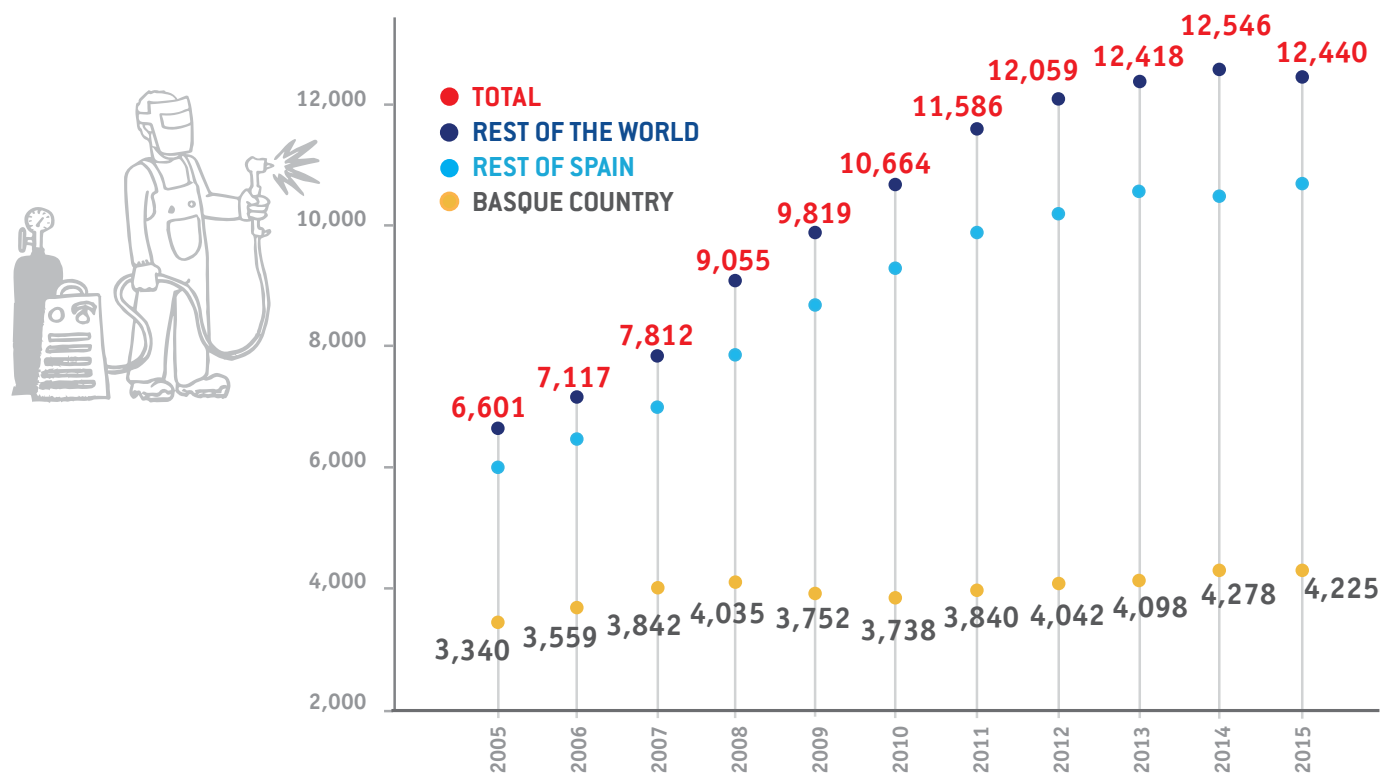


TURNOVER ACCORDING TO MEMBER SIZE

TIER 1 (5 ORGANIZATIONS)	90.4%
REST OF INDUSTRY (34 COMPANIES)	9.2%
R&D CENTRES (3 ENTITIES)	0.4%



3.5.2 EMPLOYMENT



GEOGRAPHICAL DISTRIBUTION OF JOBS

BASQUE COUNTRY	34%
REST OF SPAIN	51.5%
REST OF THE WORLD	14.5%



MEMBERS FACILITIES

BASQUE COUNTRY	68
REST OF SPAIN	49
ABROAD	24

(Brazil, China, France, Germany, India, Malta, Mexico, Poland, Portugal, Romania, UK, USA)

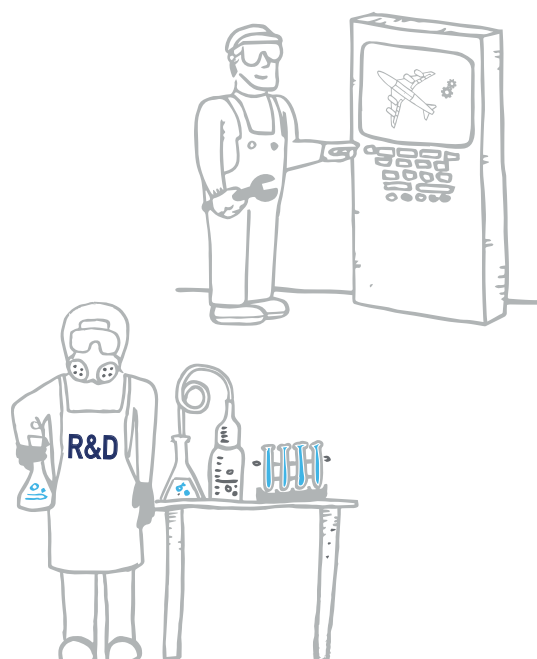
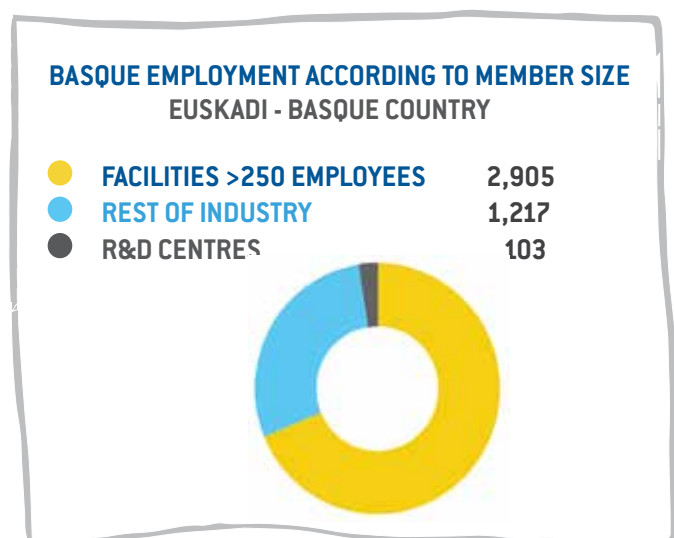
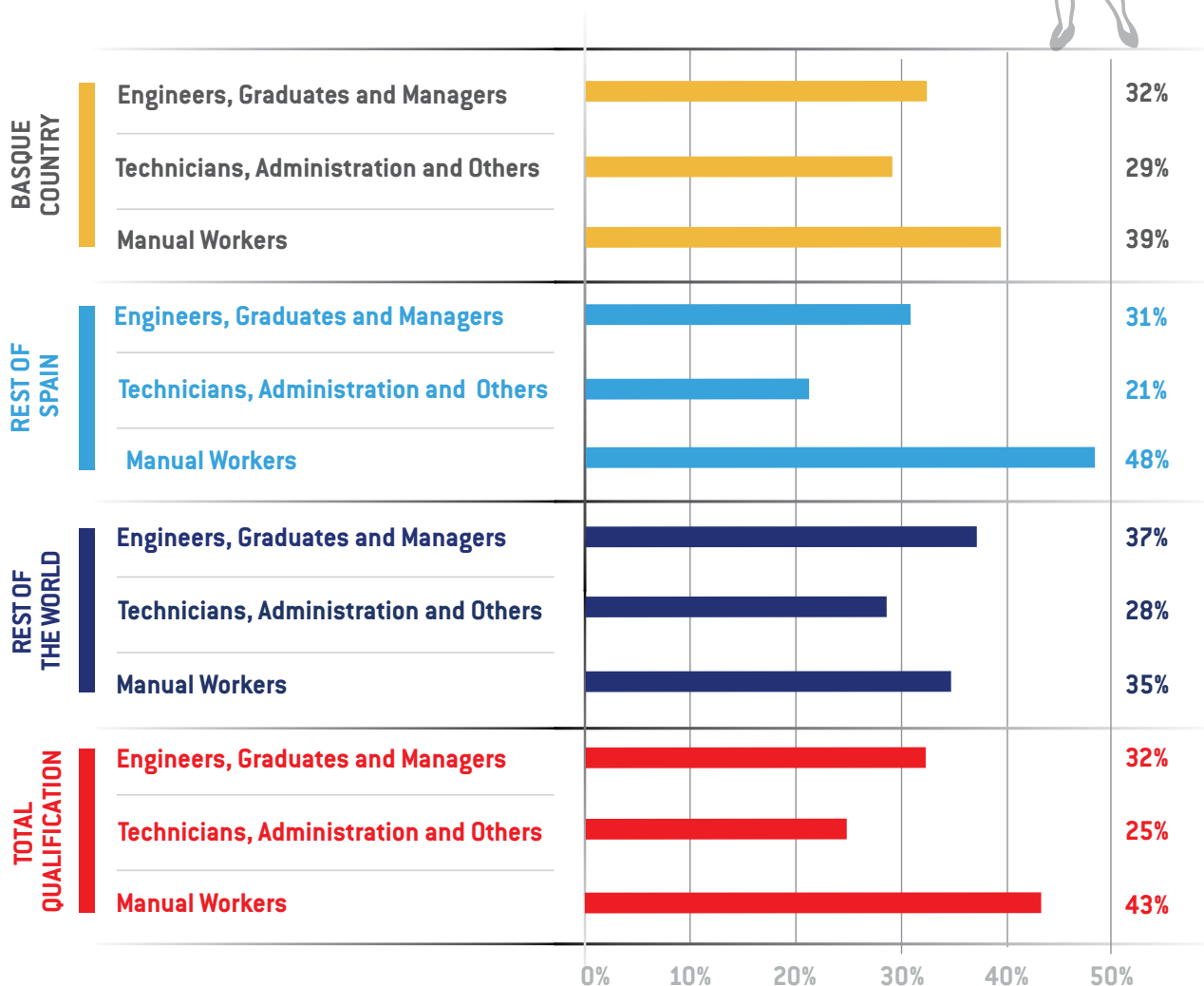


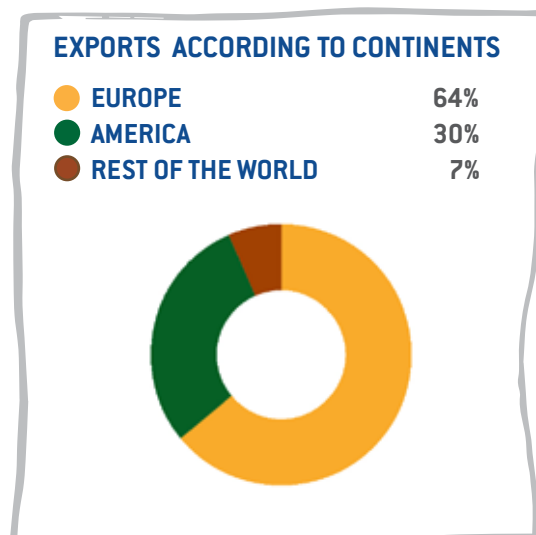
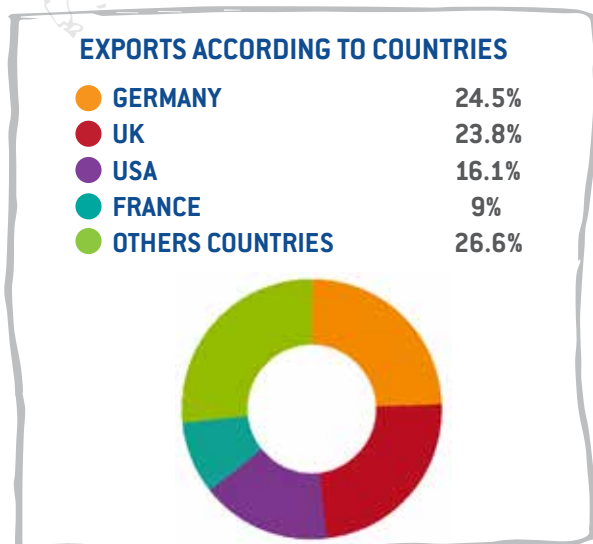
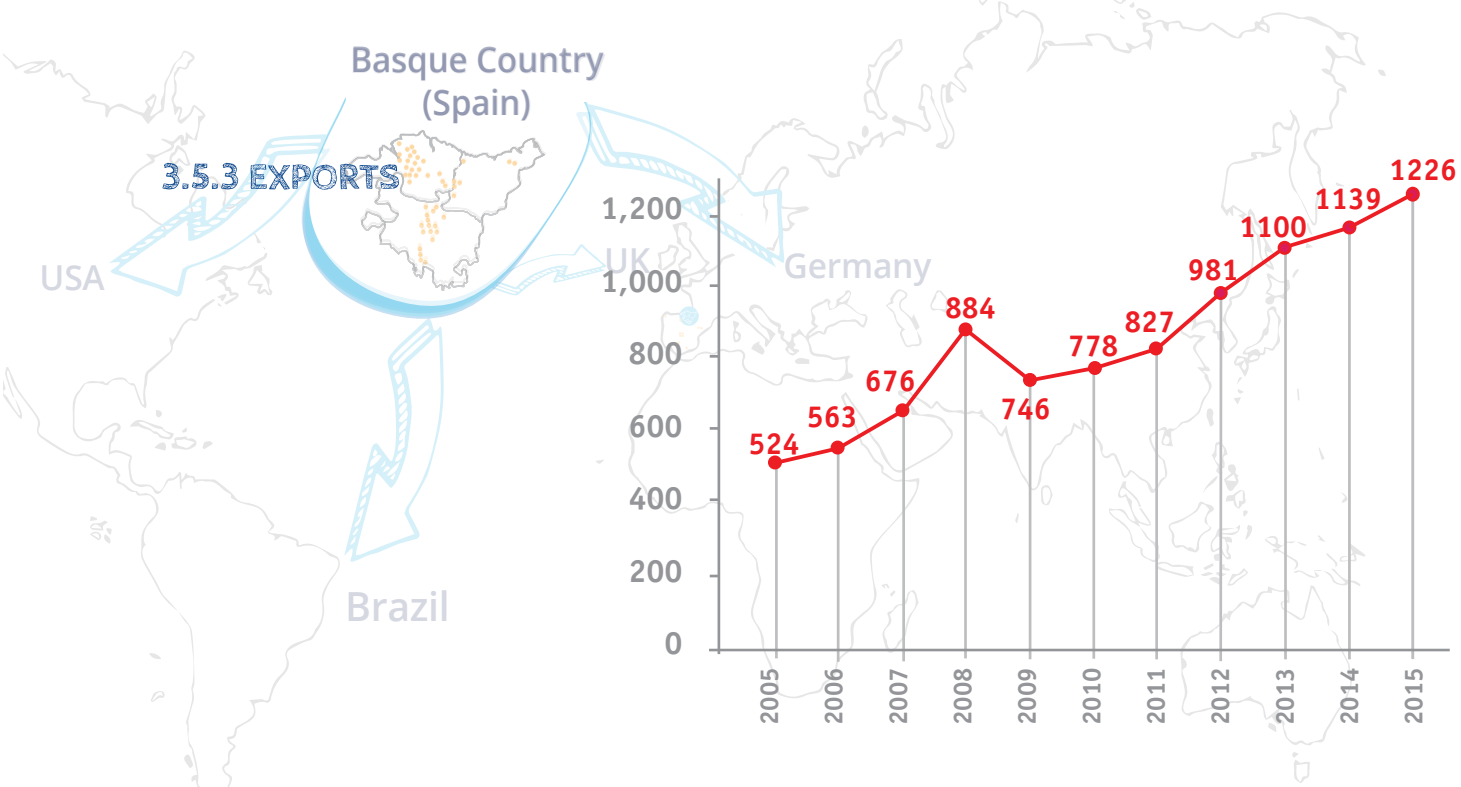
EMPLOYMENT ACCORDING TO MEMBER SIZE

TIER 1 (5 Organizations)	84%
REST OF INDUSTRY (31 Companies)	15%
R&D CENTRES (3 Entities)	1%

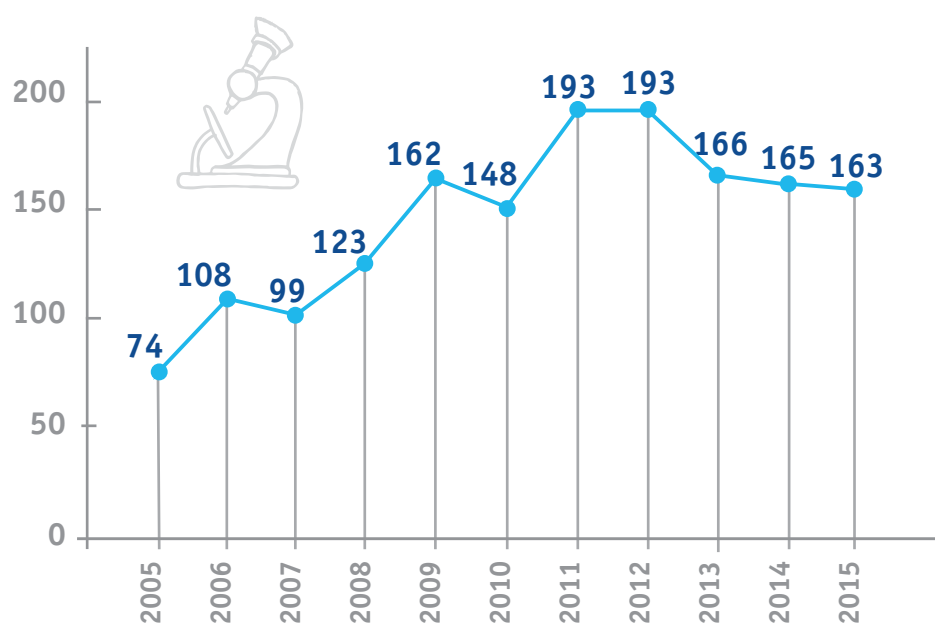
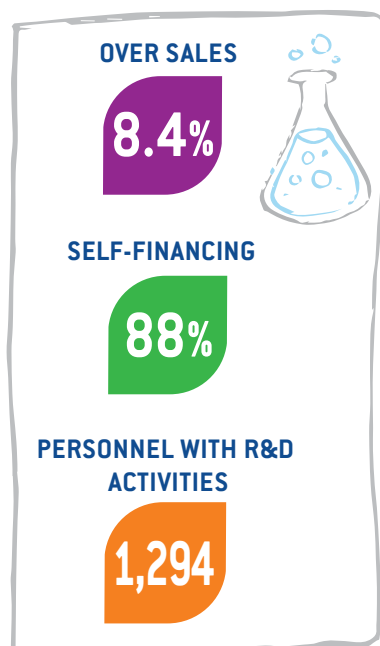


3.5.2 EMPLOYMENT ACCORDING TO QUALIFICATION





3.5.4 R&D



4. ACKNOWLEDGEMENTS

Finally we have come to the end of this 'journey' through words and images: a way for us to share part of our 2015 with you.

The daily efforts of so many people from so many organisations linked to our much loved aeronautics and space sector generate many rewards, which are reflected in these people and in those they have contact with. Each and every person contributes to enhancing the value chain of this economic activity, which also aims to contribute to sustainable development in human society.

As the team of this organisation, we wish to be another part of the equation, one that contributes towards ensuring that the relations between all entities involved in the sector improve every day. We are confident – and all of you have helped us to strengthen this conviction – that the trust between those people involved, one way or another, in the network that we are building is the key to further and better cooperation between all the players that make up this sector, and that, in turn, this cooperation will result in even greater value.

Thank you for your commitment: it's worth it!

AGRADECIMIENTOS

Y llegamos al final de este 'paseo' entre letras y dibujos: un compartir parte de nuestro año 2015 con vosotros.

El trabajo diario de tantas personas de tantas instituciones ligadas a este querido sector aero genera muchos frutos en esas personas y en todas las que se relacionan con ellas. Unos y otros, contribuyen a seguir aportando valor a la cadena de esta actividad económica, que desea ser otro sumando con el que construir desarrollo humano sostenible en la sociedad.

Desde el equipo de esta asociación queremos ser otro sumando, que contribuya a que las relaciones entre todas las entidades fluyan cada día mejor. Somos conscientes – y entre todos nos ayudáis a crecer en esta visión – que la confianza entre las personas que, de una forma u otra, se entrelazan en la red que vamos tejiendo es la pieza clave para que surja más cooperación entre todos los agentes que 'fabrican' sector, y a su vez esta cooperación dé lugar a un mayor valor.

Gracias por vuestro compromiso: ¡merece la pena!



José Sáez



Martín Díez Raizaga



Ana Rodríguez



Mónica Díaz



Ana Villate

ESKER ONEZ

Iritsi gara letra eta marrazki artean egin dugun 'ibilaldi' honen amaierara: 2015eko urtearen zati bat zuekin partekatu nahi izan dugu.

Aire-sektorearekin lotuta dauden erakunde askotako hainbat eta hainbat pertsonaren eguneroko lanak fruitu ugari ematen ditu, bai pertsona horiengan, bai horiekin harremanetan daudenengan. Batzuk nahiz besteak ezinbestekoak dira jarduera ekonomiko honen kateari balioa ematen jarraitzeko, gizartean garapen jasangarria eraikitzeko beste osagai bat izan nahi duen kateari, hain zuzen.

Elkarte honetako taldekideok ere erakunde guztien arteko harremanak egunetik egunera garatzen laguntzeko osagai izan nahi dugu. Badakigu ehuntzen ari garen sarean modu batera edo bestera elkarrekin bat egiten duten pertsonen arteko konfiantza dela sektorea 'ekoizten' duten eragile guztien artean lankidetzat indartzeko oinarritzko giltza, eta guztion artean ikuspegi horretan hazten laguntzen diguzue; eta, aldi berean, lankidetzat hori da, hain zuzen, balioa handitzen laguntzen duena.

Mila esker zuen konpromisoarengatik: merezi du!

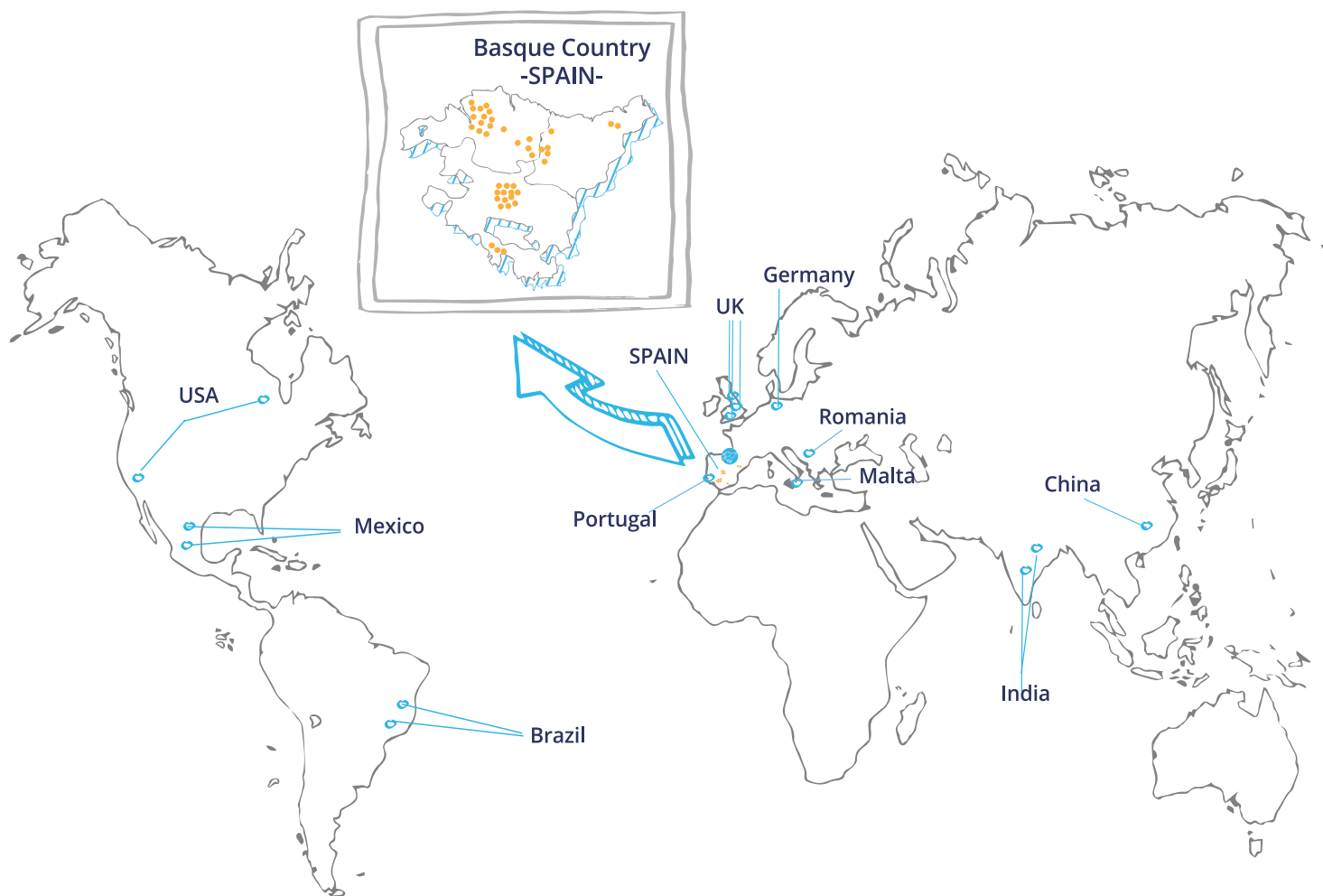
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- **AdAero - Fabricación Aditiva Aeronáutica**
- **EspAero - Procesos Especiales Aeronáutica**
- **QUALICROM - Control de calidad superficial de piezas cromadas mediante deflectometría sobre trayectoria robotizada dinámica y adaptativa.**



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