ANNUAL REPORT

CFAA

Fabrikazio Aeronautiko Aurreratuko Zentroa

Centro de Fabricación Avanzada Aeronáutica

Bizkaia foru aldundia diputación foral

Universidad del País Vasco

Euskal Herriko Unibertsitatea

Agrupación Empresarial para la Fabricación Aeronáutica Avanzada, A.I.E.

EUSKO JAURLARITZA GOBIERNO VASCO

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48170 Zamudio

01 ABOUT US

The Aeronautics Advanced Manufacturing Center, a new Company-University relationship model

The Aeronautics Advanced Manufacturing Center was established as a novel model for collaboration among diverse partners focusing on advanced manufacturing technologies and machines. This center was promoted and financially supported by the Basque Government and the Bizkaia Provincial Council.

CFAA is envisioned as a collaborative research centre of the University of the Basque Country (UPV/EHU) and a consortium of companies. The main aim is to work and develop 'Manufacturing Readiness Levels' 6-7 projects, in which validation tests in representative environments are required.

The outcomes include the introduction of new manufacturing processes, advancements in machine tools, additive manufacturing, inspection techniques, digital technologies aligned with Industry 4.0 principles, innovative ideas, and the provision of advanced training at all technical levels, ranging from vocational training to PhD programs.

Bizkaia foru aldundia diputación foral

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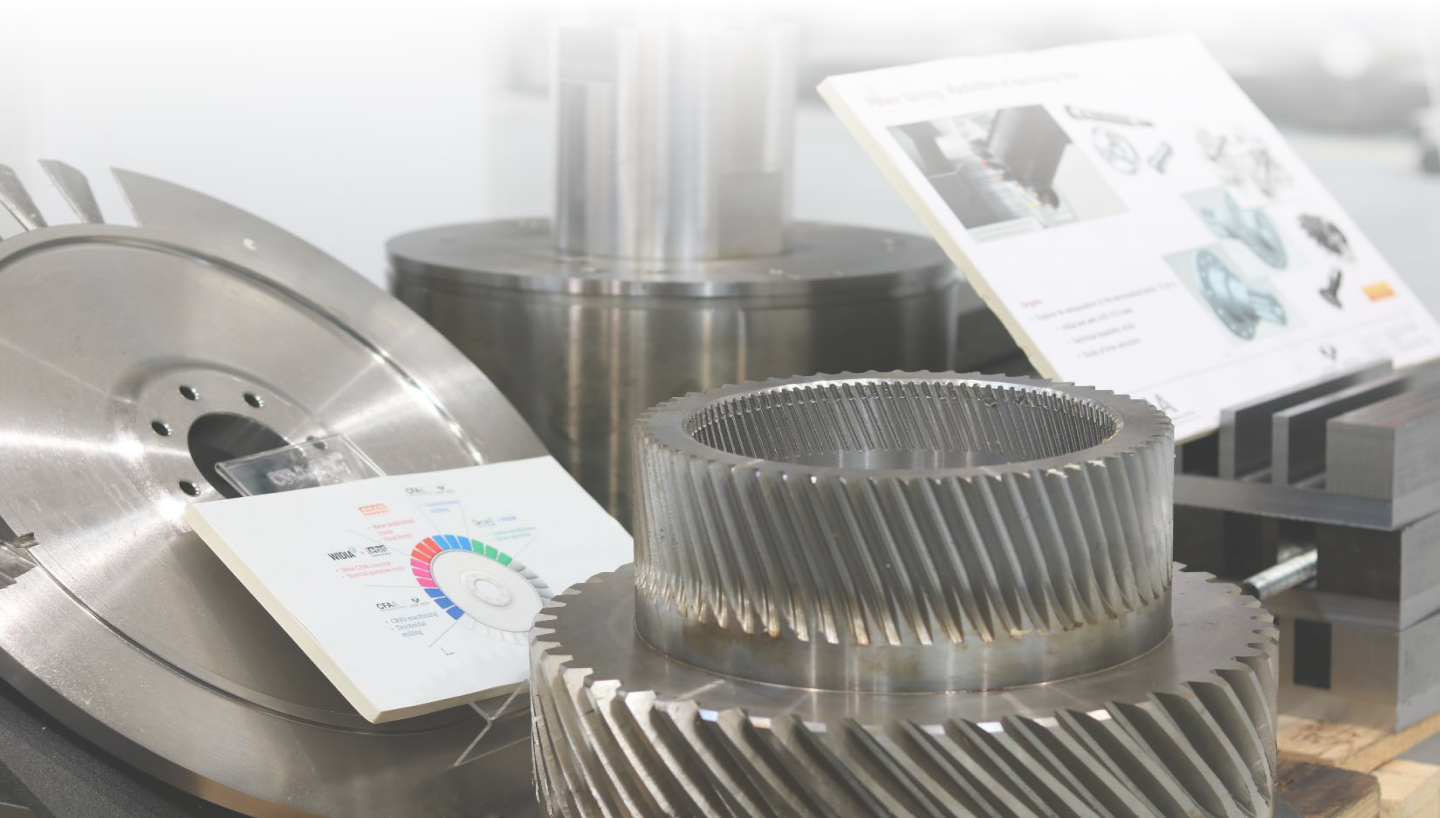
EUSKO JAURLARITZA GOBIERNO VASCO
EKONOMIAREN GARAPEN ETA AZPIEGITURA SAILA
DEPARTAMENTO DE DESARROLLO ECONÓMICO E INFRAESTRUCTURAS

02 CFAA FIGURES

	2023	2016-2023
Total budget [k€]:	1670	10775
Funding coming from companies [k€]:	1073	6528
Initial funding for facilities [k€]:	-	9000
Industrial partners:	+ 10	110
Number of TRL 5-6 projects performed:	144	946
Number of papers published (JCR):	31	294
Number of researchers / technicians at CFAA:	+ 3	31
Number of PhD students (Doctorate):	6	16
Number of MSc students (Master level):	+ 3	26
Total people visiting CFAA	250	1480



03 PEOPLE

2023

Total “souls on board” (PhD):	**63**	**(25)**
Direction (PhD)	2	(2)
Project Coordinators (PhD):	6	(5)
Researchers (PhD)	15	(5)
Professor, Ass. prof. and Lecturers (PhD):	10	(10)
PhD students:	6	
MSc students:	6	
Undergraduate students:	5	
Administrative:	1	
Technical students in Dual Program:	6	
Visiting and academic collaborators:	6	(3)

03 PEOPLE

Steering Committee

Technology Committee

Head of Technological Areas

Researchers

Collaborators

Companies association

General Assembly

Director Board

03 PEOPLE

Some of us...

Norberto López de Lacalle
General Director
Machining Processes

Aitzol Lamikiz
Deputy Director
Additive Manufacturing

José Antonio Sánchez
Head of Dept. of Mech. Eng.
Precision Processes

Asier Fernández
Project Director
Manuf. Technologies

Izaro Ayesta
Project Director
Non-convent. Machining

Adrián Rodríguez
Project Director
Special Processes

Roberto Polvorosa
Project Coordinator
Machining Processes

Octavio Pereira
Project Coordinator
Machining Processes

Silvia Martinez
Project Coordinator
Additive Manufacturing

Iker Cerrillo
Project Coordinator
Welding Technologies

Nagore Villarrazo
Researcher
Machining Processes

Jon Ander Ealo
Postdoc. Researcher
Machining Processes

Gonzalo Mtnez. de Pisson
Researcher
Machining Processes

Asier Artabe
Researcher
Machining Processes

Francisco J. Amigo
Postdoc. Researcher
Machining Processes

Jun Wang
Postdoc. Researcher
Non-convent. machining

Soraya Caneda
Researcher
Non-convent. machining

Mikel Gonzalez
Researcher
Finishing Processes

Ander del Olmo
Researcher
Broaching & Machining

Endika Tapia
Researcher
Digital manufacturing

Leonardo Sastoque
Postdoc. Researcher
Digital manufacturing

Sara Sendino
Postdoc. Researcher
Additive Manufacturing

Ibon Holgado
Researcher
Non-destructive testing

Guillermo Gonzalez
Researcher
Smart Metrology

Eirini Konstantinou
Postdoc. Researcher
Digital manufacturing

Ander Basaras
Researcher
Additive Manufacturing

Dmytro Lesyk
Postdoc. Researcher
Post-processing technologies

Iñigo Fonfría
Researcher
Non-destructive testing

Cristian Pérez Salinas
Researcher
Broaching & Machining

Eduardo Martín
CFAA Fellow
Manuf. Technologies

Montse Martin
Administrative

Soraya Plaza
Academic Researcher
Metrology & Inspection

Naiara Ortega
Academic Researcher
Metrology & Inspection

Amaia Calleja
Academic Researcher
Machining Processes

Haizea Gonzalez
Academic Researcher
Machining Processes

Eneko Ukar
Academic Researcher
Laser technologies

04 INDUSTRIAL PARTNERS

FULL MEMBERS:	22
ASSOCIATED MEMBERS:	80
COLLABORATORS:	8

Full members: Type A

Full members: Type B

Full members: Type C

Associated Members

Collaborators

Fondo Europeo de Desarrollo Regional (FEDER) "Una manera de hacer Europa"
Europar Batasuna Unión Europea
Eskualde Garapenerako Europar Funtsa (EGEF) "Europa egiteko modu bat"

05 TECHNOLOGIES

MACHINING	(Multitasking, turning, milling, hole making...)
CUTTING TOOLS	(Tool life, wear mechanism, edge design...)
EDM	(Wire & Die-Sink Electro Discharge Machining)
ADDITIVE	(Laser Powder Bed Fusion, Laser Metal Deposition)
METROLOGY	(Multicontact, non-contact & optical metrology)
INSPECTION	(X-Ray, tomography, Ultrasonic inspection...)
WELDING	(TIG, MIG, Plasma, Spot and Laser Welding)
FINISHING	(Robotic cell, deburring, polishing, edge finishing…)
BROACHING	(Broaching, tool design and process technology)
DIGITALIZATION	(Machine learning, Industry 4.0, Digital twins...)
GREEN MANUFACTURING	(Advanced lubri-coolant technologies, LCA...)

06 EQUIPMENT

GMTK
GEMINIS VL2.4

DANOBAT
TV-1500

IBARMIA
THR16 Multiprocess

HERMLE
C52U MT

MAZAK
Integrex i-200

RENISHAW
AM400

RENISHAW
AM500

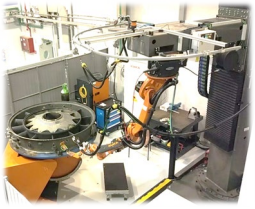
GETTING
KUME Dbr PE203

ONA
NX7

ONA
AV35

EKIN
A 218

GE
X/CUBE compact 225

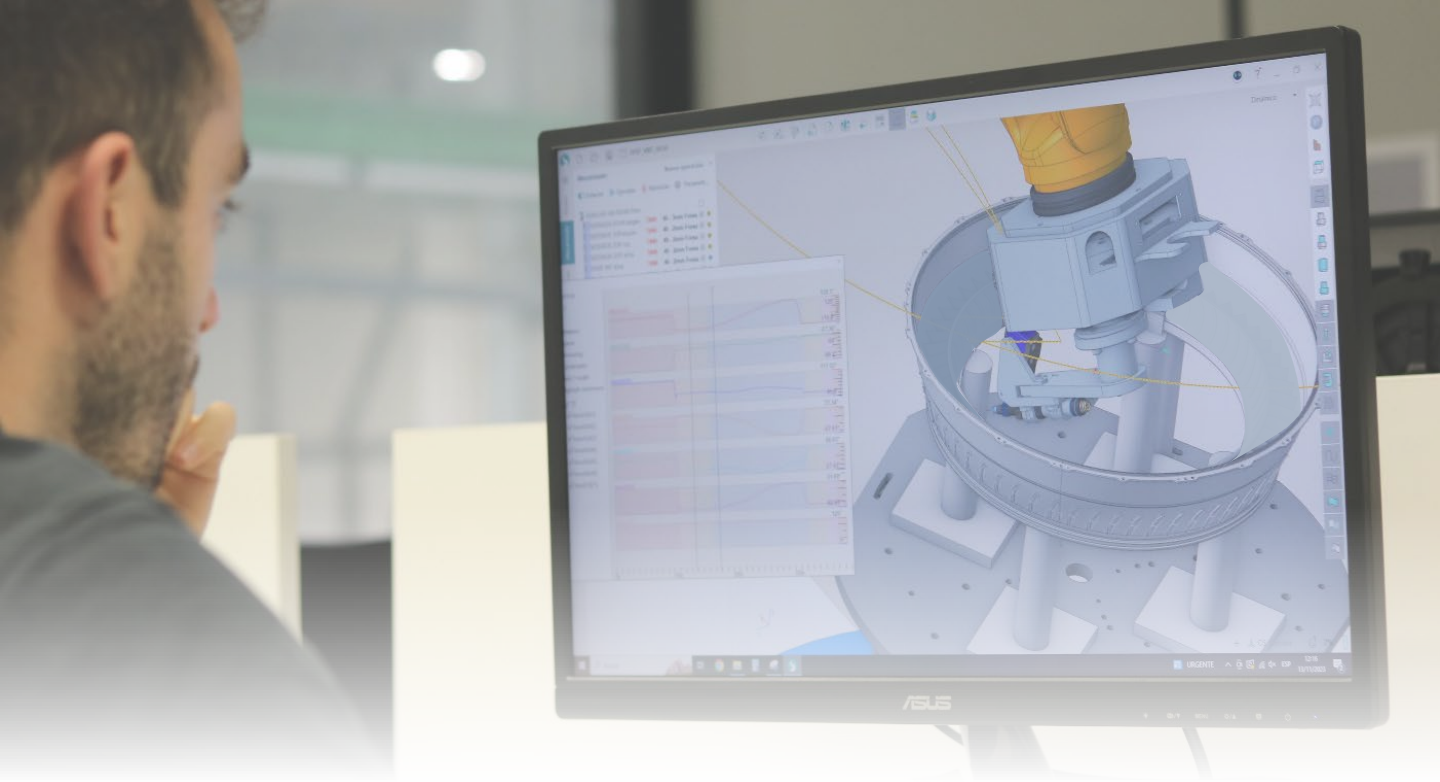


KUKA
KRC 16 HW

TRUMPF
TruLaser Cell 3000

MITUTOYO
CRYSTA APEX S 9106

MITUTOYO
CRYSTA APEX C162012



06 EQUIPMENT (*Instrumentation*)

SEM TESCAN
Vega Compact

SOUDAX
Spot Welding

ZOLLER
SmarTcheck 600

ALICONA
IF G5

MITUTOYO
Formtracer SV-C3200

DEWESOFT
Sirius

MIRUGAS
(Nippon Gases)

SAVVY
Smart box

INGETEAM
IC3

SIEMENS
Industrial Edge

TEKTRONIX
DPO5034B

PRO-MICRON
Spike 1.2

SPRINT
Sprint OSP60

MARPOSS
Artis

BECOLD
Cryogenic system

OROS
OR35

VOLUME GRAPHICS
VGStudio

SIEMENS
NX

SPRUTCAM
(MecDATA)

MASTERCAM
APlus

ZEISS
GOM Inspect

DEFORM 3D
FEM SImulation

MATERIALISE
FA Magics

07 TOWARDS THE SDGs

SUSTAINABLE DEVELOPMENT GOALS

Quality Education

Technical degrees, MSc thesis, PhD Thesis, advanced training…

Gender equality

More than 30% women in the workforce…

Industry, innovation and infrastructure

Research, process development, industrial representative environment…

Affordable and clean energy

Novel affordable and clean energy processes and mobility technologies…

Responsible consumption and production

Process consumption control. In 2023, 12% lower electricity consumption…

Partnerships for the Goals

Alliances, agreements and collaborative environment…

08 ALLIANCES

As part of the University of the Basque Country, CFAA implies strong relationships with research groups and Universities in Brasil, Argentina, Colombia, Ecuador, México, USA, India, China, Europe…

09 AULA AIMS

ARTIFICIAL INTELLIGENT MANUFACTURING FOR SUSTAINABILITY

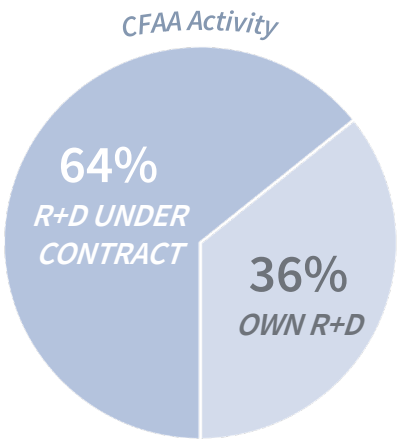
AIMS is a 3-year agreement involving CFAA, University of the Basque Country, the research centre IDEKO, the advance formation centre IMH Campus and the Basque Research Centre of Applied Mathematics BCAM. The aim is to promote and collaborate on new projects in digitalization and artificial intelligence. Consequently, CFAA serves as a pilot factory for innovative machines, all interconnected within advanced networks. This setup makes data readily accessible, necessitating multidisciplinary collaboration and accelerating the adoption of numerous new technologies. We are confident that shared ideas and intensive efforts will yield optimal results in these cutting-edge areas.

Another dimension of AIMS involves the promotion of new courses and seminars on manufacturing, in coordination with Aeroacademy, an initiative by the Basque aeronautics cluster Hegan focused on training.

Partners:

IDEKO MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE · IMH CAMPUS · bcam basque center for applied mathematics · UPV EHU · CFAA Fabrikazio Aeronautiko Aurreratuko Zentroa Centro de Fabricación Avanzada Aeronáutica

600 m2 working place
Networking areas
Meeting & training rooms
PhD Students and senior researchers
Your companies experts are welcome !!



10 LONG-TERM PROJECTS

EUROPEAN FRAME-PROJECTS

[MICOOLTOOL] Microstructured-based Cutting Tools with Interior Cooling Channels

Clean Sky 2 (H2020-CS2-CFP07-2017-02)
CFAA partners involved: UPV/EHU, Ceratizit

[INTER-Q] Interlinked process, product, & data quality framework for zero defect manufacturing

H2020 FoF-11-2020
CFAA partners involved: Ideko-Danobat, ITP Aero, UPV/EHU, Promicron

[ADAM^2] New manufacturable microestructured high-added value components with enhanced properties

H2020-FETOPEN-2018-2019-2020-01
CFAA partners involved: UPV/EHU, Trimek

[SUDOE-ADDITOOL] Development and diffusion of Metal Additive Manufacturing technologies in tooling industrial sector for smart and sustainable growth of space

Interreg 20/24
CFAA partners involved: UPV/EHU

Institutional framework projects with UPV/EHU as consortium partner account for approximately 36% of the overall budget and activity of the CFAA. Remaining activity is managed through private contracts with partner companies and other entities.

10 LONG-TERM PROJECTS

NATIONAL FRAME-PROJECTS

[TASTE] Aerodynamic technologies for next generation of geared turbofans

Retos colaboración, Ministry of Science and Innovation 2020-2023
CFAA partners involved: ITP Aero, UPV/EHU

[CRESCENDO] Production systems for exhaustive quality control in machined components from new Ultra Near Net Shape primary processes

Colaboración público-privada, Ministry of Science and Innovation 2021
CFAA partners involved: Ibarmia, UPV/EHU

[HCTaylor] New cutting tools production for manufacturing high added-value turbomachinery components

I+D+I Pruebas de Concepto, Ministry of Science and Innovation 2021
CFAA partners involved: UPV/EHU

[COAX] Proposal of two new laser head families for application with high reactivity materials and multimaterial coatings

I+D+I Pruebas de Concepto, Ministry of Science and Innovation 2021
CFAA partners involved: UPV/EHU

[ITENEO] A global approach to improve the manufacturing of casings for the new aeroengines

Proyectos de I+D+i, Ministry of Science and Innovation 2019
CFAA partners involved: UPV/EHU

[NEOPHYM] A new method for obtaining functional components by hybrid and machining processes

Proyectos de Generación de Conocimiento, Ministry of Science and Innovation 2022
CFAA partners involved: UPV/EHU

[DISTINCTIVE] Digital environment for heterogeneous structures manufacturing by Additive Manufacturing

Proyectos de Generación de Conocimiento, Ministry of Science and Innovation 2022
CFAA partners involved: UPV/EHU

[QUOLINK] A new way to assess quality in manufacturing processes by merging process data in high connected production systems in aeroturbines

Transición ecológica y digital, Ministry of Science and Innovation 2021
CFAA partners involved: UPV/EHU

[VERDE] Virtual environment for the redesign and re-manufacturing of metal parts by 3D printing

Transición ecológica y digital, Ministry of Science and Innovation 2021
CFAA partners involved: UPV/EHU

[MHAYA] Towards new industrial ecosystems of 2030, driven by new generation of cognitive machine tools, capable of learning and working autonomously and empathetically

Misiones, CDTI, Ministry of Science and Innovation 2022
CFAA partners involved: Danobat, Ibarmia, Ona, UPV/EHU

[AIAM++] New generation of cognitive machine tools with accelerated learning capabilities and continuous control laws updating.

Recovery, Transformation and Resilience Plan 2022. Ministry of industry and tourism
CFAA partners involved: Sariki, Ona, Ibarmia

[REPRAIL] Development of a hybrid process based on additive manufacturing, machining and artificial vision for the REPAIR of high added value parts for the RAIL sector

Chineka, CDTI, Ministry of Science and Innovation 2023
CFAA partners involved: Ibarmia, UPV/EHU

10 LONG-TERM PROJECTS

REGIONAL FRAME-PROJECTS

[KAIA] Quality digital platform for zero defect manufacturing

HAZITEK strategic 2021 (Basque Government)
CFAA partners involved: Danobat, ITP Aero, Sariki, Savvy, Ekin, UPV/EHU

[FIDATU] Your smart and digital aeronautical factory

HAZITEK strategic 2022 (Basque Government)
CFAA partners involved: ITP Aero, Savvy, GMTK, Fresmak, Ega Master, UPV/EHU

[CORTEX] Precision in critical Ultra Near Net Shape components obtained by 2030 processes

HAZITEK strategic 2022 (Basque Government)
CFAA partners involved: Ibarmia, Metalúrgica Marina, EIPC, Metal Estalki, Laip, TdG, UPV/EHU

[UPSCALE] Research and development of technologies, processes and simulation models required for optimized integration of subcomponents

HAZITEK strategic 2023 (Basque Government)
CFAA partners involved: Ibarmia, Oerlikon, UPV/EHU

[ACCUBASK] New technological solutions for precision engineering and advanced metrology…

HAZITEK strategic 2023 (Basque Government)
CFAA partners involved: Ona, Ibarmia, Danobat, UPV/EHU

[CONFLES] New manufacturing and automation technologies for a controlled, flexible, efficient and sustainable process applied to the machining of high performance materials

HAZITEK strategic 2023 (Basque Government)
CFAA partners involved: Ibarmia, Fagor, Sariki, UPV/EHU

[BERMEK] Development of a sustainable machining process for the manufacturing industry of the future

HAZITEK competitive 2023 (Basque Government)
CFAA partners involved: UPV/EHU

[DESPRO] Development of new products and strategies for ECO2 manufacturing of blades for 100% SAF aircraft turbines

HAZITEK competitive 2023 (Basque Government)
CFAA partners involved: Intermaher, Trimek, Mesima, Kendu, Jaz Zubiaurre, UPV/EHU

[HATASU] High removal rate tools with safeguard of surface integrity: new designs and full process monitoring

HAZITEK competitive 2023 (Basque Government)
CFAA partners involved: Ekin, Wolco, Sariki, Fagor, UPV/EHU

[GENESIS] Generation of new cutting tools for machining of advanced materials for Oil&Gas sector

HAZITEK competitive 2022 (Basque Government)
CFAA partners involved: Izar, Oerlikon, UPV/EHU

[ANDREA] Digital transformation and efficient use of resources through non-destructive inspection techniques

ELKARTEK 2022 (Basque Government)
CFAA partners involved: UPV/EHU

10 LONG-TERM PROJECTS

REGIONAL FRAME-PROJECTS

[LANVERSO] Methods and algorithms for automation in immersive holistic factory digitalization

ELKARTEK 2022 (Basque Government)
CFAA partners involved: UPV/EHU

[EDISON] Sustainable digital and intelligent additive manufacturing technologies for an efficient industry

ELKARTEK 2022 (Basque Government)
CFAA partners involved: UPV/EHU

[MINAKU] Multilayer integrated advanced cutaneous sensing

ELKARTEK 2022 (Basque Government)
CFAA partners involved: UPV/EHU

[EKOPROP] Enabling technologies for smart and sustainable propulsion of zero-emission aircraft

ELKARTEK 2022 (Basque Government)
CFAA partners involved: UPV/EHU

[REIMAGINE] Hybrid manufacturing technologies for smart industry

ELKARTEK 2023 (Basque Government)
CFAA partners involved: UPV/EHU

[KONEXIO] Testing and validation using assets of the Basque digital innovation hub network

Basque Digital Innovation Hub BDIH - Konexio 2023 (Basque Government)
CFAA partners involved: Sariki, UPV/EHU

[GIC21/90] Advanced manufacturing on 4.0 environments

Grupos de investigación. University of the Basque Country (UPV/EHU)
CFAA partners involved: UPV/EHU

[LAWI] Acquisition of laser-wire supply system

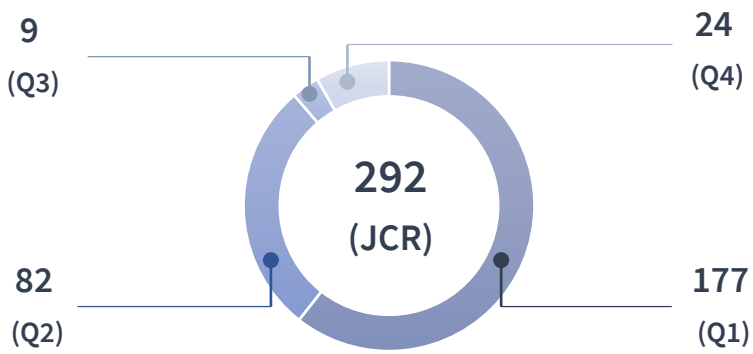
Infraestructura científica 2023. University of the Basque Country (UPV/EHU)
CFAA partners involved: UPV/EHU

[AIMS] Artificial intelligent manufacturing for sustainability unit

Aulas universidad-empresa-sociedad 2023. University of the Basque Country (UPV/EHU)
CFAA partners involved: UPV/EHU

11 SCIENTIFIC PRODUCTION

Publication Type	2017	2018	2019	2020	2021	2022	2023	Total
Conference	6	14	11	6	0	6	0	43
	6	*14*	*11*	*6*	*0*	*6*	*0*	*43*
Journal Paper (JCR)	26	57	37	60	40	41	31	292
Q1	*21*	*26*	*20*	*33*	*25*	*30*	*22*	*177*
Q2	*2*	*20*	*13*	*18*	*13*	*9*	*7*	*82*
Q3	*0*	*2*	*3*	*0*	*1*	*2*	*1*	*9*
Q4	*3*	*9*	*1*	*9*	*1*	*0*	*1*	*24*
Total	32	71	48	66	40	47	31	355



Accumulated cites *(papers published between 2017-2023)*: 6,500 cites

Accumulated cites *(papers published by the Group, 2000-2023)*: 35,000 cites

12 AWARDS

- **López Peñalver Award 2023**

  To: A. Calleja, O. Pereira, I. Ayesta, A. Rodríguez and H. González
  Organized by: RAI - Real Academia de Ingeniería de España

- **Innovation and Sustainable Technologies Award 2023**

  To: CFAA Sustainability Research Group
  Organized by: Diario de Álava

- **Young Researchers Grant 2023**

  To: N. Villarrazo and M. González
  Organized by: Departamento de Ingeniería Mecánica, UPV/EHU

- **Best PhD Thesis Award 2021**

  To: H. González
  Organized by: SIF - Sociedad de Ingeniería de Fabricación

- **Best MSc Thesis Award 2020**

  To: G. Martínez de Pisson and M. González
  Organized by: SIF - Sociedad de Ingeniería de Fabricación

- **Best Equipment Award 2018**

  To: CFAA
  Organized by: ASPROMEC - Asociación de Profesionales para la Competitividad del Mecanizado

13 CFAA PARTNERS - Opinions

Throughout the year, CFAA friends visited us, and we seized the opportunity to ask for their insights:

Jaime Fernández Castañeda
ITP Aero

At the CFAA, a new model of public-private collaboration is being put into practice, which relates the aeronautic business sector (a business association with more than 100 partners currently) and the UPV/EHU through research applied to the market. The objective is for the largest centre of knowledge generation in advanced manufacturing technologies, such as the university, to work with a direct focus on final applications in a representative environment of production companies in the market. The success is spectacular and the results are exceeding all expectations that we could imagine a decade ago when it was born.

Nerea Aranguren
Danobatgroup

As the driving force behind the Aeronautics Advanced Manufacturing Centre (CFAA), we at Danobatgroup cannot fail to express our deep appreciation for the way this centre consistently championed excellence in innovation and development in the field of advanced manufacturing within the aerospace industry over the past year. Being part of this initiative fills us with pride, as we witness its consolidation and its commitment to not only upholding the highest standards but also pioneering new paths in research and development.

The collaborative spirit at CFAA has been instrumental in fostering connections and partnerships among diverse public-private stakeholders, including large corporations, SMEs, startups, academic institutions, research centers, and industry professionals. The cooperative spirit extends beyond traditional boundaries, linking various domains such as machine tools, aeronautics, and other manufacturing technologies. This unique, expansive network has proven invaluable, giving rise to collaborative opportunities that have resulted in the co-creation of innovative solutions. Furthermore, CFAA has successfully forged a unique ecosystem for talent development by providing a space for the training of highly skilled professionals and where excellence converges with creativity.

13 CFAA PARTNERS - Opinions

Arrate OLAIZ
Ibarmia

At IBARMIA we were clear from the beginning that we wanted to be part of the CFAA and the road we have travelled so far confirms that we were not wrong.
We are very active in taking advantage of this collaborative space to develop knowledge on machines and processes, as well as incorporating technologies and/or knowledge from other partners.
Having a research space like this allows us to test the machine in conditions very close to industrial ones and therefore helps to reduce the risk and the time to market of the developments.
If we add to this a team of people who are trained and always willing to collaborate, the work is even easier.
We will continue working and making the CFAA a reality with a great future projection.

Jose Mª Ramos
ONA Electroerosión, S.A.

Since the early beginning of the CFAA activities, ONA has maintained a continuous line of collaboration in the electrical discharge machining technology (EDM) applied to the manufacturing of turbine components. A team of top-level researchers, highly skilled in non-conventional machining, has been consolidated on the leadership of Dr. Izaro Ayesta. They are addressing new shared challenges requiring deep knowledge in multidisciplinary fields like AI, software development or data science. That is the case of the MHAYA project, where the CFAA is collaborating with ONA on the digitalization of the discharge process at very high frequency, with the target of demonstrating the feasibility of a new disruptive ONA generator design.

13 CFAA PARTNERS - Opinions

Víctor Escobar
Renishaw Ibérica, S.A.U.

One of the main missions of the CFAA is to act as a bridge, facilitating the technology transition to high TRLs in the aeronautics sector.
Renishaw is based on innovation, and having a unique ecosystem as CFAA, equipped with state-of-the-art technology, as well as a team with excellent skills and attitude, allows us to test certain developments when they are close to industrialisation, and to do so hand in hand with other companies that share interests and challenges in the search for innovative solutions to complex problems.

Pablo Acha
Nippon Gases

We started working in the CFAA some years ago with the aim of improving our current technological solutions and continue developing new ones. During these years, we have done projects with different companies that give us the opportunity to work in welding, cutting, additive manufacturing and cryogenic machining areas.
The machines of the CFAA allow us to do tests in the same or very similar machines of our customers, and its well qualified workers give us the opportunity to achieve our objectives in the time scope we plan them.

David Bernar
Wolco Group

We have been working with the CFAA for the past 7 years. In these years our experience has been that thanks to the effort and professionalism of the personnel of the CFAA we have been able to develop new technologies as well as new products. This could not have been possible without the CFAA. As a small- medium company our competitors are large multinational companies that of course have more resources for R+D projects. The fact that we can use the full power of resources of the CFAA gives us the opportunity to compete at a higher level. We are proud to be the first tool manufacturer that is an associate of the CFAA, as we believed in them and the team from the very beginning.

13 CFAA PARTNERS - Opinions

Pedro Pablo Rodriguez
EIPC

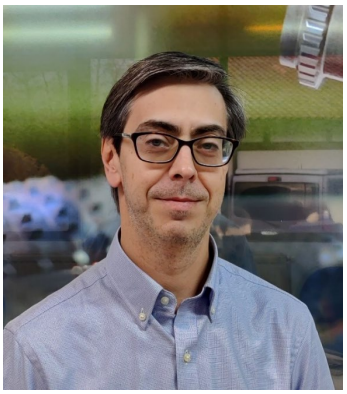
EIPC is a leading company in the world of special castings for engines and other aircraft components. We have identified new opportunities in additive manufacturing and secondary processes for both additive manufacturing and casting, and the projects we are developing in cooperation with CFAA are providing us with sound information in both fields. There are many opportunities arising in our sector and the possibility to collaborate with a group of companies with a common agenda helps to identify the most relevant ones. After the global crisis we suffered in the aeronautic sector in 2020, now we must take advantage of the recovering of the industry, and CFAA will be a key actor to help us in this purpose.

Boni Muriel y Santi Zamora
Izar Cutting Tools, S.A.L.

IZAR Cutting Tools is a leading company in the manufacturing of high-precision cutting tools, aiming to provide customized solutions for the machining needs of our clients.
The CFAA offers comprehensive support to IZAR Cutting Tools, aiding in the development of geometries, manufacturing processes, trends in new materials, and the testing of these advancements.
The result of this collaboration is a continuous improvement in the quality and innovation of our products, serving as an example of how cooperation between the university and the company generates synergies for the economic and social development of our environment.

Guillermo Celaya
EKIN S. Coop.

The CFAA produces traction on member companies by promoting the generation of R+D. This is the only way to improve. Think, test, and develop the products of the future. Everything evolves thanks to R+D. Thanks to the CFAA, we are manufacturing the cutting tools, capable of machining the components that will be part of the engines of the future. We never stop “thinking together”.



13 CFAA PARTNERS - Opinions

Freddy Corrales
CERATIZIT Cutting Tools

CFAA was born as a new relationship model at research levels with application to the market. This clear focus on the market is where CERATIZIT, as a producer of cutting tools, has found an ideal space where the University gives us support at the R&D level. This exchange of knowledge has allowed us to improve and create new innovative products in the market of Aerospace machining. This knowledge is then transferred to our customers who benefit from it to improve themselves as a company. We also have an optimal space for the demonstration and industrial application of new developments in machining and Mechatronics.
We are very proud to be partners of CFAA and one of CERATIZIT's values “Long-term thinking” applies here: We deliver lasting value by being committed. Commitment to CFAA.

Javier Arenas López
Fagor Aotek S.Coop.

Fagor Automation and the CFAA have forged a robust collaboration in recent years, addressing key technological challenges in the machine tool sector, a mission especially relevant to us as CNC manufacturers. These joint efforts have strengthened our ability to provide advanced solutions tailored to our customers' specific needs, capitalizing on our shared commitment to innovation and continuous improvement.

Through various projects, we have explored the holistic optimization of manufacturing processes with the firm intention of achieving 'Zero Defect' production. We have advanced tools to maximize the benefits of digitalization and, more recently, we have turned our attention to the implementation of artificial intelligence in machining operations. We look forward to continuing this collaboration with the CFAA, addressing together future technological challenges in the field of advanced manufacturing.

13 CFAA PARTNERS - Opinions

Borja Garate
Metrología Sariki, SA – Grupo Unceta

Sariki is a global provider of dimensional measurement solutions and our mission underlines that we have to be at the forefront of technology to properly meet the needs of our customers. CFAA allows us to bring together developments from technology providers, our own initiatives and ambitious customer challenges in a collaborative space. The world doesn't move fast, it flies, and being part of this crew is both a source of pride and responsibility.

Ibon Azkona
Metal Estalki

Innovation has been a philosophy we follow in our company and we are fully committed to it. For that reason CFAA has been a key R&D partner for Metal Estalki in the field of the aeronautical industry during many years and is expected to continue being so in the future. We have collaborated with CFAA on important projects related to new manufacturing processes and cutting tool PVD coatings.
We are currently working on several projects related to cutting tool life improvements through new tool edge treatments, new coating materials and new post-treatments. We have many new ideas and CFAA is helping us make them a reality.

José Ignacio Ortiz de Urbina
INTERMAHER

Intermaher is an active participant in CFAA, as aero engines and aerospace represent key industrial sectors wherein numerous of our customers operate. We undertake projects focused on monitoring and improving efficiency in processes. Navigating the complexities of machining and optimizing machine tool performance is particularly challenging when dealing with materials like titanium alloys, Inconel, and other super alloys. In achieving successful outcomes, we rely on the utilization of top machinery, apt cutting tools, and precision-driven CNC cycles. This comprehensive approach guarantees that we not only meet but exceed the expectations of our customers.

13 CFAA PARTNERS - Opinions

Ainhoa Etxabarri
TRIMEK, S.A.

The intensive collaboration with different agents and partners of the CFAA has overcome our expectations, as these collaborations incremented the adjustment of some of our own products for the aeronautic sector while also providing high-tech equipment and expert knowledge transfer for precise and excellent experimentation.

Iosu Iribar
Fresmak

Gorka Marina
Grupo Metalúrgica Marina

Being part of the CFAA has been a key catalyst for our growth. On the one hand, it has fostered our interaction and collaboration with other companies and institutions in the aeronautical industry, as well as favoring commercial opportunities and the exchange of knowledge and experience in the sector.
On the other hand, at the center we have had access to state-of-the-art specialized machinery, which has given us a great competitive advantage that allows us to manufacture different parts and equipment.
But, above all, CFAA has given us the possibility of participating in R&D initiatives with other partners, which has greatly boosted our capacity for innovation and our involvement in more efficient manufacturing.

At FRESMAK we provide our customers with the most innovative workholding solutions for the machining industry, developing products with high added value, standard or bespoke, adapted to the requirements of our customers.
Over the last few years, we have worked with the CFAA on different projects in which we have developed several innovative workholding solutions. The CFAA has provided us with a collaborative environment to test our developments on state-of-the-art machinery and with the most qualified and competent professionals. Furthermore, for us it has been a link to be able to work with the leading companies in the aeronautical industry.

13 CFAA PARTNERS - Opinions

Joseba Allende Larrea
WEC Velatia

WEC has been working with the CFAA since its early creation. In all these years of collaboration, we have had the opportunity to develop many interesting R&D projects. These developments allow us to improve some of our production processes, as well as explore others that we do not have. The evaluation of new possible investments and production processes is of key interest, mainly to have real experienced data to go ahead with a real integration in our facilities or not.
CFAA is a very valuable complement to increase our knowledge and technological development at a faster pace than we would be able to achieve on our own.

Mikel Artola & Raul Erauskin
Kendu S.Coop

Since 1976, we have been committed to provide precise and efficient answers to our customers' machining needs within the aeronautic sector.
As the markets rapidly evolve, we seek to offer quality and precision tools that adjust to the new demands. To that end, the advantages that arise from being a partner of the CFAA are of immeasurable value to us. As a company that aims to perform as closely as possible with our customers, the ability to develop as a team with the CFAA has taught us immensely and has undoubtedly strengthened our ability to adjust to new challenges. Due to our ongoing collaboration, we are able to keep offering value and remain relevant.

13 CFAA PARTNERS - Opinions

L. Norberto López de Lacalle
University of the Basque Country (UPV/EHU)

CFAA is one good idea. In 2014 the constitutive agreement was signed by Basque institutions: Basque Government, Bizkaia Provincial Council, the University of the Basque Country and an association of companies, then 11 today 108.

Several tips can explain the success of the idea. First, here two industrial sectors seek for collaboration, aeronautics and space with machine tools and production equipment. One is all time proposing challenges and machine tool manufacturers will help to propose good solutions. On the other hand, this is happening in a centre inside the structure of the university, so applied research projects, advance training, Ph.D. development and other activities help to achieve objectives. We attract also attention of some PhD and students coming from abroad. In short, to our mission of performing TRL 4-7 projects more no tangible benefits are happening.

As a professor, as engineer and as still today an apprentice of the noble arte of working metals, CFAA is a clear example of efficiency of R&D along with training. Our industrial sector face currently new challenges and cooperation is the basic ingredient of the success recipe. For the University of the Basque Country and the Faculty of engineers of Bilbao is also a centre to keep full contact with our productive sectors, offering students many opportunities to start a career in manufacturing and link this with companies' necessities. The future will depend on them, and on us to help them to get expertise in key technologies.

14 A SUCCESSFUL DECADE

2014	From an idea to a signature of the Constitutive Agreement
2015	General plan and specifications for workshop machine layout
2016	CFAA workshop conditioning and commissioning of the first machines
2017	Launching full activity and official inauguration of the CFAA
2018	Incorporation of new partners (from 11 to 47 in 2018) (109 in 2023)
2019	Incorporate new high-tech machines via renting (Mazak Integrex, …)
2020	First real demonstrator for testing of the Ultrafan® turbine case
2021	3-year agreement to create the AIMS Unit collaborative space (CFAA, UPV/EHU, IDEKO, IMH, BCAM)
2022	Implementing a new 5G network operating at CFAA as the pre-deployment scenario for the Industry 4.0 use case
2023	Starting activity on a research line focused on sustainable manufacturing and eco-efficiency, “the green corner”

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