ANNUAL REPORT 2024

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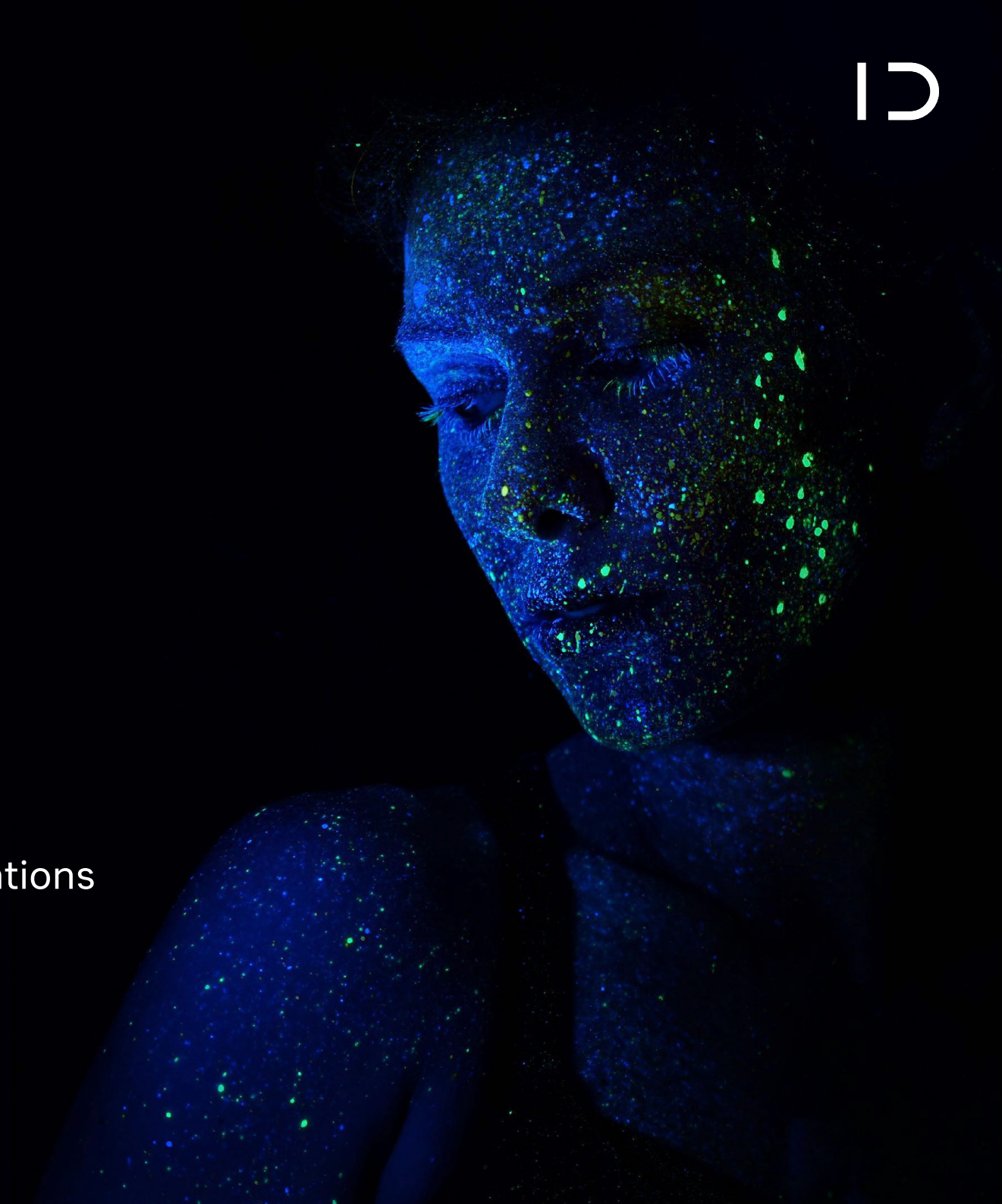


XABIER ALZAGA
President of IDEKO

IDEKO celebrated a historic year in 2024, marked by record-breaking figures in both turnover and order intake. With a 17% increase compared to 2023, the Research Centre achieved a turnover of €12.9 million, consolidating its growth momentum and laying the foundation for the upcoming 2025–2028 Strategic Plan.

Of this total, €7.3 million originated from technology transfer projects focused on enhancing productivity in companies, particularly in strategic sectors such as aerospace and machine tools. These advanced solutions directly impact efficiency, sustainability, and competitiveness, aligning with IDEKO's mission. This represents a 25% increase in our technology transfer contributions to the private sector. The remaining €5.6 million was generated through research activities funded by public programs at European, national, and regional levels.

IDEKO's commitment to scientific excellence remained steadfast in 2024, with 34 indexed publications (a 13% increase from the previous year) and a 7% rise in active patents, bringing the total to 42. The research team expanded to include 36 PhD holders and 11 doctoral candidates, reinforcing a strong scientific foundation for addressing emerging technological challenges.

In terms of human capital, IDEKO closed the year with a team of 141 professionals, a 6% increase over 2023, along with 9 additional experts working within affiliated companies.

Investments in infrastructure totaled €800,000, primarily directed toward expanding the robotics laboratory, acquiring new scientific equipment, and launching the Renishaw Solutions Centre, a collaborative space developed with the global leader in metrology.

These accomplishments mark the successful conclusion of a phase in which IDEKO has firmly positioned itself as a key partner in the Basque industrial ecosystem, supporting companies on their journey toward more efficient, sustainable, and automated manufacturing. With this solid foundation, the Centre embarks on a new strategic path, embracing renewed ambition and full alignment with today's technological and industrial challenges.

Thank you to everyone who contributed to making 2024 such a remarkable year. With the same spirit, we look forward to the journey ahead.

RAFA LIZARRALDE
General Manager of IDEKO

Our commitment to cutting-edge research and innovation reached new milestones in 2024. Strategic sectors such as aerospace have recognized us as their trusted technology partner in enhancing competitiveness, a role we proudly embrace by delivering advanced solutions in an increasingly demanding industrial environment.

Looking ahead to the objectives set forth in our new Strategic Plan, we continue to foster cooperation and open innovation, strengthening alliances with leading R&D institutions both nationally and internationally. In 2024, our collaborations focused on technological solutions aimed at boosting business competitiveness in areas such as precision processes and machines, high-accuracy robotics, digitalization, and artificial intelligence solidifying our position as a benchmark in advanced manufacturing.

Among the year's highlights was the signing of a five-year partnership with ITP Aero to advance R&D in the aerospace sector, with a strong emphasis on technology transfer and collaborative training. Additionally, we entered into an agreement with University College London to further develop large-scale photogrammetry in industrial environments.

Our research team actively participated in major scientific and technological forums, as well as key trade fairs such as BIEMH, JEC World, and MetalMadrid, the latter with a strategic focus on expanding into new markets. At the European level, our efforts were recognized by the European Commission, which selected four of our projects as part of a group of transformative initiatives aligned with the objectives of the European Green Deal: waste reduction, energy efficiency, and improved product quality in the manufacturing sector.

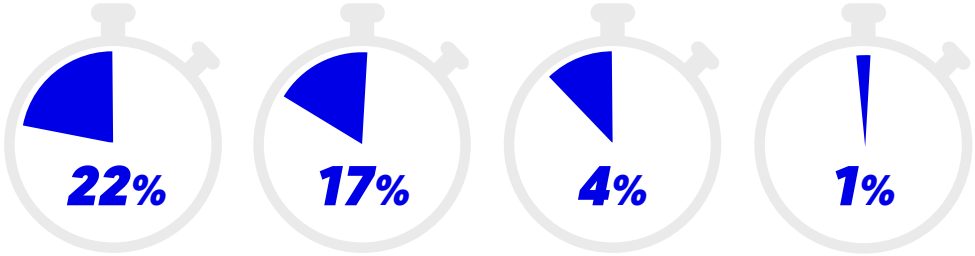
Beyond R&D achievements, we continue to build an attractive and people-centered organization. In 2024, we advanced toward recognition as a leading institution in research development, securing the HRS4R (Human Resources Strategy for Researchers) certification. Attracting, retaining, and developing research talent, alongside a firm commitment to sustainability, remains a cornerstone of our internal management strategy. Moreover, the implementation of our second Equality Plan reaffirms our dedication to a fair, diverse and inclusive workplace.

In the years ahead, we will continue to diversify into new sectors, maximize the value of our technological assets, and drive high-impact projects in collaboration with strategic partners. We remain firmly committed to transforming industry through innovation.

Source of incomes

56% R&D Under Contract

44% Own R&D



Basque Government | *Europe* | *Madrid* | *Provincial Council*

161 People in total

128 Staff
29% Women | 71% Men

33 People in training

28% PhDs
11 PhD theses in progress

42 Patents
2 in 2024

>200 Technology Transfer Projects

>35 Years coordinating European Projects

1 ABOUT US

We are a research center specialized in advanced manufacturing, with special focus on precision machines and processes and artificial intelligence in manufacturing. We generate, capture and develop new technologies capable of responding to the current and future challenges of the industry.
Our activity covers the identification and analysis of opportunities, the design and development of products, business lines and production processes and the resolution of problems through the provision of technological services such as technical consultancy and equipment based services.

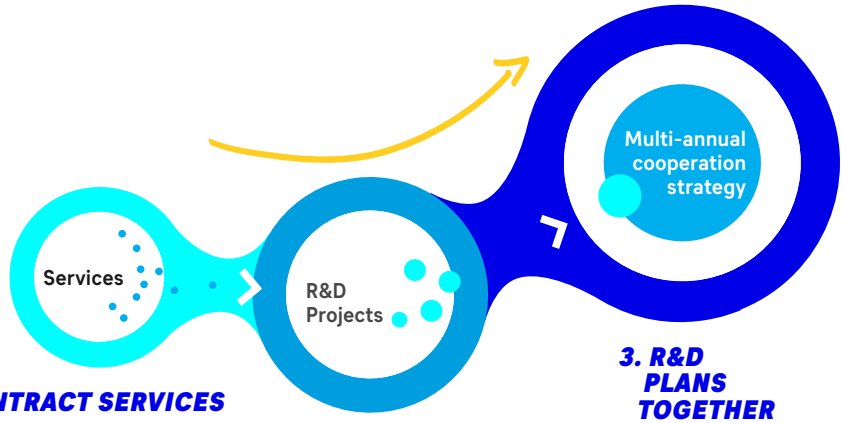
2 ORGANISATION

GENERAL DIRECTION

- ***Scientific Dept.***
  - Scientific Creation and Exploitation.
- ***Development and Transfer Dept.***
  - Dynamics and Control.
  - Design and Precision Engineering.
  - ICT and Automation.
  - Manufacturing Processes.
  - Commercial.
- ***Administration and Organizational Development Dept.***
  - Eco-financial.
  - Administration programs.
  - Integrated Management System.
- ***Human Resources Dept.***
  - Management of our main assets, the people.
  - Talent recruiting and generation of talent.
  - Professional development.
  - Training plans.

3 COLLABORATION OF IDEKO WITH COMPANIES

TECHNOLOGICAL PARTNER
we offer an **integral solution** for the needs of today and the future in advanced manufacturing.



1. CONTRACT SERVICES
Resolution of vibration problems, modal analysis, FEM calculations and simulations, or the provision of advanced measuring, inspection and verification services.

2. R&D PROJECTS
Knowledge and technology transfer.

3. R&D PLANS TOGETHER

4
4 RESEARCH GROUPS

5
6 SPECIALIZATION LINES

01 ICT AND AUTOMATION

- Value-added industrial automation:
  - Predictive and proactive maintenance.
- Cloud Computing.
- Advanced Programming.
- Artificial Intelligence.

02 DYNAMICS AND CONTROL

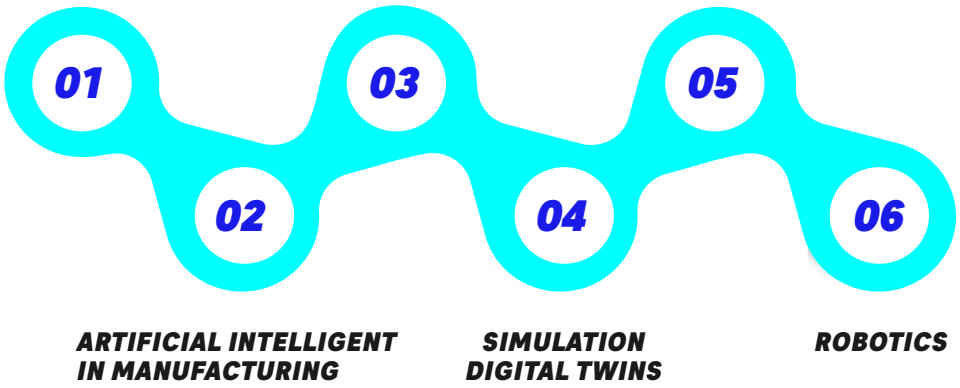
- Dynamic behaviour of machines:
  - Self-excited vibrations.
  - Damping.
  - Advanced control algorithms.
  - Mechatronics simulation.
- Advanced robotics.

03 DESIGN AND PRECISION ENGINEERING

- Advanced concepts of machines and components:
  - Mechanical and thermal simulations.
  - Ecodesign.
- Non-contact dimensional measurement.
- Machine vision.

04 MANUFACTURING PROCESSES

- Development of cutting and abrasion machining technologies.
- Sustainable manufacturing.
- Industrial management and production.
- Composite technologies.
- Laser technologies: Cutting processes and additive manufacturing.
- NDT Inspecton of superficial and internal defectology.



04. Projects

6 R&D PROJECTS

- Automatic processing and inspection of multi-shape geometry in next-generation robotics.
- Non-contact monitoring of composites from manufacturing to end-of-life.
- Sustainable and productive additive manufacturing technologies to enhance industrial competitiveness.
- Holistic and in-process metrology for production control.
- Digital twin for the identification and elimination of submicrometric marks in diamond tooling.
- Cognitive mechatronics for the design of industrial machines.
- New generation of processes for sustainable (Re)manufacturing.
- Autonomous, sustainable and safe factory through deep technologies.
- Development of a grinding wheel for shock absorber rods in next-generation centerless grinding machines.
- Robotic cell for the assembly of aeronautical parts using natural marker-based referencing.
- Industry 4.0 machine for large-scale gear cutting.
- Minimization of exposure to potentially carcinogenic composite material dust in industrial environments.
- Monitoring platform for robotic drilling cells in fuselage manufacturing.
- Comprehensive predictive supervision and optimization system through the integration of sensing and signal processing technologies.
- Monitoring and optimization using anti-vibration bars.
- Clean robotic machining of GFRP sheets.
- Feasibility of crack detection in cams using Eddy Current inspection.
- Research on the virtualization of interconnected and intercommunicated value chain factories in the manufacturing sector for fully circular and zero-emission production.

EUROPEAN PROJECTS

TACCO
Fast, reliable and accurate set-up of large raw parts using an attractive, flexible and easy-to-use modular approach based on photogrammetry.

FLEX4RES
Data spaces for flexible production lines & supply chains.

EXTREMEXP
Experimentation driven and user experience oriented analytics for extremely precise outcomes and decisions.

INFINITE
Aerospace composites digitally sensorised with microwires, from design and manufacturing to end-of-life (recycling).

COGNIMAN
Cognitive technologies in robotic finishing systems for large parts.

LEADTCHAIN
Learning about implementing and using a digital process twin in a production value chain.

VIDIT
Trustworthy virtual experiments and digital twins.

AIMS 5.0
Artificial intelligence in manufacturing leading to sustainability and Industry5.0.

EMPYREAN
Trustworthy, cognitive and AI-driven collaborative associations of IoT devices and edge resources for data processing.

INDUX-R
Transforming european industrial ecosystems through eXtended reality enhanced with human-centric AI and secure, 5G-enabled IoT.

LASERWAY
Extremely high-speed laser processes for sustainable and flexible manufacturing.

BIOSTRUCT
Manufacturing process for bio-based fibre-reinforced composite parts for structural applications.

REMANET
Remanufacturing network.

HERFUSE
Hybrid-electric regional fuselage & empennages.

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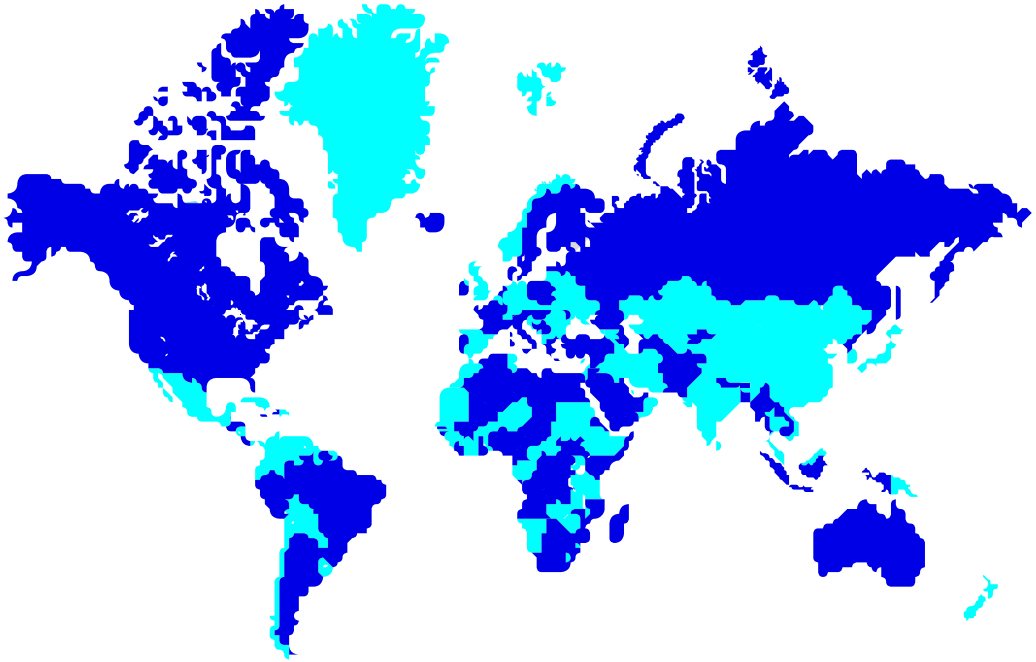
ALLIANCES AND COLLABORATIONS



CIRP
EUSPEN
ASPE

FoF
EFFRA
EuRobotics
BDVA

ETP
PPP
JTI

REGIONAL
NATIONAL
CLUSTERS

MEMBERS OF THE MOST IMPORTANT SCIENTIFIC AND TECHNOLOGICAL MANUFACTURING FORUMS

BUCAREST UNIV., BWI, CEA, CEDRAT, CERTH, CESI, CETIM, CHALMERS, CNRS, CRF-FIAT, D'APPOLONIA, DELCAM, DELFT UNIV., DTI/DTU, EPFL LAUSANNE, ETH ZURICH, EUROCHILE, FIDIA, FLANDERSMAKE, GTS, HELLAS, IBS, IFW / LZH HANNOVER, INESCPORTO, INRIA, IPA FHG STUTTGART, IPT / WZL / ILT / FHG / AACHEN, ITIA, IWU / TU CHEMNITZ, KALE AERO, KTH, STOCKHOLM, KU LEUVEN, LINZ, MONTERREY, NPL, NTNU / SINTEF, POLIMI, PONTIFICIA PERU, PRAGA UNIV., PRIMA, PROFACTOR, PTW DARMSTADT, SIRRIS, SOCIESC, SWEREA, SZTAKI BUDAPEST, TEKNIFORETAGEN, TIMKEN, TNO, TU, ORTMUND, TU DRESDEN, TU EINDHOVEN, TUT TAMPERE, TWI, TYROLIT RTD, UNIV. ANKARA, UNIV. BRITISH COLUMBIA, UNIV. CALIFORNIA, UNIV. COSTA RICA, UNIV. ESTAMBUL, UNIV. GRAZ, UNIV. KEIO, UNIV. KOBE, UNIV. KOC, UNIV. LISBOA, UNIV. MASSACHUSSETS, UNIV. MICHIGAN, UNIV. NAGOYA, UNIV. PATRAS, UNIV. SABANCI, UNIV. SAO PAULO, UNIV. SETUBAL, UNIV. SOFIA, UNIV. TESALONICA, UNIV. WATERLOO, UNIV. CRANFIELD, UNIV. NOTTHINGHAM, UNIV. OULU, UNIV. PADOVA, UNIV. SHEFFIELD + AMRC, UOB / BIBA / LFM BREMEN, VTT, WARSOW UNIV.

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& TECHNOLOGY ALLIANCE

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Donostia - San Sebastián (Gipuzkoa)

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