Applus+

Together beyond standards

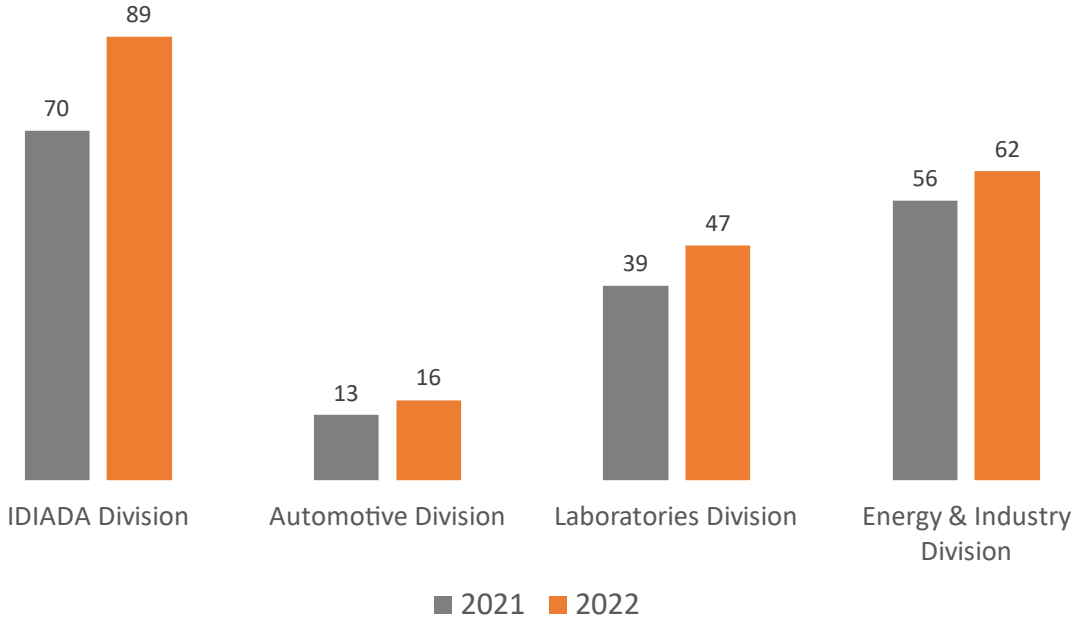
Applus+ INNOVATION REVIEW

Global Key Figures

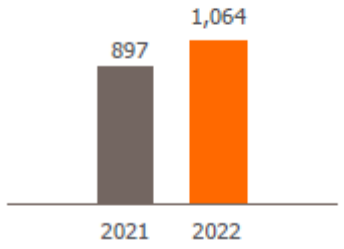
At Applus+, innovation is a strategic pillar based on a **strong investment in the acquisition of knowledge** and the application of technology, within a framework of collaboration with **suppliers, partners and clients** with whom we have established agreements to carry out major projects.

1,064 people are dedicated and have contributed to innovation projects, dedicating **426,867** hours.
Our teams have carried out **214** research, development and innovation projects.
We have increased our intellectual property portfolio in **10** patents from **4** different families.
Since **2022,** we have a total of **151** patents in force and **34** active patent families.

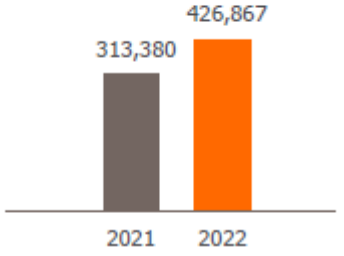
Number of innovation projects per year and per division



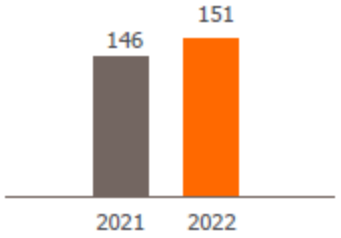
Employees involved (not full-time dedicated)



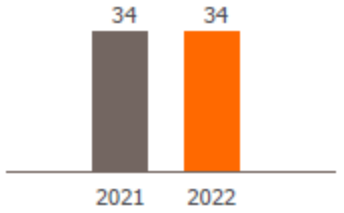
Hours worked on innovation projects



Patents granted



Patent families



Collection of patent applications covering a single invention.

Innovation through collaboration

The following activities were carried out to promote our innovation work:
99 agreements with external bodies, **63** oral contributions to technical events, **23** technical publications and **87** training sessions.

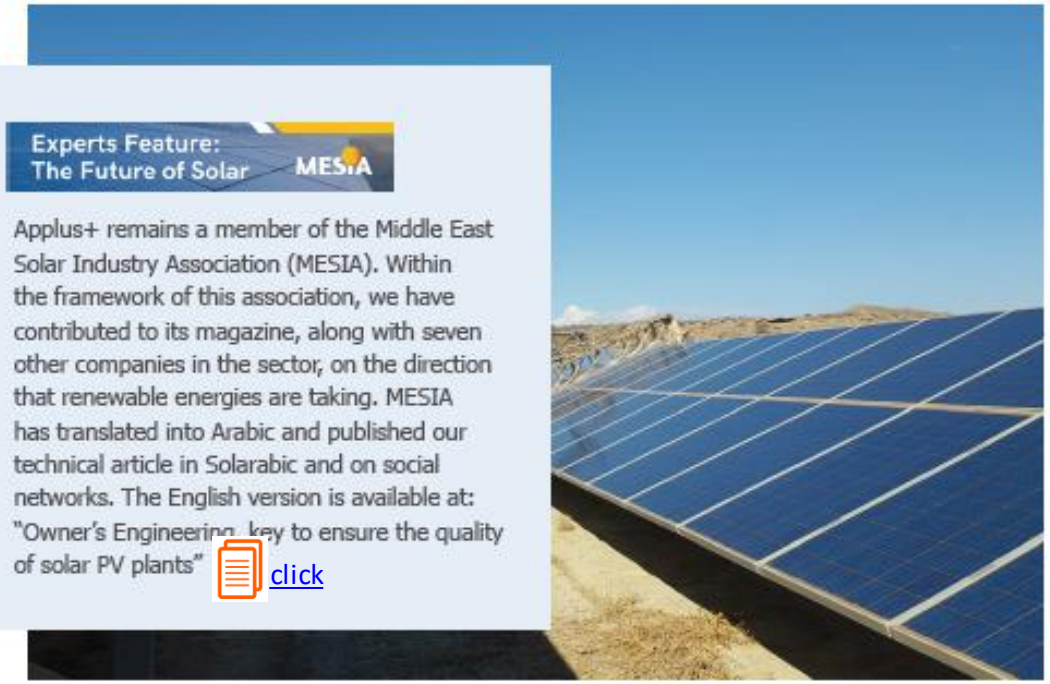
CASE STUDY

SMART MANAGEMENT SYSTEM

Applus+ has reached an agreement with **Indoorclima**, strengthening its service portfolio for **energy efficiency and management** with high value-added services.

Indoorclima leads its sector in developing consumption-optimisation technology for air-conditioning systems and has devised a pioneering, innovative system based on **constant reception, big data and machine learning**.

This alliance is decisively important for Applus+ because it gives our clients a **ground-breaking technological solution** which enables them to reduce energy consumption and, consequently, their CO_2 emissions.



Experts Feature:
The Future of Solar

Applus+ remains a member of the Middle East Solar Industry Association (MESIA). Within the framework of this association, we have contributed to its magazine, along with seven other companies in the sector, on the direction that renewable energies are taking. MESIA has translated into Arabic and published our technical article in Solarabic and on social networks. The English version is available at: "Owner's Engineering, key to ensure the quality of solar PV plants" click

Applus+ participates in the **standardisation and normalisation committees** of the main associations in different sectors and also works closely with the **different actors in the value chain**, joining forces to implement the results of innovation.

INNOVATION

At Applus+, we help companies respond to the challenges presented in the fields of **new mobility and connectivity, energy transition and electrification**. Our innovation efforts are aimed at meeting these challenges, together with the use of **digital technologies** in all business processes, the application of **artificial intelligence**, the use of **digital customer communication** and the launch of a new **business line based on our digital solutions**.

CONNECTED AND AUTONOMOUS MOBILITY

Case study: European Project SUaaVE (SUpporting acceptance of automated VEhicle).

(F & non F report) p.39

NEW AERIAL MOBILITY AND AEROSPACE DEVELOPMENT

Case study: drone certification.

(F & non F report) p.40

ELECTRIFICATION

Case study: electric mobility in China.

(F & non F report) p.41

ENERGY TRANSITION

Case study: massive daytime electroluminiscence.

(F & non F report) p.42

What do we do in Innovation?

Innovation and Digitalisation

We develop solutions for **autonomous terrestrial mobility and autonomous aerial mobility.** Our experts are working **on the electrification strategies** and on disruptive solutions for **renewable energies**. As we move towards digital transformation, we have integrated **artificial intelligence** solutions and other digital technologies into several businesses and we continue to drive the Applus+ corporate **venturing programme**.

Connectivity and Mobility

We have expanded our technological capabilities by building **new tracks for the validation of connected and autonomous vehicles** (CAVs) with a private **2G, 3G, 4G and 5G mobile network.**

Electrification

We develop new systems and promote social acceptance of **electric vehicles** to drive the transition to electric mobility. We continue to increase our **testing capabilities for electric vehicle components.**

Energy Transition

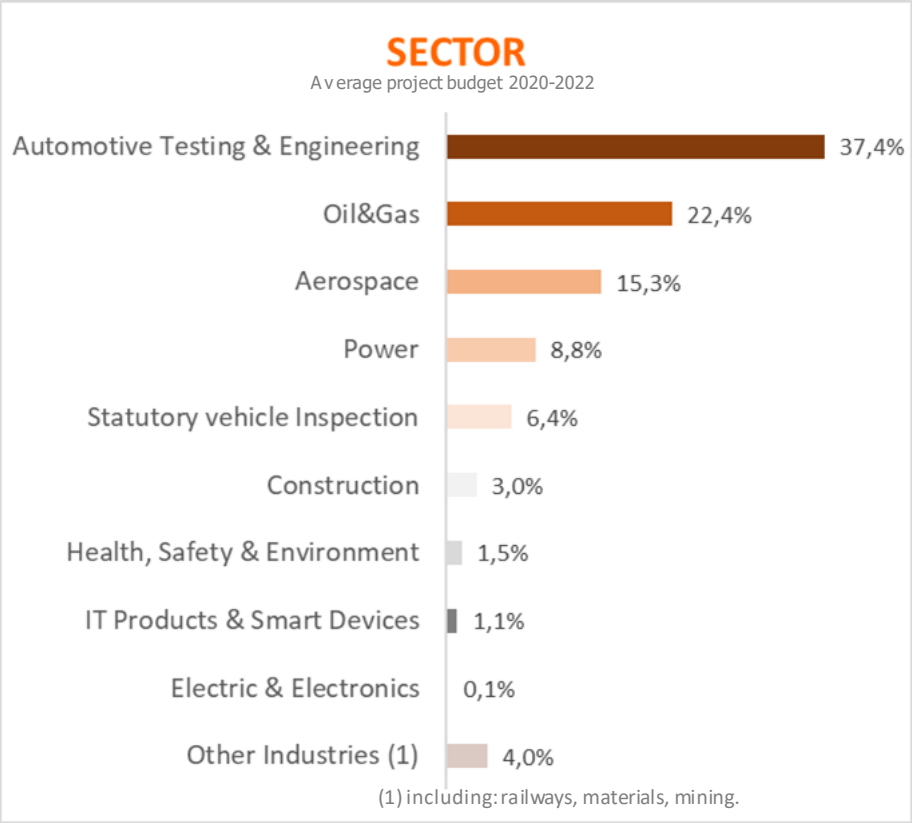
We launch new developments to offer the market innovative solutions in the field of **renewable energies** and **diversification of energy sources**, increasing their efficiency and facilitating their implementation.

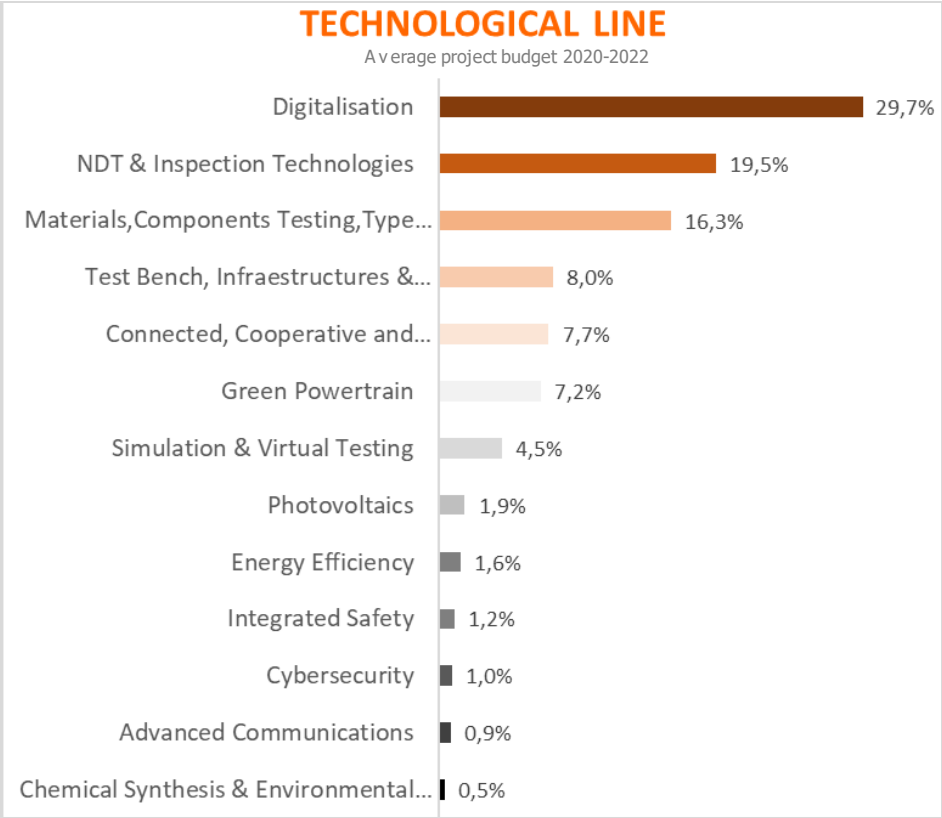
Applus+ Ventures initiative

Our corporate venturing initiative complements the Group's innovation strategy. We have carried out pilot projects rela**through collaboration with the entrepreneurial ecosystems**ted to renewable energies, hydrogen vehicles and the application of AI in back-office processes.

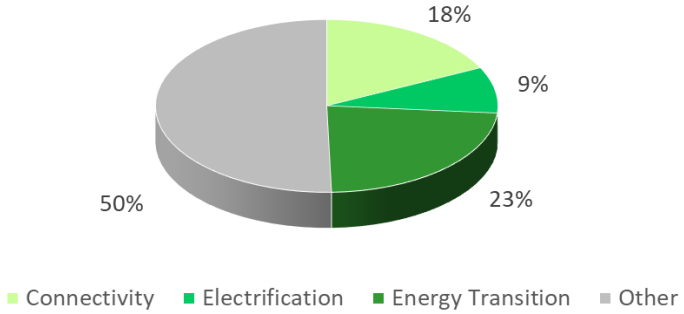
What do we do in Innovation?

Innovation focus





Alignment with 2022 –2024 strategic megatrends



In addition to the digitalisation of our services, 50% of our 2022 portfolio developments are aligned with the global megatrends: Energy Transition, Electrification and Connectivity.

What do we do in Innovation?

PARTICIPATION IN PROGRAMMES THAT SUPPORT INNOVATION IN LINE WITH OUR STRATEGY

Participating in collaborative projects with other entities (companies, technology centres, university research groups, clusters, etc.) leads us to join forces to tackle major technological challenges. Collaboration with different actors is a way of sharing technical expertise, resulting in developments that provide greater value. Innovation support and funding programmes encourage and incentivise this collaboration.

ENERGY TRANSITION

Optimus

INNOVATION Project ZERO

Financiado por la Unión Europea NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

CDTI

INNOVATION PROJECT DEMONSTRATE

INNOVATION PROJECT SOFIA

INNOVATION PROJECT TABASCO

Clean Sky

LONG RUN

PV BIFACIAL

ENERTIS Applus

Universidad de Valladolid

GaS optronlab

CDTI INNOVACIÓN

ELECTRO-MOBILITY

URBANIZED

eCHARGE4DRIVERS

REFLECTIVE

XL-CONNECT

upscale

CONNECTIVITY

SAFE-UP

SUaaVE

Applus IDIADA

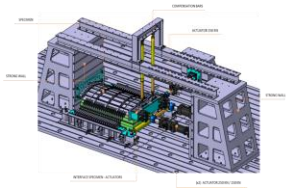
coibri

Financiado por la Unión Europea NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

What do we do in Innovation?

NEW TEST CAPABILITIES



DHUB - Battery testing – EV

AT+AOA - Automated thermography + automated optical analysis - END AERO

DEMOSTRATE - Instrumentation for mechanical testing of structures - Fuselage - AERO

INSPECTION AUTOMATION

DTI- Inspection performance - NDT Automatic Feature Detection

3D Modelling - Active remote NDT inspections

IWEX PORTABLE - Newly designed UT NDT device - NDT

AERIAL DRONE SOLUTIONS

DRONE PLATFORM - Digitised management

DROPS - Dual grid testing and photometry

DRONE - Open category drones - Testing and certification

COLIBRI - Regulatory framework- industrial application

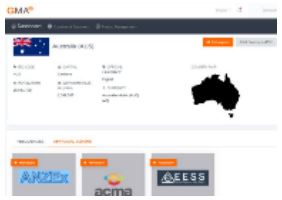
ARTIFICIAL INTELLIGENCE

arTIco - Correlation between Digital Twins and their real counterparts

Chatbot in vehicle inspection services

AI for inspection automation - Pipe thickness - Digital radiography

E-DELIVERY and E-COMMERCE PORTALS



GMA+ - International certification of electrical and electronic products

B2B e-commerce portal

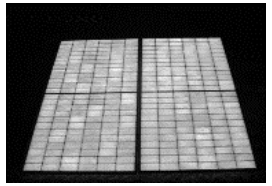
IDIADA Digital Solutions - Automotive validation and homologation tests

AEROSPACE

Structural Test Validation- Ariane 6 rocket's mid-tank- Extensive facilities- Mechanical testing

OPTIMUS- New manufacturing principles - New materials - Innovative technologies

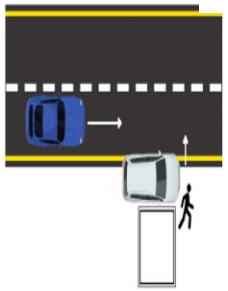
RENEWABLES



Massive daytime electroluminescence - High-quality image capture and processing - Photovoltaic modules

GEMSTONE - H2 refuelling simulator - Increased safety - Automotive

AUTOMOTIVE ENGINEERING



SUaaVE - Automated vehicle

ENSEMBLE - Truck platoon

ASSURED - New solution for charging electric vehicles

SAFE-UP - Safety tools for a safe environment

Applus

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