

Innovation

Innovation focused on ensuring sustainability, a key factor in acquiring competitive advantages and creating added value for current and future businesses.

A TOOL
FOR VALUE
CREATION



HIGHLIGHTS IN 2018

- › Innovation figure of **EUR 225.4 million, a record high for the company**, resulting in an innovation intensity ratio (3.0 %) that is above the European average (1.4 %)
- › During 2018, the company **managed to generate savings** by introducing improvements in its processes worth EUR 26.6 million.
- › Launch of the **intrapreneurship programme, as part of I'MNOVATION**, in which 23 people from nine ACCIONA businesses have taken part.
- › **New line of funding from the European Investment Bank (EIB)** of EUR 100 million for R&D&I projects and Digital Transformation and Economy between 2017 and 2020.
- › **Implementation of innovative technologies** that have helped enhance the efficiency of construction and water treatment processes, renewable energy and the development of a circular economy.
- › Development of the **first blockchain-based ACCIONA platform designed** to increase traceability and security in third-party procurement.



MAIN CHALLENGES 2019

- › **Maintain an innovation over sales figure** that exceeds the European average, to preserve ACCIONA's innovative leadership.
- › **Improve ACCIONA's processes** generating savings of at least EUR 15 million.
- › Launch of a **specific challenge for research centres and universities**, as part of the I'MNOVATION programme.
- › **Implementation and use of exoskeletons in the industrial environment** that contribute to improving workplace ergonomics.
- › **Development of circular economy** projects with a focus on recycling and waste-to-energy.
- › **Launch of new initiatives** for developing sustainable mobility.

Innovation as a tool for value creation

At ACCIONA, innovation is at the core of differentiation and driving change. The company is aware that competitiveness, internationalisation and sustainable development are linked to innovation. The company undertakes to continue its efforts, designating resources and promoting open innovation to create cutting-edge solutions. In addition, it constantly strives to identify opportunities, both technological and business, that lead to value creation and that reinforce existing and future businesses.

As a designer, developer and operator of infrastructure and a creator of clean energy, ACCIONA seeks to incorporate the most advanced digital technologies into developing its projects and generating new businesses. Data science, the Internet of Things, robotics and AI,

blockchain, virtual reality and large-scale 3D printing are just some of the technologies that help the company develop the infrastructure of the future and create value for its customers, underpinned by its aim: To Do More, Better and with Less Impact on our Planet. This approach helps to attract the best talent to move our projects forward.

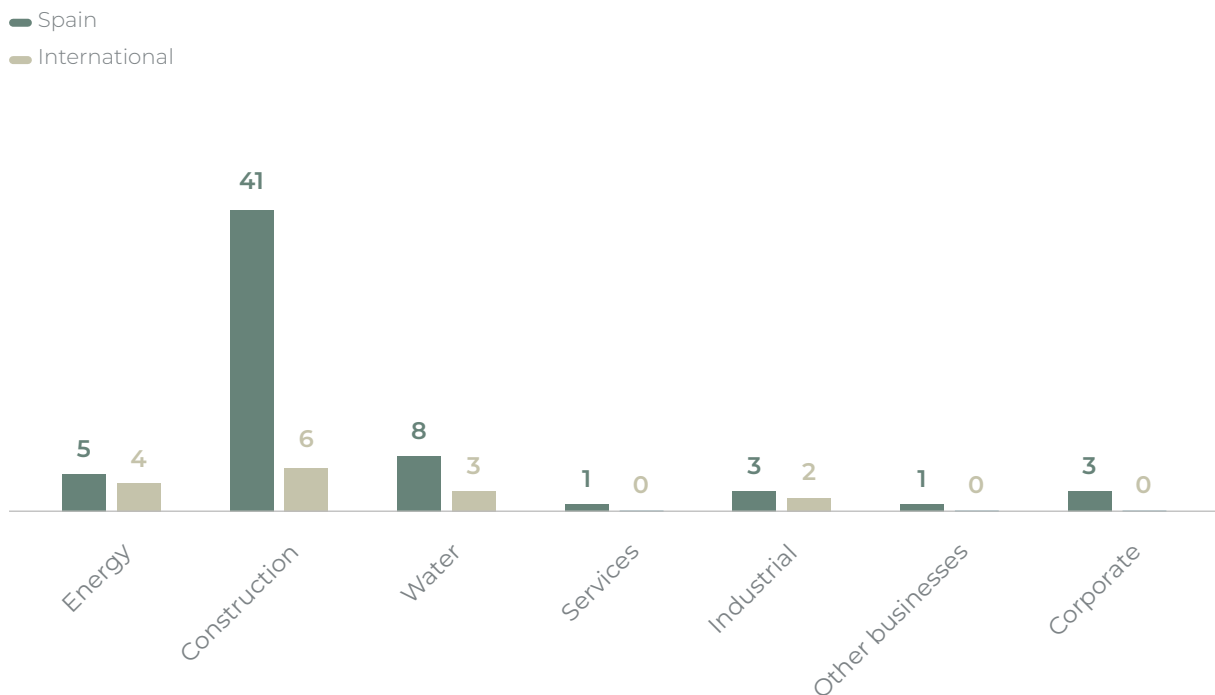
Innovation in business and internationalisation

In 2018, ACCIONA accredited an innovation figure of EUR 225.4 million, 7.6 % greater than the previous year, reaching a record high. The project portfolio amounts to 123 projects over the year, of which 46 are for research and 77 innovation.

At the international level, a total of 15 projects were carried out for EUR 184.7 million, which represents 82 % of the confirmed figure, 11.4 % more than in 2017.

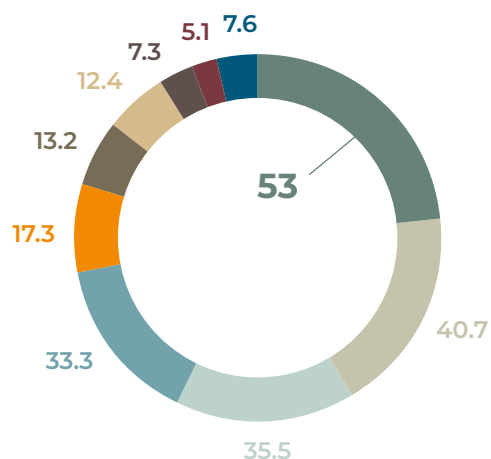
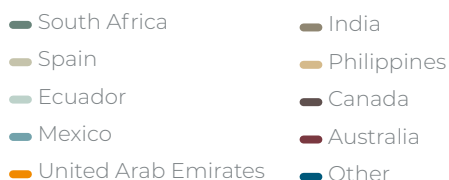
GEOGRAPHICAL BREAKDOWN OF INNOVATION PROJECTS PER BUSINESS IN 2018

(No. projects)



INNOVATION FIGURE BY COUNTRY¹

(€ million)



¹Other include Chile (4.4), Peru (1.7), Panama (1.1) and Portugal (0.4).

This effort has positioned ACCIONA in recent years among the leading companies in innovation:

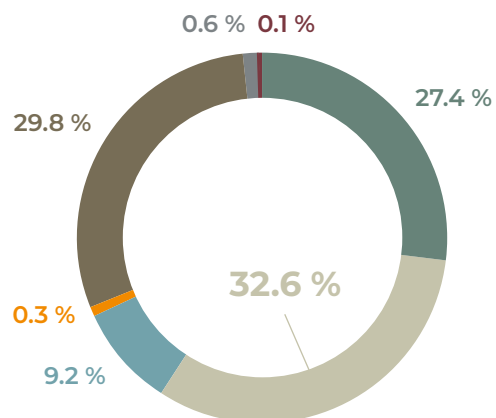
- The 2018 EU Industrial R&D Investment Scoreboard² ranks ACCIONA as the 6th Spanish company and the 150th in Europe in terms of R&D&I investment efforts.

- The 2018 Global Innovation 1000 Report places ACCIONA in 5th position of the seven Spanish companies listed in the ranking³.

TRENDS IN ACCIONA'S R&D&I FIGURE

		2015	2016	2017	2018
R&D&I FIGURE (€ MILLION)		180.4	193.9	209.4	225.4
EU Industrial R&D Investment Scoreboard	European Union ranking	144	152	147	150
	Spain ranking	5	6	6	6
Strategy&	Global ranking	468	532	530	496

DISTRIBUTION OF INNOVATION FIGURE BY BUSINESS LINE



²Carried out by the IRI (Economics of Industrial Research and Innovation) under the European Commission.

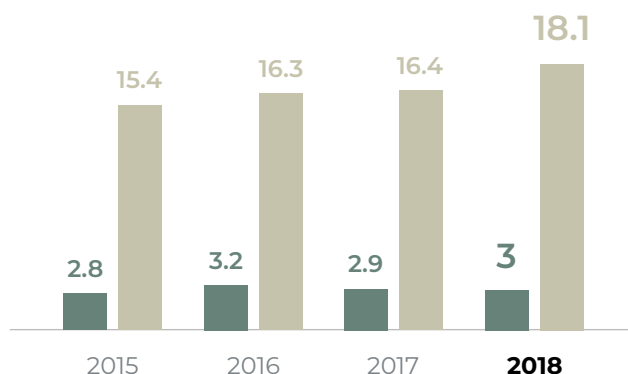
³Prepared by Strategy&, PwC's strategic consultants. The ranking lists the 1,000 companies that invest the most in R&D globally.

The innovation intensity ratio, defined as the innovation figure divided by the revenue figure, is 3.0 % in 2018, higher than the European average of 1.4 %.

EVOLUTION OF INNOVATION INTENSITY

(Percentage)

■ R&D&I / Revenue figure
■ R&D&I / EBITDA figure



ACCIONA REAFFIRMS ITS INNOVATIVE LEADERSHIP WITH INNOVATION INTENSITY OF 3 %, HIGHER THAN THE EUROPEAN AVERAGE

R&D&I strategic management

In 2018, the R&D&I Management System (SGIDI) was perpetuated under the guidelines established in UNE 166002:2014. The innovation activities are subject to periodic monitoring through reviews and the management indicators defined based on the strategic, operational and improvement processes.

Once again, ACCIONA's SGIDI has successfully passed the external monitoring audit carried out each year by AENOR.

Continuous improvement of processes, greater efficiency in operations

In 2018, the company managed to generate savings worth EUR 26.6 million by introducing enhancements to its processes, thus achieving its goal by 145 %.

TRENDS IN THE SAVINGS FIGURE

	2015	2016	2017	2018
Verified savings (€ million)	26.2	27.7	32.0	26.6
Goals reached (%)	218	138	154	151

Technological and competitive observatory

The Technological and Competitive Observatory has worked on various action lines during 2018, the most notable of which are:

- Monitoring of ACCIONA's technological and competitive environment, placing special emphasis on the company's strategic lines of innovation;
- Implementation of the support methods and tools for detecting trends and new business and for analysing new players and markets;
- Support in decision-making for the main business lines in terms of both business development and innovation, as well as corporate areas.

Throughout 2018, the Observatory has continued to bolster its position as an internal tool for support in strategic decision-making at the company, generating strategic documents for the organisation.


As part of the objective to comply with the Corporate Standard and the innovation procedures, it contributes to the preparation of 2017-2020 Strategic Innovation Plans. Furthermore, it creates state-of-the-art documents of various research lines in innovation, as well as Technological Surveillance for Technology Centres and other divisions of the company.

Technology and innovation centres in the businesses

ACCIONA has three technology or innovation centres in Spain whose research lines are developed around construction, water technologies and renewable energies. In addition, the innovation function is present in the other businesses with projects developed for the engineering, industrial and services areas.

R&D&I RESEARCH LINES IN ACCIONA'S CORE BUSINESSES

RENEWABLE ENERGIES




Maxpower
Craneless
Advanced wind power maintenance technologies
Advanced solar PV technologies
Wind and solar power storage
Hydraulic
Technology solutions for micro networks
Blockchain to energy
Life extension

CONSTRUCTION



Materials
Digital innovation
Construction procedures

WATER TECHNOLOGIES




Desalination and new technologies
Wastewater treatment and reuse
Water purification and chemistry



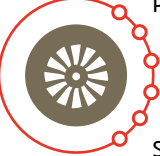
Further information can be found in the 'Innovation in renewables' section of the chapter entitled 'ACCIONA Energy's Commitment' and in 'Innovation at the service of Sustainability' within the chapter on 'ACCIONA Infrastructure's Commitment'

ENGINEERING




Design using new materials
Engineering and energy efficiency methods
New construction procedures

INDUSTRIAL



Photovoltaic
Biomass
Biofuels
Hydrogen
Waste to energy
Solar thermal

SERVICES



Client management applications
Smart cities (smart mobility)
Process tracking and control
Improved service efficiency

Sharing innovation

Open and collaborative innovation

The year 2018 saw the launch of two new editions of the ACCIONA Open Innovation programme, I'MNOVATION #Startups, to respond to the challenges faced by ACCIONA's different business units. 92 startups nationally and internationally were presented, of which 11 were selected and, at the end of the year, the proposed challenges have developed into 12 pilot projects.

This initiative prompts the co-creation of solutions to strategic challenges facing the company, combining internal knowledge and the external technical capacities provided by startups and other stakeholders. Additionally, it allows for the creation of opportunities, new knowledge and synergies that enable ACCIONA to position itself as one of the most innovative companies within the sectors in which it operates.

The startups selected develop their pilot projects over three months, during which time they have the collaboration, mentoring and funding from ACCIONA. They have fast-track purchasing, which has streamlined the implementation of pilots and the commercial relationship. Finally, pilot extension agreements have been reached with at least three of them.

Another event that took place during the year was the signing of new strategic collaboration partnerships with the Startup Europe Partnership (SEP) and Autodesk for the launch of the first European digital construction and infrastructure platform.

**I'MNOVATION #STARTUPS IS
THE FIRST CORPORATE STARTUP
ACCELERATOR OF INFRASTRUCTURES
AND RENEWABLE ENERGIES
IN SPAIN**

I'MNOVATION #CHALLENGES

I'MNOVATION #Challenges is an entrepreneurship programme whose aim is to turn employees into innovators and create new business models in the company. This initiative promotes professional development through cross-cutting and multidisciplinary collaboration, thereby encouraging teamwork.

In 2018, 23 employees worked together to respond to the challenges set out by Management and in line with the company's strategy. Following the exploration of a series of strategic areas of interest and the definition of a series of challenges with regard to these areas, five ideas were selected that tackled the challenges facing the company. The purpose of this was for the intrapreneurs to work on potential new business models for the company.

Virtual crowdfunding platform

In addition, any employee who wishes to can take part in the programme, submitting their ideas through a specific web page where a series of challenges are openly proposed based on areas of opportunity.

The most active workers within this initiative may be invited to take part in the following edition of the entrepreneurship programme.

Advanced and Digital Innovation Hub

Since 2017, the Advanced and Digital Innovation Hub (AADIH) has been developing projects focused on digital technologies and their applicability in ACCIONA's businesses, thus contributing to the dissemination of knowledge and its use in the company's operations. The AADIH is structured around six skill centres. It is important to point out that over 25 % of the projects carried out in 2018 have been put into practice in the business.

2018 HIGHLIGHTS OF THE ADVANCED AND DIGITAL INNOVATION HUB BY SKILL CENTRE

- **3D Printing**

Construction of the first home in Spain printed using contour crafting technology (in partnership with the Bemore 3D startup within the INNOVATION #Startups programme).

- **Mixed reality**

ACCIONA turns "House Shopping" into a 3D virtual reality experience at the SIMA 2018 Awards.

- **Connected Things**

Implementation of IoT technology to improve OHS security in its businesses.

- **Data Science**

New demand estimate and simulation models to optimise the assistance of persons with reduced mobility (PRM) at Barajas airport.

- **Robotics & AI**

Signing of a new agreement with MWC for the use of 5G technology in Construction and Industrial Logistics.

- **Blockchain and new technologies**

Finalisation of the first blockchain project to improve tracking in third-party procurement.

Strategic partnerships and acknowledgements

ACCIONA has renewed and extended certain strategic partnerships with world-renowned universities and technology centres, in particular: Consejo Superior de Investigaciones Científicas (CSIC), Centro Nacional de Energías Renovables (CENER), Transport Research Laboratory (TRL), INECO, TECNALIA, Pontifical Catholic University of Chile, Massachusetts Institute of Technology (MIT), University of Queensland, and the Polytechnic University of Catalonia, among others.

It should be noted that ACCIONA is a member of the Board of Directors of the Water supply and sanitation Technology Platform (WssTP) and of the European Desalination Society (EDS).

OVER

+25 %

OF THE PROJECTS CARRIED OUT IN 2018 HAVE BEEN PUT INTO PRACTICE IN THE **BUSINESS** IN THE ADVANCED AND DIGITAL INNOVATION HUB

Acknowledgements

- ACCIONA Agua has been presented with two Distinction Awards, for the Sarroch (Italy) and the Umm Al Houl (Qatar) desalination plants, at the 2018 Global Water Intelligence Awards, one of the most important awards in the sector.
- Open Innovation Innovative Approach Award for its innovative approach to the development of open innovation and recognition as one of the most innovative companies in Europe by Startup Europe Partnership.
- National UNE Award for the Integration of Standardisation and Innovation for ACCIONA Construction's Technology Centre.
- 100 best ideas of the year award in the category of Sustainability to ACCIONA's storage facility in Barásoain (Navarra), which has a system of batteries integrated into a network-connected wind farm.

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TECHNOLOGY CENTRES
