

HOW IT WORKS

Artificial intelligence
projects that unleash
human talent

CLEAN ENERGY

Tama Te Ra'a,
Easter Island's first
solar power plant



N.70 JANUARY 2019

ACCIONA MOTOSHARING
**SUSTAINABLE
MOBILITY
IN CITIES**



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CLEAN AND SHARED URBAN MOBILITY



he deadline to achieve the Paris Agreement, the deadline for decarbonization, for the Sustainable Development Goals and for the total elimination of internal combustion engines recently announced by the European Union—these are not random dates; they are imposed by the urgency of averting global warming. Time is of the essence, as is a paradigm shift in the most polluting human activities, among which are mobility and transport.

In this race against time, all of us have a share of responsibility in our consumer behavior (public authorities, businesses and citizens alike.) That is why we are focusing on a project where all three come together: Motosharing. As part of one of Europe's largest sustainable mobility projects, 1,200 electric motorcycles powered by renewable energy have been made available to travel throughout Madrid.

The initiative was developed by a government conscious of the need for change, one that relies on ACCIONA and its alliance with startups to carry it out, and that accommodates users who are open to sharing zero-emission public vehicles for some of their urban travel.

The motorcycles are non-polluting, reduce traffic congestion and transport costs and use technology (the Motosharing big data platform) that can incorporate the management of other mobility services and new business models. This is a key ele-

ment in the pull factor for transformation: turning social need into an economic engine to meet deadlines. Shared innovation both inside and outside ACCIONA has made this and many other projects possible, projects that are based on artificial intelligence combined with human creativity. In fact, we have designed a specific work space for open innovation with our technology partners: the A-Lab.

The share of responsibility taken on by ACCIONA goes far beyond Madrid. It is reflected in a dual-certification against corruption and also in the subway in Quito, where ACCIONA is fighting against the harassment of women in public transit. ACCIONA has also donated the first solar PV plant ever installed on Easter Island; its sustainability reminds us of the importance of preserving the island that belongs to everyone: the planet Earth. ■

“ In the race against time to make this vital transition, we all have a share of responsibility in our consumer behavior: public authorities, businesses and citizens alike ”

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The largest surface area without intermediate piles of any structure in Europe.

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A-LAB OPENS ITS DOORS

A laboratory specifically designed for open innovation.

INTERVIEW

"THE WATER SECTOR IS SET TO BECOME INCREASINGLY IMPORTANT ACROSS THE WORLD"



Population growth, urban concentration, climate change... Supplying good quality water is a global challenge. José Díaz-Caneja, General Director of ACCIONA Agua, describes how the quantum leap in the scale of water treatment and desalination plants is tackling the task.

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SUSTAINABILITY

MOTOSHARING. ELECTRICAL MOBILITY FROM MADRID TO THE WORLD

With 1,200 zero-emission motorcycles that bear the ACCIONA logo and leave a social rather than a carbon footprint, Motosharing Madrid is one of the biggest European projects for new sustainable shared mobility.



Profiling performed by expert bots, generative design just like in nature, data mining in large machinery... The digital intelligence revolution in ACCIONA's projects and equipment.

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HOW IT WORKS

ARTIFICIAL INTELLIGENCE FREES UP HUMAN CREATIVITY

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CLEAN ENERGY SOLAR PLANT IN RAPA NUI

Tama Te Ra'a (the first rays of sun), the first photovoltaic plant on Easter Island. A milestone in the project to make a symbol of natural and cultural heritage 100% sustainable.

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The Quito Subway, the first in the world to be planned with a focus on gender: raising awareness in the city to combat the harassment of women.

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ECOLOGY PRISTINE BEACH EcoACCIONate

builds ties with the inhabitants of Puerto Libertad (Mexico) and frees the beach from seven tons of trash.

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WINERIES MASTER OF WINE Almudena

Alberca, the first Spanish woman to achieve the most coveted, demanding and prestigious title in the winemaking world.

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COOPERATION ACCIONA receives the Inspiring

Business Award from the Inspiring Girls Foundation.

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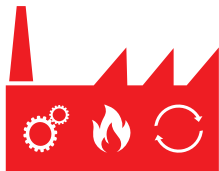
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FROM DIRTY WASTE TO CLEAN ENERGY



ACCIONA INDUSTRIAL



AUSTRALIA'S FIRST LARGE-SCALE WASTE-TO-ENERGY PLANT

The plant will mark a milestone in the country's evolution towards renewable energies, sustainability and the circular economy.

WHO

ACCIONA INDUSTRIAL
IS BUILDING **100%** OF THE
PLANT FOR MACQUARIE CAPITAL
AND PHOENIX ENERGY UNDER
A TURNKEY EPC (ENGINEERING,
PROCUREMENT AND
CONSTRUCTION) CONTRACT

WHEN AND WHERE



Work
began in
October 2018
and will last
36 months

TOTAL FINANCING FOR THE PROJECT

434
eur million

ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS

Kwinana **will process up
to 400,000 tons of waste**
per year that will no longer
accumulate in landfills



IT WILL HAVE THE
CAPACITY TO PRODUCE
36 MW OF RENEWABLE
ENERGY, EQUIVALENT TO
THE CONSUMPTION OF
50,000 HOMES

The project will create

800
construction-related jobs,
while operation and maintenance
of the completed plant will create

60
permanent jobs



IT WILL BE THE
1ST WASTE-TO-
ENERGY PLANT
BUILT BY ACCIONA
INDUSTRIAL
OUTSIDE SPAIN

QUICK BRIEF

Once it's operational, the
six W2E plants built by the
company will process a total of

1,395,000
tons of waste per year
and have a combined capacity of
135.1 MW



HISTORY

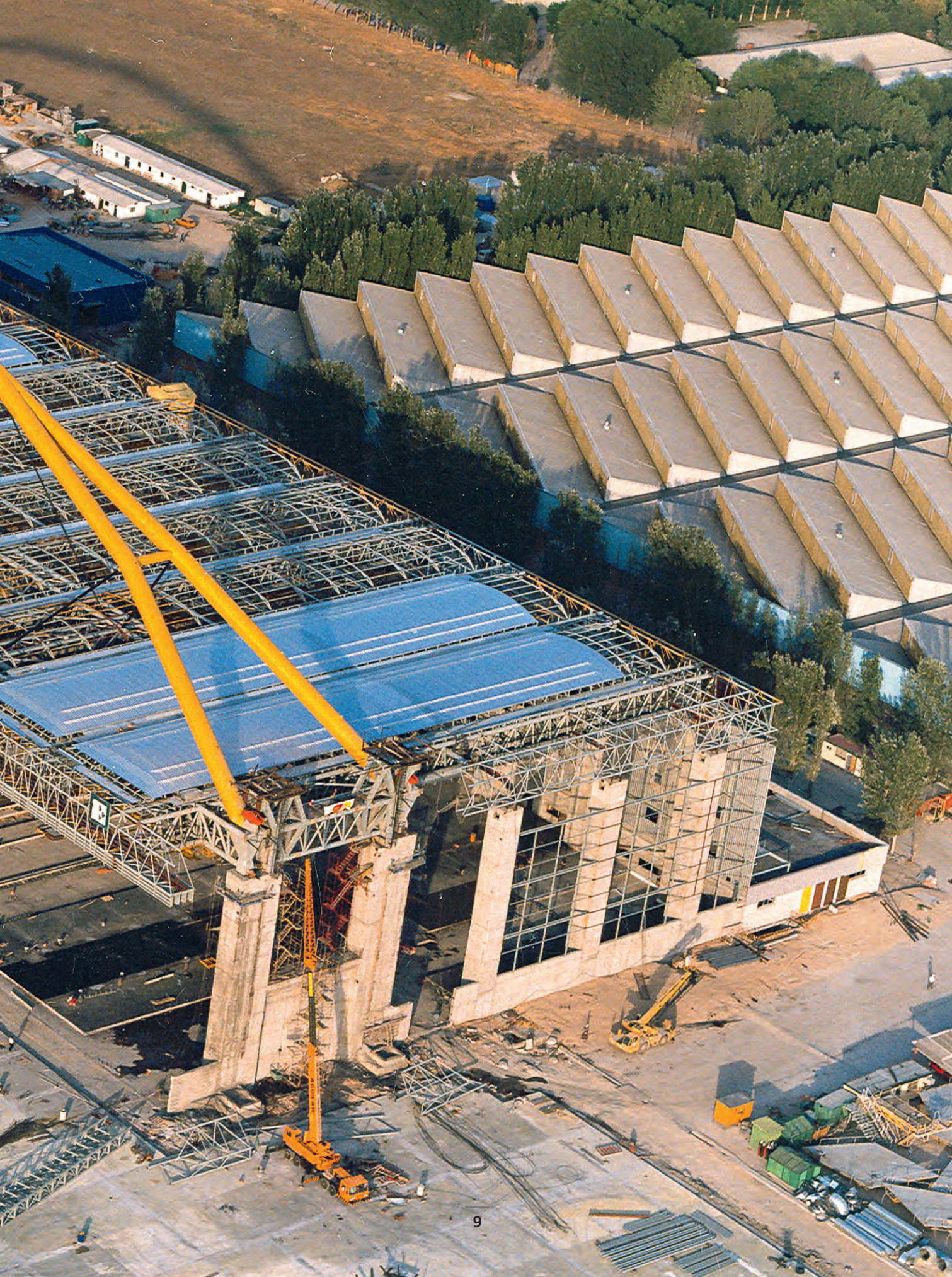
AN OPEN-PLAN GIANT

IBERIA'S HANGAR 6. THE STRUCTURE WITH THE LARGEST SURFACE AREA WITH NO INTERMEDIATE SUPPORTS IN EUROPE.

by Patricia Alcorta

It's unmistakable, with the huge yellow arch that supports the roof and is the key to all those records. Span between supports and usable surface area with no piles: 20,000 square meters. Surface area for aircraft parking: 55,089 square meters. Surface area raised in a single operation: 204 meters. The hangar set these astounding engineering records when it was handed over to Iberia by the company Entrecanales in 1991, after just over two years of construction work.

If you're passing Madrid's Adolfo Suárez Airport and you spot it, remember it's not just a giant aircraft parking lot. This is where passengers' most valuable baggage is looked after. It's their safety. It's where aircraft have their heavy maintenance visits, or D-Checks, which involve taking them apart piece by piece and checking them inch by inch. ■



DESIGN AND CONSTRUCTION OF THE E6 HIGHWAY IN NORWAY



ACCIONA Construction has been awarded the contract to design and build a 23-kilometer section of the E6 highway that will unite the towns of Ranheim and Værnes in the region of Trondheim. The section includes eight bridges and four tunnels that are between one and four kilometers long. Part of it will be built over the existing road, which will be increased from two to four lanes to ease traffic in the northern part of Trøndelag County. The project, with a budget of 410 million euros, will begin in the middle of this year and is expected to

be completed by 2024. Until then, ACCIONA Construction will also be managing traffic and building temporary detours to accommodate the flow of vehicles between the two cities. The project was awarded to ACCIONA by Nye Veier, Norway's state-owned road planning, construction, operation and maintenance company, and is the second strategic project being developed by ACCIONA in the country, as it is working to build the Follo Line tunnels, the largest railway project Norway has ever carried out.

THE WORLD'S GREENEST UTILITY COMPANY (AGAIN)

ACCIONA has done it again, for the fourth year running. Since 2015 the company has been at the top of the "New Energy Top 100 Green Utilities" ranking, compiled annually by Energy Intelligence, an independent consulting firm that specializes in energy markets. The ranking assesses 100 electric utility companies in terms of their CO₂ emissions, their installed capacity in renewable technologies and their contribution to the decarbonization of the

electric power system. The 100 companies that make up the ranking have a combined capacity of 3,370 gigawatts (GW), approximately 50% of the world's total electricity generation capacity. In the last seven years the renewable power of these companies (excluding hydropower) has nearly tripled, rising to 299 GW. Energy Intelligence has emphasized that European electric utility companies in particular have transformed their generation assets the most.

THE WIND FARM THAT WILL INCREASE ACCIONA'S RENEWABLE CAPACITY IN AUSTRALIA BY 36%

The state of Victoria has given the go-ahead for the construction of a new wind farm—Mortlake South—which will boast 35 Nordex turbines (4.5 MW each) and a combined capacity of 157.5 MW. These turbines will generate electricity equivalent to the consumption of almost 80,000 homes. The project will increase ACCIONA's renewable energy capacity in Australia by 36%, bringing it to a total of 592 MW. The wind farm will be under the company's ownership, after it

submitted a winning bid at the renewable energy auction held by the Victorian government in September 2018. It will be operational by mid-2020 and will require an investment of 177 million euros. The wind farm will prevent the emission of the 532,000 tons of CO₂ per year that would otherwise have been released by coal-fired power plants to generate the same amount of electricity. In addition, it will have an energy storage facility to enhance its performance and facilitate its integration into the power grid.



ACCIONA SELLS ITS STAKE IN TESTA RESIDENCIAL

ACCIONA has reached an agreement to sell its entire stake in the real estate company Testa Residencial (20%) to Blackstone. The transaction is valued at €379 million, amounting to a per-share value of €14.3267.



PROPERTY DEVELOPMENT IN DOWNTOWN LISBON

ACCIONA Real Estate has signed an agreement with the Portuguese company Clever Red—a leader in the sector—to build 100 homes in the central Lisbon district of Graça, which will be offered mainly to local buyers. The project, involving an estimated investment of €40 million, includes the construction of a public lookout point with stunning views of the city, and it will help increase the value of the entire area, which is one of the fastest growing in the Portuguese capital.



IMPROVED WATER SUPPLY IN ASUNCIÓN

ACCIONA Agua has implemented a new telecontrol system for the water supply network in Paraguay's capital. The system was designed to be scalable, and can be extended to cover the entire metropolitan area (Greater Asunción). It represents a major upgrade to the management of the city's water supply network, thanks to the use of new automation technologies, remote control and traceability and performance software.

ANTI-BRIBERY COMMITMENT

ACCIONA GROUP OBTAINS AENOR
CERTIFICATES FOR ANTI-BRIBERY
MANAGEMENT SYSTEMS AND
CRIMINAL LAW COMPLIANCE.

by
Denisse Cepeda

Crimes are not committed solely by individuals, they are also committed by companies and organizations. This is set out in Spanish law in the 2010 amendment to the Criminal Code for the purpose of combating crimes including corruption, prompting companies to develop prevention mechanisms that mitigate the risk of crime.

“The OECD has said that corruption, when it takes place inside a company and sometimes to that company’s benefit, cannot be fought only by means of individual liability, and that countries must take steps to ensure that companies take on a fundamental role in that fight. This is why Spain introduced this kind of criminal liability, just as other countries are doing,” explains Vicente Santamaría de Paredes, General Manager of ACCIONA’s Compliance Department.

Compliance Departments promote good practice, transparency and integrated management throughout the business chain, including partners, suppliers, representatives, intermediaries



and distributors. This is a vital measure in order to safeguard the reputation of multinationals, especially in regions with high corruption rates. In July ACCIONA obtained certifications from AENOR in anti-bribery management systems (ISO 37001) and criminal law compliance (UNE 19601), which impose stringent prevention and detection requirements using a management system that fosters the continuous improvement of good practices. “These certifications send out a message of commitment, raising our game in the fight against any possible bad practice, creating a culture of compliance at all levels and highlighting the importance of working according to ethical principles,” states Gonzalo Piédrola, AENOR’s Director for the Central Region and Europe.

COMPETITIVE EDGE

For Santamaría de Paredes, obtaining both certifications gives ACCIONA a competitive edge over other companies and reinforces the ACCIONA Group’s commitment to the honest management of all its businesses. “As they are awarded by a specialist third-party organization following a lengthy review and audit process, they instill confidence in the people who do business with us: public administrations, clients, suppliers, shareholders and investors.” “The regulations require senior management to ensure that processes and controls are in place to prevent and mitigate criminal risk, to assess risks and to promote procedures for reporting suspicions of irregular activities.”

Both sets of regulations require a management system to be established with financial and non-financial controls. For example, ensuring that the same person cannot make and approve a payment and that two signatures are needed for this sort of transaction, restricting the use of cash, implementing a process for prequalification and competitive tender for contractors, suppliers and consultants, and having a strict policy on gifts and hospitality so that they cannot be confused with attempts to win favor, as well as other measures. ■

THE ROLE OF THE BOARD OF ADMINISTRATION

The first strategic step for achieving the certifications: in April 2018 the Board of Administration approved the anti-bribery and criminal risk prevention policy, although this commitment was already enshrined in the company’s Code of Conduct and rules for anti-corruption action. “Its purpose is to reiterate to everyone, senior management, employees and third parties, an emphatic message of opposition to any form of criminal and unlawful behavior and corruption in any of our activities,” says Vicente Santamaría de Paredes. “This leadership by ACCIONA’s Board of Administration and top executives has been a key factor and also a fundamental requirement for obtaining the certifications in question.”

Vicente Santamaría de Paredes (left), General Manager of ACCIONA’s Compliance Department, and Gonzalo Piédrola, AENOR’s Director for the Central Region and Europe.



BALANCE

AENOR has issued **22 certifications** for the anti-bribery management system and **54** for criminal law compliance. To date, **7** out of the **35** IBEX companies, including ACCIONA, have obtained one or both of these certifications.



A-LAB: WELCOMING INNOVATION

A SPACE DESIGNED FOR COLLECTIVE INTELLIGENCE,
COLLABORATIVE WORK AND OPEN INNOVATION.

by
Dario Manrique

“Welcome to A-Lab,” says Pepper. This is not some bizarre human name, but the name of a robot working in reception that is programmed to read emotions. And it serves as a declaration of intent for this space designed by ACCIONA, which is to strengthen and share (strengthen by sharing) all its open innovation projects.

The A-Lab was the result of a joint initiative between the departments for Corporate Inno-

vation (conceptual design of the different work areas) and General Services (facilities, audio-visual, management and implementation), as well as ACCIONA Productions and Design (APD), which has its headquarters here. It created the interior design and was the first division of the company to engage in this type of collaborative work on a permanent basis. The A-Lab was inaugurated in Alcobendas in October, which coin-

cided with the first I'mnovation Week organized by ACCIONA.

The space was designed from scratch to fulfill one of the company's priorities: to support the development of its projects by incorporating the latest technology trends and new businesses, and in a laboratory that stimulates the team diversity, digitalization and co-creation with startups, entrepreneurs and partners.

The design accommodates the variety of actors involved. The different areas of innovation can share knowledge and define challenges, seek solutions both inside and outside the organization, and develop solutions and new businesses. It is a space that the Open Innovation teams can use for their initiatives with startups and intrapreneurship: to hold workshops on new trends and business opportunities, to disseminate and strengthen the technologies of the Skill Centers at the Advanced & Digital Innovation Hub, and to welcome any contribution to innovation at ACCIONA in general.

INSPIRING DESIGN

The layout of the A-Lab echoes its collaborative work method. It links together a sequence of functional areas, hence their names: Welcome, Collaborate, Develop, Share and Present. They consist of meeting and work rooms equipped with co-working technology, a mixed reality area where virtual and augmented reality applications are tested, an agora with bleachers and a giant screen for presentations, alongside spaces to relax or to use for more informal meetings where you can have a coffee or a piece of fruit.

The interior design complements this layout, and its goal is also to create an environment conducive to teamwork. It is comprised primarily of open spaces that are connected by transparent panels and that open onto a large outdoor terrace through big picture windows.

As a number of academic studies show, natural light and outdoor views stimulate concentration and performance, an effect that is accentuated by light color tones combined with wood and synthetic materials that contain no volatile compounds. It is a workspace free of hierarchy: the representative of a multinational occupies an equally important place as that of a small startup with two or three employees. ■

EUROPEAN RECOGNITION

In November, the Startup Europe Partnership (SEP) platform, sponsored by the European Commission, presented ACCIONA with the "Open Innovation Innovative Approach Award" in recognition of its I'MNOVATION #Startups program. In addition, SEP also commended ACCIONA for being one of the 24 most innovative companies in Europe.



DESIGNING SOLUTIONS FOR...

Innovation at ACCIONA

It is at the heart of all the company's business units, composed of different teams and three Technology Centers in Spain (Renewable Energy, Construction and Water), and it is firmly backed by Corporate Innovation.

Open Innovation


Corporate Innovation is generating open innovation through its I'mnovation platform. I'MNOVATION #Startups boosts the company's innovative capacity through collaboration with startups and partners. I'MNOVATION #Challenges aims to inspire ACCIONA employees and to help develop their ideas around viable proposals to tackle business challenges.

Advanced & Digital Innovation Hub

The A&DIH develops projects using digital and advanced technologies for their implementation in company operations. Its Skill Centers work with different business units and third parties (startups, universities, suppliers, technology centers, etc.) in the areas of large-scale 3D printing, robotics and artificial intelligence, data science, connected things, mixed reality and blockchain.

Technology and Competitiveness Observatory

It monitors global and business trends, and analyzes technologies, competitors, markets and potential new businesses to promote the development of innovation projects.

A full-page portrait of José Díaz-Caneja, a middle-aged man with grey hair, wearing a dark blue suit, white shirt, and patterned tie. He is standing with his arms crossed, leaning against a wooden cabinet. To his left is a modern lamp with a pleated shade on a wooden surface. The background is a wall with a light-colored perforated pattern.

José Díaz-Caneja
is a Civil Engineer
and has been
General Director
of ACCIONA Agua
since 2014.

JOSÉ DÍAZ-CANEJA,
GENERAL DIRECTOR
OF ACCIONA AGUA

“
THE WATER
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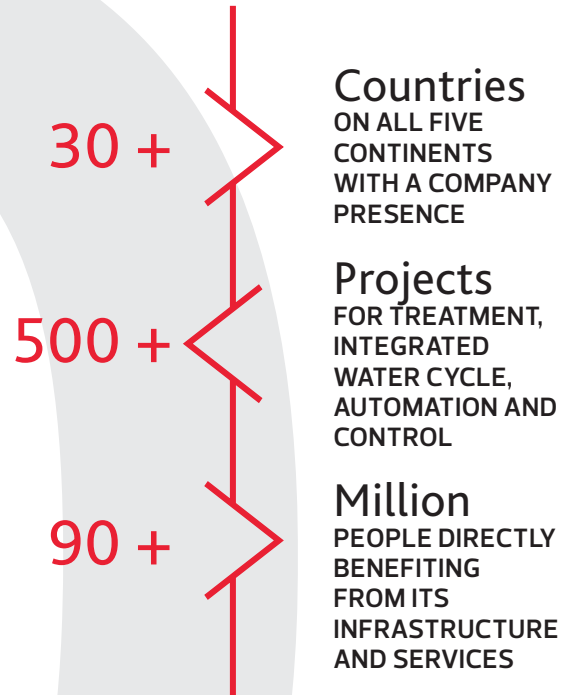
by **Juan Pablo Zurdo** photos **Jacobo Medrano**

IN A PLANET THAT
COULD WELL BE
CALLED WATER,
ACCESS TO A
GOOD QUALITY
UNIVERSAL
SUPPLY IS A
CHALLENGE FOR
CIVILIZATION.

If progress is made towards this Sustainable Development Goal, it will be due to greater awareness but also to the capacity for integrated management. This is an area in which ACCIONA Agua sets the standard, as demonstrated by the international Best Water Company and Best Desalinating Company awards it has won. José Díaz-Caneja, General Director since 2014, forecasts promising developments in the future. A leap in the scale of new projects will drive technological innovation and infrastructure versatility and increase the number of regions and people that will benefit. Born in Gijón, father of two children and skiing enthusiast, Díaz-Caneja puts the spotlight on the human factor: personal commitment, team spirit, synergy within the Group and talent combined with common sense for smart growth.

Global warming, population growth and concentration... There is social concern over access to water.

The world is extremely big, extremely diverse, like the need for water in each region. It isn't just about availability. The great challenge is the pressure on water usage and supply. We need infrastructure and processes, some of them very complex, which are increasingly efficient, affordable and sustainable to obtain water, treat it, distribute it, collect it after use, purify it and send it back out into the environment in the best possible condition. But we're sure that in this sector we have a very broad scope for optimization and a great future ahead.



Is greater social awareness helpful in that process?

That awareness is becoming more widespread in the private sector, in institutions and in society as a whole. Water has often not been given the vital importance it deserves. We don't understand its value until it becomes scarce or poor quality, as in the case of the Mar Menor (Spain). Now we're asking ourselves what happened there and trying to reverse the environmental damage. But greater awareness is not enough. We must also understand that technology can't work miracles and management and infrastructure projects must be well-balanced, with a sensible relationship between need and cost.

Does the company's multinational scale give you an understanding of local as well as global needs?

Our work in such a wide range of areas across the entire planet is a key factor. In many regions of Africa, the top priority is supply. In Latin America it's treatment and purification. In the Middle East the resource just doesn't exist, it has to be generated in the most practical way for that environment, by desalinating sea water. We're also in the USA,



“

Management and infrastructure projects must be well-balanced, with a sensible relationship between need and cost

”

MORE PERSONAL

A historic

figure you admire...

Thomas Alba Edison.

A fictional one...

Sherlock Holmes.

One example you'd like to set for your children...

Three examples actually. Friendship, honesty and hard work.

A personal motto...

Treat others as I would like to be treated.

A motto in your business life...

Listen to others. Collaborate.

A hobby that's also a passion...

Skiing and mountaineering. I not only like them as sports but also as moments for taking time out with family and friends in very special surroundings. I enjoy that a lot.



VARYING NEEDS, SPECIFIC SOLUTIONS

José Díaz-Caneja (Civil Engineer, MBA) has acquired extensive international experience in various areas within the sector: sales, public-private financing and business development. He cites the following projects to illustrate the wide variety of environments, needs and responses:

Water treatment plants

Putatan, The Philippines.

"Highly sophisticated, with cutting-edge membrane technology and built in a densely populated urban area of Manila. The client had no other option in terms of location, because the water could only be taken from a nearby lake."

Oum Azza, Morocco.

"Important for its size and social benefits, because it safeguards

the supply for two major cities: Casablanca and Rabat."

St. John, Canada.

"A country that has no problems with water availability, here the key issue was to design and build infrastructure to guarantee quality and supply."

Atotonilco, Mexico.

"A question of scale. The world's biggest water treatment plant, able to treat a daily

volume of waste water equivalent to that of 12.6 million inhabitants in Mexico City."

Desalinating plants

Tampa, United States.

"An example of infrastructure planned to tackle two cross effects: population growth in Tampa Bay and lower rainfall."

London, United Kingdom.

"Groundbreaking, showing how water

desalination is not just necessary in desert regions, it can also be vital for major urban concentrations in countries where water is not scarce."

Jebel Ali in United Arab Emirates and Al Khobar, Saudi Arabia.

"Two massive projects awarded recently. They embody the leap in the scale of investment that will serve as a driver for technology and scope of application all over the world."



Team spirit is
fundamental for tackling
projects that may seem
overwhelming in
their scale
and complexity



Canada and Australia, each of which have their own specific needs. In all these countries we have cutting-edge projects serving as pilot schemes to get a head start on that optimization.

And Spain?

Spain has been our main laboratory for international expansion. Its water map has a little of everything: wetlands, very dry areas, urban and industrial areas and areas with intensive farming, such as in the Levante. Plus, we're the world's second biggest country in terms of tourist numbers and the economic impact of tourism, so water availability and conservation are crucial. This diversity explains the variety of technologies and processes in which Spain is far ahead of other developed countries. Our many years of domestic experience have driven ACCIONA's technical ability to capitalize on projects in any location.

And what role does the motivation of staff play?

Water is a critical social need, a publicly controlled asset, and guaranteeing its good management goes beyond the technical and the economic. I'm thankful for the personal involvement of our people in every part of the company. Good internal rapport and team spirit are fundamental when you're tackling projects that seem overwhelming in their scale and complexity. To a great extent it explains, I won't say our success because that word can sound pretentious, but certainly our international credibility.

How does the company become technologically stronger?

More than the emergence of disruptive technology, what will drive our development will be the scale of our projects, which will lead to lower equipment and operating costs and enable optimization of profitability and the reliability of processes like desalination by reverse osmosis, which we pioneered and now lead. I think this will contribute the most towards optimizing water management, as it provides a practically inexhaustible supply. This leap forward in investment in the sector is a virtuous circle that drives progress. The same sort of thing will happen in purification. ACCIONA Agua has been working for years to innovate and develop membranes, floating beds, bacterial treatments, sequential processes that reduce energy consumption, etc. Its scope of application will grow significantly.

What contracts of that kind would you sign right now?

I'd say two. One would be the Saudi Arabia licenses plan, which will lead to a paradigm shift in desalination because the reduction in prices and tariffs will mean it can be applied to many more uses. The second would be a major international integrated water cycle management project, because these are long-term operations that we know how to do, that we like and that give the company stability in a highly competitive environment.

What's your vision for the company in that future scenario?

We'll continue to grow, but the means and the capacities are what they are, and it has to be done sustainably. If expansion is too fast, in the end you have to pull back because your resources are overstretched. There are many business opportunities and of course our aim is to cover an increasingly large area, but in an orderly way with more income from recurring long-term operations. We always have to be a little ahead of cutting-edge technology, like we have been up to now. It's important that our people are very aware of this ability to think ahead. What we've achieved is great, but we can't relax, we're facing major challenges in a complex market. ■



acciona

Motosharing

Motosharing

acciona
Mobility

Motosharing

acciona
Mobility

ACCIONA MOTOSHARING

1,200 SCOOTERS ZERO CARBON

THEIR CARBON FOOTPRINT IS NEGLIGIBLE. BUT THEIR SOCIAL IMPACT IS IMMEASURABLE. THESE ELECTRIC VEHICLES PROTECT THE PLANET DIRECTLY FROM MADRID THROUGH ONE OF THE LARGEST EVER EUROPEAN PROJECTS FOR CLEAN AND SHARED URBAN MOBILITY.

by
**Ángel Luis
Sucasas**



T WAS SIMPLE AND TINY: JUST A PLANK OF WOOD AND FOUR WHEELS WITH A SMALL DC MOTOR ON TOP.

It is 1828 and a Hungarian scientist and priest, Ányos István Jedlik, has probably devised the first successful attempt at an electric vehicle. Not much bigger than a child's toy, yet it moves.

Fast forward to today. Madrid, nearing the end of 2018. Those timid yet revolutionary beginnings have yielded a new fruit: a fleet of 1,200 electric motor-cycles displaying the logo of ACCIONA Mobility (ACCIONA Service's new brand), which have been distributed throughout the city.

They are used by citizens who are mindful of their ecological footprint; who understand that public property is just as important as private property; who cannot understand why they always have to use a 1.5-ton vehicle to transport their mere 70 kilos; who hate driving around in circles begging for a parking spot and prefer not to think about the 70-hour average that every citizen of a big city spends stuck in traffic jams per year; and who, therefore, have evolved towards an eco-practical mentality based on traveling easily and economically in shared vehicles like ACCIONA's scooters. Where one person gets off, another gets on, and each journey causes zero harm to the environment.

"It's no coincidence that we've come to this point. It's in our DNA to engineer sustainable solutions

for mobility. And it's one of the biggest challenges we face all over the world: how to minimize the ecological impact of interurban travel," explains Ramón Piñeiro Rey, Director of New Business Operations and Head of Digital Transformation at ACCIONA Service.

AN ELECTRIC FUTURE

According to a report by the Spanish Ministry of the Environment, Analysis of the Ecological Footprint in Spain, the environmental impact of Spanish citizens is 2.5 times greater than the maximum amount permitted. The global figure is also alarming: we consume the resources equivalent to 1.7 Earths. We need almost two planets to sustain this level of consumption.

It is estimated that 40% of the emissions generated in urban areas are caused by transport, and last year more than 50% of our huge urban populations were exposed to pollution levels that were at least 2.5 times over healthy limits.

This is not just a problem associated with comfort or economy. According to the World Health Organization, air pollution already causes seven million deaths annually. And the number one reason for this is the environment.

More and more cities in Europe and the rest of the world are passing legislation to limit the use of private internal combustion vehicles, at least in central city districts.



Scooters can carry one additional passenger and the top case contains two helmets, as well as hairnets and wet wipes to clean the seat and handlebars. They have a center stand as well as a kickstand, two USB ports to charge devices, and a simple button to start, stop, and switch between low and high gears.

ABC OF THE SERVICE

Users

Drivers who have held a B driver's license for three years, or those who are over 18 with an A, A1 or A2 license.

Two driving modes

Standard (S): Urban trips. Maximum speed is restricted to 50 km/h. €0.25/min.

Custom (C): Express roads like the M-30 beltway. Maximum speed is restricted to 80 km/h. €0.27/min.

Pause mode

Drivers can pause their trip and keep the motorcycle reserved for up to 6 hours (€/0.05min).

Designated areas

Inside Madrid's M-30 beltway and outlying areas, such as Alcobendas, Las Tablas, Hortaleza and Ciudad Lineal.

At the end of each trip, the motorcycles must be left inside a designated area.

Availability

20 hours per day, from 6:00 AM to 2:00 AM.

Assistance

Through the ACCIONA Motosharing app and the 24-hour customer service center, which can be reached toll free at 900 866 002.

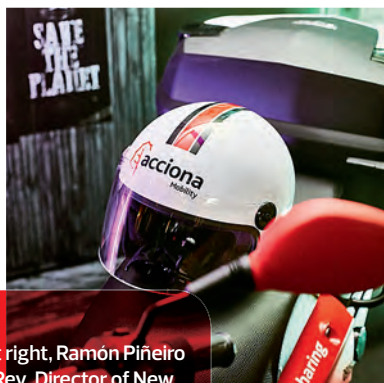
Passengers

Each scooter has space for two, and there are two helmets in the top case.

Payment

Automated payment by credit card when drivers register through the app. Drivers are charged for each second of use.





At right, Ramón Piñeiro Rey, Director of New Business Operations and Head of Digital Transformation at ACCIONA Service. Below, a Motosharing user.



BIG DATA MANAGEMENT PLATFORMS FACILITATE NEW BUSINESS MODELS AND THE INCORPORATION OF FUTURE URBAN AND INTERURBAN TRANSPORT SOLUTIONS

Electric vehicles and shared mobility play a crucial role in overcoming this. The European university group MOBI (one of the most reputable for its research in electric mobility) agree, stating that the life cycle of a diesel vehicle causes, on average, 230% higher emissions than those of an equivalent electric vehicle—even when considering the ecological footprint of battery production.

A SHARED CITY

Why Madrid when there are so many other possible cities? “We wanted a leading project in a big city and it was the ideal option. In the last two years, Madrid has become a major hub for shared mobility,” says Piñeiro. Car services, motorcycles, bicycles and foot scooters are already part of the capital’s urban landscape, and last October alone more than 800,000 trips in the city were made using these vehicles, most of them electric.

ACCIONA Mobility's Motosharing service is prepared to be extended to other areas of Madrid and, based on demand, to other cities in Spain.

Motosharing not only alleviates the massive traffic congestion and pollution problem in big cities, but it also promotes a new technological business model for the public and private sectors, as well as an alliance between the two. In fact, the McKinsey consulting firm forecasts 20% annual growth in the mobility sector between now and 2030.

According to Ramón Piñeiro, the philosophy behind the project is not only about sharing motorcycles but also about the very notion of mobility, so the cooperation of all stakeholders is vital: daily choices made by citizens, attractive alternatives offered by companies, and proper regulation of this new model by the government.

The underlying objective is to stimulate demand to decarbonize and redesign healthy habitats in areas where populations are continuously increasing—for example, on the back of a scooter.



MOBILITY VIA MOBILE PHONES

The best way to use the service is through the app, which is available for both iOS and Android. After downloading it, you will be asked to register. Once your registration is approved by the Customer Service Team, you can find a motorcycle on the app and start your journey. The application lets you reserve motorcycles, check rates and vouchers, validate promotional codes, see your trips and contact the customer service center. To register, you must have an ID photo and a photo of your driver's license to verify that you are able to drive the motorcycle, as well as a credit or debit card.



Presentation of ACCIONA Motosharing at the Hard Rock Cafe, Madrid, and the fleet of scooters at Plaza de Colón.



EN ROUTE ASSISTANCE, PIT STOPS

ACCIONA has a specialized team to ensure that the 1,200 scooters are always in optimum working conditions. This team moves around in zero-emission electric vehicles.

DISTRIBUTORS

They work during the night to unload new scooters and relocate others to areas in the city with higher demand.

SWAPERS

They change the batteries and repair the scooters. They also work night shifts to take advantage of the hours when the service is suspended. The batteries have an autonomy of over 100 km.

JOCKEYS

They travel around the city to resolve issues that arise during service hours.



TECHNOLOGY TEAM

ACCIONA Partnerships / STARTUPS

The company has worked closely with several Spanish startups to develop a variety of technological solutions. In fact, one of them—Scutum—manufactured the 1,200 Silence model scooters in Barcelona. They were also involved in

managing the digital platform that users can access primarily through a mobile application. And they have provided their experience in managing transportation data to configure future services and promotions for trips made by users.



PRIVATE OR SHARED VEHICLES

PRIVATE

They are parked

80%
of the time.

Their average occupancy is

**1.2
PASSENGERS**

per vehicle.
Driving them

35 km.

a day would require planting

3,640 TREES

in one year to offset their
CO₂ emissions.

SHARED

Each shared vehicle is equivalent to
eliminating between

**10 AND 15
PRIVATE**

vehicles from circulation. In other words,

ACCIONA Motosharing
is eliminating around

15,000

private vehicles from the streets
of Madrid.

Compared to private vehicles, they
reduce the number of trips up to seven
times, thus relieving traffic congestion.

Every **10,000 km.**
traveled on a scooter means

**ONE LESS
TON OF CO₂**

emitted into the atmosphere.

Sources: Ministry of the Environment,
Directorate-General of Traffic (DGT).

ISABEL REIJA

President of AEDIVE, the Business Association for
the Development and Promotion of Electric Vehicles.

**“Electric vehicles are
the cornerstone of our
sustainable energy strategy”**



Are electric vehicles and sharing one and the same?

Shared transport is an excellent
way to eliminate traffic congestion
and pollution, and together with
electric vehicles we have the ideal
tool to effectively respond to this.
Also, shared transport promotes
greater awareness of electric
mobility and, for example, it has
resulted in more than 300,000
regular users of electric vehicles
in Madrid.

Is it here to stay?

Without a doubt. Electric vehicles
are a means of sustainable mo-
bility and energy efficiency, and
they promote renewable energy
systems, distributed generation,
energy storage and self-con-
sumption. They are a cornerstone
of our country's sustainable
energy strategy, as well as a log-
ical response to the evolution of
intelligent mobility and technolog-
ical development.

In addition, decarbonizing the
economy through the electrifica-
tion of transport will generate new
jobs in key sectors such as servic-
es, energy, and vehicle manufac-
turing and supply chains. In coming
years, the automation of vehicle
assembly will also increase and
depend less on the type of vehicle.
The challenge is not in relocating
companies, but in attracting tech-
nology innovation poles to Spain.

Is it being introduced as quickly as it should?

No, for a number of reasons. We
still do not have a wide enough
range of models, and they are
not yet cost competitive. Greater
coordination is needed between
public administrations and the
industry, as well as a system
of green taxation. But we are
moving forward and we must
keep our target clearly set on
2050, when transport must be
100% decarbonized. This means
working together during the
next 32 years to accomplish this
inevitable task as efficiently as
possible, and with the indispen-
sable contribution of alternative
energy and increasingly efficient
propulsion systems.

What can be done to speed up the transition?

For starters, a genuine state
project. Developing ambitious,
coherent and continuous aid plans
together with a tax system that
offers price incentives to the end
user. In addition, playing a more
committed role in electric mobility,
which includes stronger financial
support for industrial transforma-
tion, training and R&D&I.
Governments must take on a
more active role, and the different
administrations must be aligned
in order to ensure transport
decarbonization, because elec-
tric mobility permeates many
sectors and departments to a
greater or lesser extent, such as
those for Energy, Industry, De-
velopment, the Interior, Finance,
Health and the Environment. And
we must be more active in cre-
ating opportunities, as well as a
network of fast charging stations
for traveling, thereby eliminat-
ing the anxiety associated with
electric vehicles.

THE FIRST
ARTIFICIAL
(MACHINES)
INTELLIGENCE
OF ITS CLASS

DESIGN BETTER,
PERFORM BETTER,
CONSULT BETTER,
PLAN BETTER.
THIS IS HOW
ACCIONA USES
ARTIFICIAL
INTELLIGENCE TO
UNLEASH HUMAN
CREATIVITY.

by
**Ángel Luis
Sucasas**

WHEN SCIENCE FICTION CONCEIVED OUR ENCOUNTER WITH INTELLIGENT MACHINES, IT ONLY ENVISIONED PAIN AND CONFLICT.

Just think of *Frankenstein*; or *The Modern Prometheus*, or movie stills of the *Terminator* showing its metal skeleton rising out of the flames. It is still happening in comics, video games and TV series like *Westworld*. It seems that fiction finds it irresistible to prophesize the apocalypse.

But artificial intelligence (AI), aside from being light years away from androids who dream of electric sheep, is moving in another direction. *Software.org*, an awareness-raising organization whose members include leading technology professionals, has drawn up an impressive overview how today's AI (machine learning) is going to change the world—and for the better:

In medicine, through the accelerated discovery of drugs and predictions of sudden and lethal conditions like heart attacks; in agriculture, multiplied productivity and smart tractors; in education, personalized learning plans for students and teachers; in energy, smart thermostats and energy-saving models that measure demand in real time and with

Above, Diana Martín Romero, Manager of the Blockchain and New Technologies Skill Center, and Daniel Táboas Rodríguez, Manager of the Data Science Skill Center.



the utmost precision. Each section of the website ends with the phrase: “And so much more...” If you click on it, you can find numerous other benefits of machine learning.

ACCIONA aims to cover all aspects of this new automated and predictive AI. “It’s a technological revolution that allows us to leverage all our business models,” says José Daniel García Espinel, Director of the company’s Advanced & Digital Innovation Hub. “We’ve incorporated a number of Skill Centers that work on cutting-edge technologies. But AI is the most cross-cutting of all, as it provides a multitude of uses for every area of business.”

Design better, perform better, consult better, plan better. Any critical work task can be transformed by this new model. By no means does it entail the threat of a Skynet—the evil AI of the *Terminator* saga—but rather a precise, powerful and beneficial computer program for human beings.

The following projects feature the latest trends in machine learning. ■

DATA SCIENCE: PREVENTATIVE MACHINE HEALTH



Tunnel boring machines are essential and highly complex machines. If they break down, it can bring the majority or entirety of an underground job to a grinding halt.

AI can be used in these projects as a kind of mastermind. Programmed entirely with Python (an open source programming language), it continuously processes information provided by 3,000 variables to anticipate when a breakdown may occur.

Daniel Táboas Rodríguez, Manager of the Data Science Skill Center, designed the model that steers this mastermind away from error. “We know when an engine is going to fail with even more accuracy than the manufacturer’s own alerts. The project required an enormous effort, but it was worth it because the economic impact has been far greater.”

The key lies in these 3,000 variables—each one a mystery. “There are manuals, but it’s very difficult to know the interaction between them and how they will affect the overall behavior of the machine. So the first phase, and most complex, involved data mining: analyzing the data so they could lead us in the right direction,” explains Táboas.

We first analyzed the critical stops, the ones that obstructed construction for days. Bingo: “We identified how to foresee a motor shutdown based on various indicators, especially with regard to electricity consumption. The graph showed the anomalies that pointed to the malfunction.” Moreover, the alerts can begin up to 15 days in advance, allowing you to plan and intervene in time to avoid a breakdown.

As soon as it is put into practice, the economic savings and efficiency of drilling mega-tunnels will be unprecedented. This same data-mining approach can be installed in other types of vehicles and machinery.

ANY QUESTIONS? THIS BOT HAS THE ANSWER

Its name is PROCUR-in. Its mission is to assist buyers and technical units during the process of configuring, evaluating and analyzing bids, as well as in supplier certification. It is a machine in every sense of the word and it works 24 hours a day, 365 days a year—yet it never gets tired or complains.

It is a bilingual bot designed to guide and support internal users of PROCUR-e (ACCIONA’s procurement platform), and to answer questions they may have along the way. It improves speed, reduces user response times, and enhances the power and scope of the Support Center, which is responsible for assisting users in more than 12 countries around the world without time or language barriers. Its current success rate is around 60%, with a rating of 3.2 out of 4.

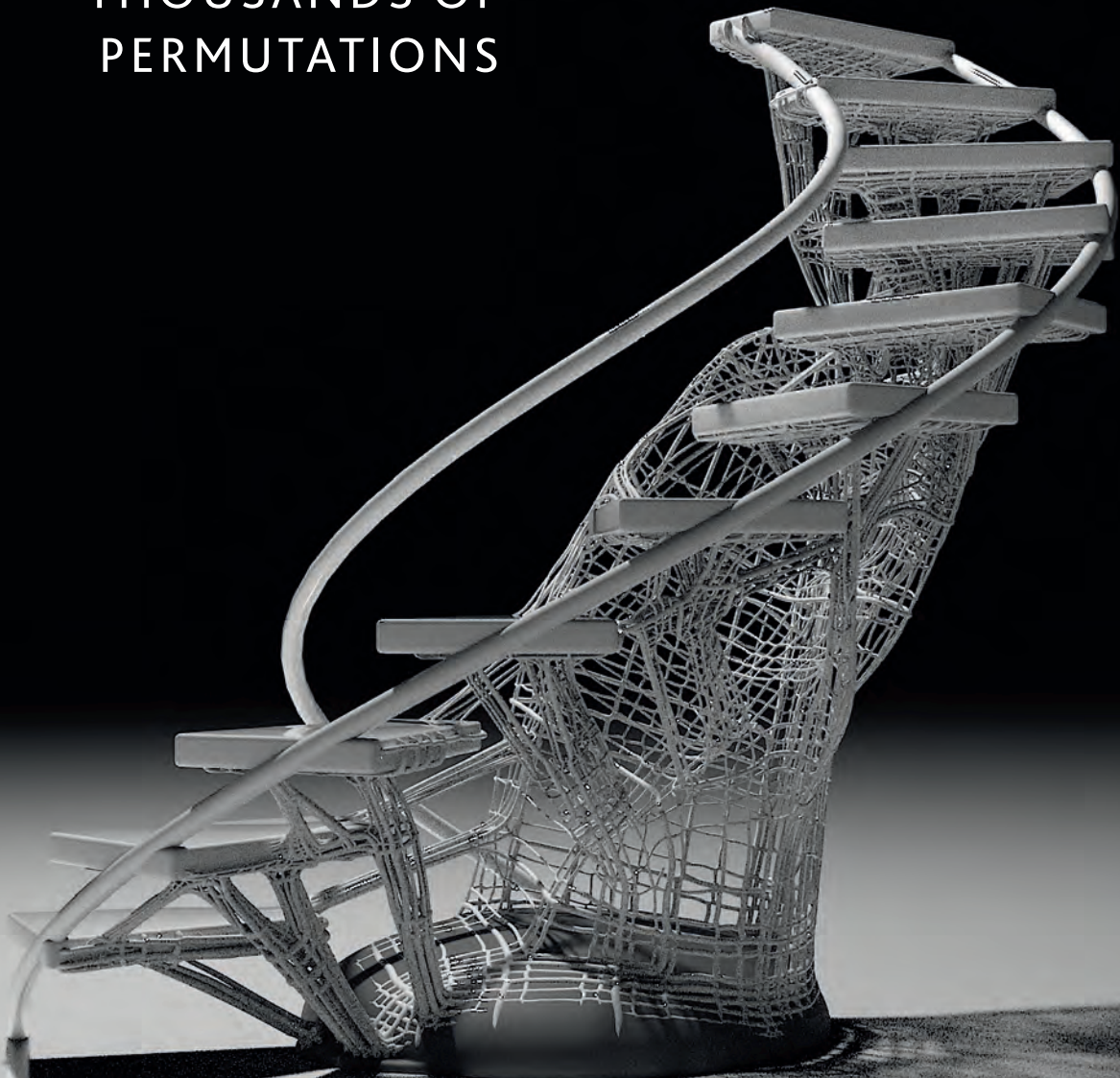


USING A.I.
FOR SUPPLIER
CONTRACTS
MULTIPLIES
EFFICIENCY
AND REDUCES
ECONOMIC AND
LEGAL RISKS

HOW IT WORKS



GENERATIVE
DESIGN
REPLICATES
NATURE'S
EVOLUTIONARY
APPROACH AND
PROCESSES
THOUSANDS OF
PERMUTATIONS



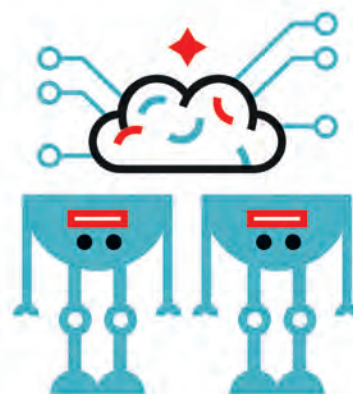
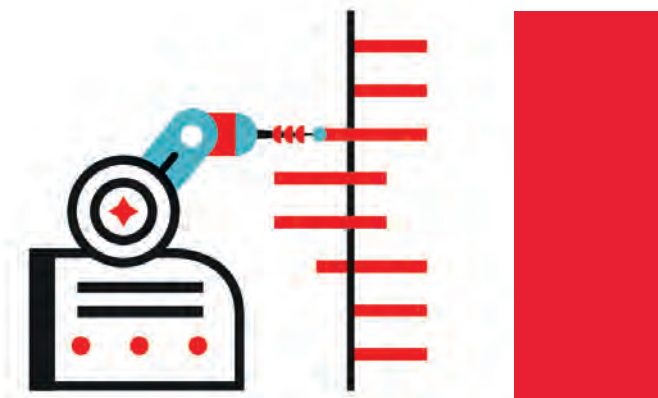
GENERATIVE DESIGN: PROVIDING ALL THE BEST OPTIONS

Two meters: this is the height that a 3D-printed spiral staircase must reach thanks to the collaboration between ACCIONA and Autodesk. The perpetual question troubling all engineers and designers: What is the best option among all the possible solutions?

To answer this, José Daniel García Espinel (Director of the Advanced & Digital Innovation Hub) explains that their hands used to be tied. “Whenever we undertake a project, we have to consider different alternatives to carry it out. And these alternatives are very expensive, requiring a huge amount of work and effort from our engineers, architects and designers.” But with generative design (a system that replicates nature’s evolutionary approach and processes thousands of permutations), those few possible alternatives within your cost constraints become almost limitless based on your defined goals.

For the spiral staircase (image on previous page), the first in the world that was created using generative design and printed in 3D with concrete, there were around 2,000 calculated options. “The challenge: finding the one that required the fewest possible materials. In other words, the most sustainable,” says García Espinel. The result was a biomimetic branching structure that mimics the shapes in nature—which are the most efficient.

Using this model, a specialist perfected the design of the staircase by adding decorative features. “This is a clear case of how human beings provide value while machines perform the repetitive work.” It was made out of concrete using ACCIONA’s exclusive 3D printing technology.



ROBOTIC PROCESS AUTOMATION: BE FREE TO CREATE

People working with computers are faced with tedious repetitive tasks. RPA (robotic process automation) liberates and empowers them.

RPA works virtually as if it were human. “It can read from the screen, interact with any type of database and use any computer program,” explains Diana Martín Romero, Manager of the Blockchain and New Technologies Skill Center. The advantages? “For starters, savings. It’s much more productive at these mechanical tasks than people, and it works without interruption. You can therefore regain these workers so they can perform creative and stimulating tasks that have a distinguishing value.”

Each robot can double the productivity of up to five people. They do not require adjustment when installed, or any type of adaptation period or training. The computer equipment they are installed in does not have to be modified. And you can add as many as you like to scale up your work output.

ACCIONA Service already has three operating robots. They keep an eye on each other to make sure that none of them malfunctions and stops working. Among other tasks, they report incidents, download and process all work orders that are ready for billing on a monthly basis, and make requests for orders that are below a certain price.

Throughout nine months in 2018, a single robot in human resources took on 21.4% of tasks, such as new hires, terminations, employee changes or re-admissions, as well as 3,300 registrations in training courses for new ACCIONA employees.


TAMA TE RA'A

THE FIRST RAYS OF SUN

IN THE NATIVE RAPA NUI LANGUAGE, THIS IS THE NAME OF THE SOLAR PV PLANT DONATED BY ACCIONA. IT IS A MILESTONE—MUCH LIKE A MODERN-DAY MOAI—IN THE PROJECT TO MAKE EASTER ISLAND 100% SUSTAINABLE.

by
Juan Pablo Zurdo





IF YOU WERE ASKED
TO NAME AN ISLAND
IN THE PACIFIC
POPULATED BY
POLYNESIAN TRIBES AND
FAMOUS FOR ITS LARGE
STATUES, KNOWN AS
MOAIS, YOU WOULDN'T
HESITATE TO ANSWER:
EASTER ISLAND.

Rapa Nui, its indigenous name, means 'Big Island'—although it is 3.5 times smaller than Ibiza. Lost in the ocean some 3,700 kilometers off the Chilean coast, it also could have been called 'Lone Island'. Perhaps even 'Fragile Island', as it continues to be the subject of one of the most popular academic debates about human impact on the environment: Did the island's decline result from overpopulation, overexploitation of resources or, as other studies have argued, was contact with European diseases in the 18th century to blame? In any event, human impact was a factor. It could be called the 'Island For All'. UNESCO declared the Rapa Nui National Park, which

The Rapa Nui National Park protects its flora and fauna, the seabed and the cultural heritage of the moais and stone altars, called *ahu*.

occupies 40% of the island's 163.6 square kilometers, a World Heritage Site in 1995. It highlighted these two contradictory yet complementary features: the singularity of its geography, nature and culture; and therefore, its status as a global symbol for the conservation of another lone island: the planet Earth.

These are the same reasons why ACCIONA decided to donate the first grid-connected solar PV plant ever installed on the island, which has been operating since the end of 2017. Compared to giant facilities like Puerto Libertad, Mexico (an ACCIONA solar PV plant with 314 MWp), Tama Te Ra'a seems insignificant—it only has 400 PV panels.





'IORANA' (HELLO) TO RENEWABLES

The photovoltaic plant, which began to operate between October and November 2017, **was donated to Easter Island by ACCIONA.**

The local company **SASIPA** is in charge of running the plant.

It occupies an area of **2,000 m²** next to the airport in the southeast part of the island, and consists of **400 polycrystalline silicon photovoltaic panels** for a combined power of 128 kWp.

A 100-meter line conducts the energy to the Mataverí station, which feeds it into the general grid.

It will produce an average of **200 MWh per year** and will prevent the direct emission of some 135 tons of CO₂, in addition to those produced by shipping fuel to the island.

THE PLANT WILL PREVENT THE EMISSION OF 135 TONS OF CO₂ INTO THE ATMOSPHERE EVERY YEAR



But in reality, although in a single stroke it took on the task of supplying almost 10% of the electricity consumed by the island's 5,800 inhabitants, its scale is not as important as its qualitative value.

For light, heating, cooling and to recharge a mobile phone or plug in a hair dryer, islanders had to obtain electricity from a power network fed by diesel generators. Each month, 208,000 liters of oil were consumed to generate this electricity—and quite a few more if you add those burned by tanker trucks and the ships coming and going from the mainland.

ENERGY AUTONOMY

Replacing this percentage of fossil fuels (liquefied gas is also imported for domestic consumption) with one single project shows that small and remote villages can also take advantage of a local and inexhaustible energy source, which contributes to the fight against climate change and to the sustainable development of such communities.

The plant is the first step in the transition to 100% renewable power generation. The Chilean Government is already planning another solar plant.

A solar power plant does not reduce the number of nautical miles to the coast, but it does reduce the sense of distance, replacing it with a sense of future, says Pedro Edmunds Paoa, the mayor of Hanga Roa (the capital and almost the only inhabited village). “This is just the first step. Our goal is to achieve self-sustainability over the next two decades, in one generation. The solution to our problem lies in harnessing our natural energy source: the sun.”

In fact, Chile's Minister of Energy, Susana Jiménez, announced during the inauguration of Tama Te Ra'a that construction will commence on another solar PV plant in the area Vai a Repa in 2019. “Moving the energy matrix toward sustainable sources not only contributes to reducing greenhouse gases, but it's also a way of preserving the island, its people and its culture.”

“SUN IS LIFE”

“The good thing is that we've started eliminating pollutants and using what we can reuse,” says Irene Haoa, commissioner of CODEIPA (Easter Island Development Commission). “Sun is life. I think and dream that our survival is in our own hands,” says Tarita Alarcón Rapú, the island's Governor.

Sustainability is, by definition, a long-term goal. For this reason, the project disregarded the difficulties that were previously considered insurmountable. All material and equipment had to be transported in ship containers from the mainland. And sometimes weeks passed before the sea allowed them to be unloaded, because the island does not have a dock prepared for large tonnages.

“It was a huge logistical challenge, and that's also why the plant is so meaningful. It's a symbol that renewables are particularly suitable for sites like Easter Island,” explains José Ignacio Escobar, General Manager of ACCIONA Energy for South America. “In addition, fuel savings can be reinvested in distribution infrastructure and in new equipment for a 100% sustainable and pollution-free Rapa Nui.” ■

The Quito Subway

DESTINATION STATION: EQUALITY

THE SUBWAY WILL HELP TRANSFORM QUITO AS DEEPLY AS ITS TUNNELS ARE LAID.
IT'S THE FIRST IN THE WORLD TO BE BUILT WITH A FOCUS ON GENDER AND ON
FIGHTING THE HARASSMENT OF WOMEN.

by

Editorial Department / Darío Manríquez



In a subway car, a passenger accosts a teenage girl. He starts to catcall her, he gets up close to her, he intimidates her. He doesn't seem to think he's doing anything wrong, as if it were just an innocent habit. But a female traveler calls out the harasser and uses the car intercom to alert the security services so they can intervene at the next stop. She's not alone; other passengers support her.

The scene isn't real, it's a micro-theater session organized by the Line 1 Consortium (CL1, the ACCIONA Construction organization for the Quito Subway project) in one of the replica subway cars located around the city. It isn't real, but it's realistic. It happens all the time. According to municipal figures, 91% of women in Quito have been the victims of harassment in public areas, with 82% of them saying public transport is unsafe and 39% having been touched for no apparent reason while traveling.

Why would a construction company get involved in this endeavor? It's part of the company's Social Impact Management policy, which analyses, identifies and manages the positive effects on the community stemming from the project.

SAFE CITY

The ACCIONA project is called *Building a gender-focused subway*, and it's part of the municipal program Quito, a safe city for women and girls. The program is being rolled out in three phases: *Reduce Harassment*, a project sponsored by the Unidad Municipal Patronato San José), micro-theater sessions and the Believing in Yourself vacation camp.

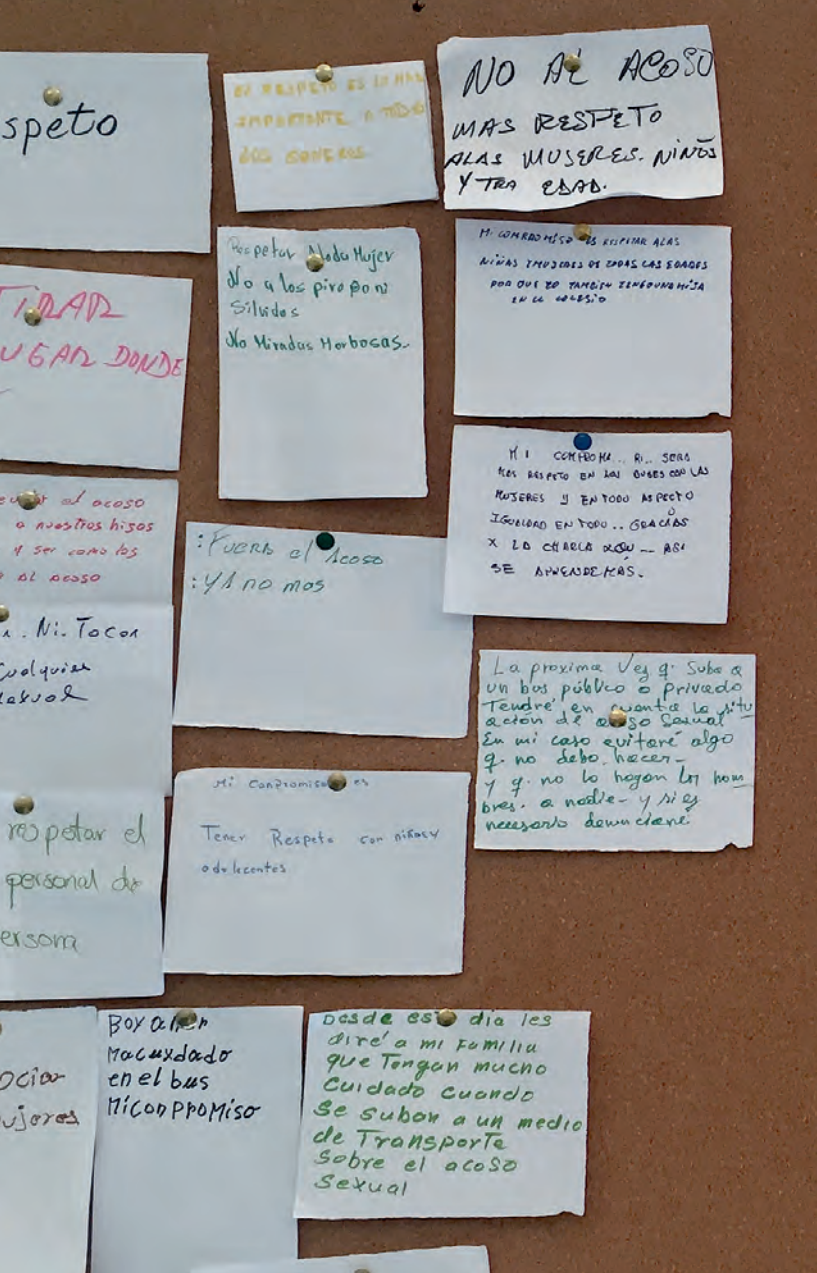
The subway brings immediate benefits in terms of sustainability, efficiency and economic development (see details). But such a major infrastructure, which transforms the urban mobility and organizational model, "is a unique opportunity to improve other social problems", explains Manuel Jiménez, Director of ACCIONA Construction in Ecuador. In fact, "including the gender focus from the first phase in the life cycle of a transport sys-



THE SUBWAY IS SEEN AS AN UNPRECEDENTED OPPORTUNITY TO HELP IMPROVE OTHER SOCIAL PROBLEMS



Previous page: micro-theater in a replica subway car. Right: employees pin up notes with their public pledge to equality.



ROUTE TO CHANGE

The Quito subway will revolutionize urban mobility in a city with 2.6 million inhabitants, in which 93% will have a station close to their home or their workplace. When it starts to operate in late 2019, the subway will be used by around 400,000 passengers every day, easing gridlocked traffic and reducing pollution, connecting the various urban areas and crossing Quito from end to end (15 stations across 22 kilometers) in 34 minutes. The socioeconomic impact on Ecuador's GDP is estimated at 856 million euros and it's expected to create 32,760¹ direct, indirect and induced jobs.

1. Source: Socioeconomic study of the project performed using ACCIONA's own method, based on the Leontief model.

tem is an innovative initiative that enhances the social commitment of this construction project," adds Esther Imedio, CSR Manager for CL1.

In the first phase, a series of talks for more than 1,500 employees are aimed at turning them into "drivers of social change in their everyday environments," explains Manuel Jiménez. Their participation hasn't been passive, as the method encourages the exchange of ideas and experiences and, after every session, staff write a personal pledge on a card that is pinned to a noticeboard for everyone to see.

"I pledge to stop being domineering and conceited, and to value other people a little bit more," writes employee Carlos Pesantes. "Pay more attention to my family, open up a channel of communication with my daughters and cultivate the value of respect and courtesy towards people," is Roberto Nieto's pledge.

"We extend the focus beyond construction work, because our employees have a lot of contact with the community. We want to set up safe, gender violence-free zones to make the areas around the construction site a reflection of what the atmosphere is like inside it", says Esther Imedio.

LEARNING THROUGH FUN

The micro-theater sessions in the next phase of the project are staged in life-size replica subway cars or in schools and other education centers, and are designed so that boys, girls and teenagers understand the message in a fun and experience-based way. At the Creer en tí vacation camp held last summer for relatives of employees, 156 boys and girls aged from 9 to 17 took part in activities with this same fun-based learning format. The purpose of the camp was to instill the values of gender equality and justice, as well as to encourage self-esteem and empathy.

In the words of Manuel Jiménez: "We believe that by educating the child population we educate future society. At the camp we work with today's stereotypes, why they have arisen and how we can change them. And in the family setting, we want to offer young people the tools to empow-

MICRO-THEATER WITH A MACRO IMPACT

Each micro-theater session lasts 15 minutes, with 15 people taking part in spaces measuring 15 square meters in unusual settings, for example a life-sized replica of a subway car.

Some of the scenes:

Someone gets into the subway car pushing the passengers. A girl tells him to let people off before getting on board. She also reminds him to give way to pregnant women, senior citizens, the disabled, mothers with small children, etc.

A couple are seated. She tries to stick her chewing

gum to the seat. He rebukes her respectfully but firmly: "Please understand that you have to look after the subway, because it belongs to everyone."

Another couple comment on how comfortable and fast it is to travel by subway. The young man next to them apologizes for interrupting and also reminds them about the tons of CO₂ it saves the atmosphere and about the other sustainable modes of transport that connect with the subway, allowing people to get around Quito with a zero carbon footprint.



"I'VE LEARNED TO RESPECT OTHER PEOPLE MORE AND THAT WOMEN CAN DO THE SAME THINGS AS MEN"

er them to not be silent victims, to defend their rights and to pursue their dreams."

The feedback on the impact of the camp is promising. In fact, 100% of those taking part see themselves as agents of change in their social environment; 50% say they now have better tools for fighting inequality because they hadn't understood the concept properly before, 66% have a better understanding of power relations thanks to the educational dynamics and 87% have an improved perception of themselves.

"I've learned to respect other people more, no matter their gender or their race, that you shouldn't discriminate and that women can do

the same things as men," said Jairo, one of the participants. According to the father of another girl, Natali, giving children this kind of experience "motivates them to keep moving forward."

"Thank you from me, and from my wife and my daughter, because it helps her to continue growing and have a better heart and mind."

ACCIONA bosses highlight the stimulus the company itself gets from improving the environment beyond business objectives. "It's exciting to contribute towards making respect the basis of coexistence so that men, women, boys, girls, teenagers, senior citizens and people of other abilities are aware that we all have a place in society." ■

EcoACCIONAte

A CLEAN BEACH AND THE COMMUNITY CLOSE AT HAND:
THE AIMS OF ACCIONA'S SOCIAL AND ENVIRONMENTAL
EVENT IN PUERTO LIBERTAD, MEXICO.

by
Patricia Alcorta



Is it possible to collect over 15,000 pounds of garbage from a beach, by hand and in little more than two hours? It can be done, if 336 people, including ACCIONA employees, their families and friends, split into 20 teams and compete to see who can pick up the most. EcoACCIONate was held in late August and is one of the company's initiatives in Puerto Libertad, where it's constructing one of

The winning team, consisting of 20 people, collected close to a tonne of beach garbage.

the biggest solar farms in Latin America, to build ties with the local community and help improve the environment. In addition to cleaning the beach, the organization invited several associations based in the surrounding area (a nursery school, dance school, special education school, civil protection authorities, local church congregation, etc.) to raise funds by selling food and drinks. ■





THE FIRST MASTER OF WINE

SHE IS THE ONLY SPANISH WOMAN TO HAVE EARNED THE MOST PRESTIGIOUS INTERNATIONAL TITLE IN THE WORLD OF WINE. THE ROOT OF HER SUCCESS WAS AN ABUNDANCE OF PASSION RATHER THAN A SURPLUS OF SPARE TIME, AS SHE WAS ALSO OVERSEEING THE TRANSFORMATION OF BODEGAS VIÑA MAYOR.

by
Juan Pablo Zurdo

It's 7:20 am. A call comes in from the UK. But it's never too early for good news. As of 7:21 am, Almudena Alberca, the Technical Director of Bodegas Viña Mayor, had added Master of Wine to her CV. The title, awarded by the Institute of Masters of Wine in London, is the top qualification on the planet recognizing knowledge and excellence in the world of wine.

She called her family and friends and then hurried off to work: She had to taste the first Sauvignon Blanc must of the 2018 harvest.

What will she do now with so much free time? "Phew! Well, get some of my life back. I owe my family and loved ones a lot of time as I've been neglecting them recently." It's no wonder. This isn't just a one-year program—for her it was six. Add to that the challenge of learning in an entirely different didactic style, using specialized English, and understanding the way the subject matter was presented and her teachers.

What's more, the entire time she was studying she never stopped working on major projects like the

THE MOST SOUGHT-AFTER (AND CUT-THROAT)

There are only
380
 Master of Wine
 spread
 across
30 countries



 **131** are
 women

The first graduating class:
1957



Not many live in wine-producing countries: **six in Spain**, six in France and four in Italy

The program can take over six years to complete, and only

10%
 of enrolled students eventually receive the title

The practical exam is a blind tasting of
12 wines
 Students must assess each wine's origin and variety, production, quality and commercial potential—while maintaining their concentration and analytical skills under pressure. It's considered **the most difficult wine tasting in the world**



repositioning and complete renewal of the wines produced by Bodegas Viña Mayor, which she joined in 2015. In just a year and a half, for example, eight new wines were released under its label and others were created—from scratch—with two designations of origin which were new to the winery.

ONLY 10%

How did she do it all? “By devoting 90% of my free time to studying, and with one essential ingredient: passion. The key was to enjoy all the hard work and each new discovery throughout the learning process. If I had only thought of it as the need to pass an exam, I would have worn myself out.” Fact: Only 10% of enrolled students receive a phone call like hers.

The title's prestige stems from the way it addresses the wine business as a whole, covering every aspect and the entire wine-making process. “From planting to marketing and consumption: you need in-depth knowledge of soil, climate and the production process, but also how, where and why wine is sold, and what encourages consumers to buy one over another.”

Although working while studying was more stressful, it also rewarded her with experience. “These two projects were mutually beneficial; there was a synergistic effect. My studies helped

me grow professionally, and my work gave me the foundations for academic progress, because I had to apply the theory in the vineyard. For example, why does the Verdejo grape, when cultivated in Rueda, yield a specific type of wine there and nowhere else?”

Her research paper, which comprised the final year of the program, consisted of a comparative analysis of filtration techniques for a Tempranillo from Ribera del Duero. Her objective was to show how the effect of filtration on a wine's structure and organoleptic characteristics can make processing in large wineries more logical. “You could say that they awarded the diploma to both of us: me and Viña Mayor.”

This dual merit will surely continue to bear fruit. The qualification is a milestone in Spain in general, let alone the fact that this is the first time it's been earned by a Spanish woman, and it's sure to increase the number of invitations she receives to tastings, panels, congresses, etc. “The winery and I represent each other. Not only now, because of the title, but since the very beginning.”

“I would like to pass on what I've learned as well. I believe in working with a sense of solidarity, and I feel committed to my country. If society invests in you, it acknowledges you, so it's only fair to give at least part of that back.” ■

Almudena Alberca is an expert on wines with a designation of origin, such as Ribera del Duero, Rueda, Toro, Valdeorras, Rías Baixas and Tierra del Vino de Zamora.

AN INSPIRATIONAL COMPANY

THE INSPIRING GIRLS FOUNDATION RECOGNIZES ACCIONA FOR HELPING GIRLS OVERCOME GENDER STEREOTYPES IN THEIR PROFESSIONAL LIVES.

por **Patricia Alcorta**



The Inspiring Girls Foundation was created at the end of 2016 with one objective: to promote the self-esteem of young girls and teenagers so that they don't limit themselves professionally and don't allow gender stereotypes to hold them back. It has one motto: Girls without limits: the power of the future, and one method: organizing meetings and talks (over 120 to date) with successful female professionals who can be a source of inspiration for the girls. Since 2017, ACCIONA has become the project's main partner. It sponsors the organization of events and some of its employees have provided motivation for the girls, especially in the STEM disciplines (science, technology, engineering and mathematics.) An example of this was in October when it participated in a gathering of 38 elementary school

students in the 5th and 6th grade at Hermanas Uriz Pi School in Sarriguren, Navarra (see picture).

For this reason, the foundation awarded ACCIONA the Inspiring Business Award at its first annual award ceremony, held in Madrid in November. Joaquín Mollinedo, General Manager of Institutional Relations, Sustainability and Brand at ACCIONA, received the award from Teresa Ribera, the Minister for Ecological Transition.

"They are unfamiliar with certain sectors like energy and renewables that have a strong technological component, so they don't see them as possible opportunities. That's why it's invaluable for them to gain first-hand knowledge of the experiences of women in leading enterprises," says Miriam González, president of the Inspiring Girls Foundation. ■



Joaquín Mollinedo (General Manager of Institutional Relations, Sustainability and Brand at ACCIONA) with Teresa Ribera (Minister for Ecological Transition) at the award ceremony.

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