IDOM.com

EN

IDOM

Our commitment, your success

IDOM

Yearbook 2019

2019

Luis Rodríguez Llopis
President

Ignacio Rey Gómez
CEO – Industry, Energy & Environment

Álvaro Rey Cepeda
CEO – Infrastructure, Architecture & Consulting

Miguel Renobales Barbier
CEO - Corporative

Much like a person, a firm can be defined, not for what is says, or what is said about it, but rather for what it does.

With this brochure we would like to offer you a brief selection of some of the work that we have be doing during 2018: A few of the many exciting projects that our clients have put in our hands.

Given the great diversity of the geographical markets and economic sectors in which we operate, it is impossible to be exhaustive. We would just like to present a selection of our work that serves to give an idea of what we are, in terms of our technical and professional capacity, and the large number of countries in which we provide our services.

I would like to point out an aspect which is difficult to simply express with some impressive photos, a list of activities, or a detailed description of the technological complexity of a project: Attitude.

The attitude of IDOM, the mindset of IDOM professionals is not just to solve the needs and problems of our clients with effective, technologically advanced and sustainable solutions. We make the effort to go one step further. We believe that what distinguishes us, is our commitment to do everything possible so that, despite the challenges, difficulties and unforeseen circumstances, from the perspective of the client, our projects are a success. Because the success of our clients is our success.

From an overall perspective, despite global turbulence and uncertainties, 2018 has been a good year for IDOM. I will give some figures.

We have completed over 30,000 projects for more than 2,000 customers in 125 different countries. We are now more than 3,500 professionals and we have grown in terms of results, turnover, projects awarded, and technology development. We have invested 5% of our man hours in innovation and over €3 million in training time.

We have a great team, are very well positioned in many markets, and are in a solid economic situation; all of which allows us to face the future with optimism.

Of course, none of this would be possible without the magnificent clients, who put their faith in us, and without our people, who apply their knowledge and put all their effort into, as I said, our commitment to the success of our clients.

To each and every one of you, many thanks.

Luis Rodríguez Llopis
President

Content

About IDOM

€300 M turnover

61 years

125 countries

45 offices

3,500 professionals

780 partners

We are an **association of independent professionals** working in the fields of Consulting, Engineering and Architecture, united in our way of doing things and shared objectives, at the service of our clients.

If you want to know more about our activity and our projects, scan this code with your phone to see our corporate video

Our pillars

Our activity is governed by elements that allow our **professionals to grow and resolve the challenges of our clients.**

We believe in **excellence.** We strive for excellence in everything we do.

We believe in the **power of human relationships** as a motivating force to overcome difficulties.

We are **passionate about resolving problems** that no one has solved before.

Innovation is present in all our activities.

Our soul

We are a free association of professionals united in the ownership of the company, working together, facilitating the professional and human development of our people, while providing the highest quality of service for our Clients.

What do we understand by commitment?

Assuming the needs and difficulties of our clients as our own.

Involving ourselves in projects, personally and professionally, striving for excellence.

Working closely with the client to achieve their objectives.

The Client

The centre of our activity.
We provide the highest quality service, based on the highest technological standards.
We resolve problems with solutions which are innovative and efficient.

Professional development

IDOM is a company of highly qualified people who seek excellence in the development of their work, while tackling the most ambitious challenges with enthusiasm.

People

The basis and foundation of IDOM.
For more than 61 years, we have developed our own philosophy, a style of personal and professional action, committed to the success of our clients.

Our activity

We are working in the fields of Consulting, architecture and engineering, with **multidisciplinary teams, developing sustainable projects that contribute to a more livable world.**

CITIES

We transform cities into habitable, resilient territories, competitive, sustainable, social and economically viable.

INDUSTRY

Our commitment is to help industry be more competitive and environmentally sustainable, by providing innovative solutions.

ENERGY

We are participating in the most advanced energy projects in the world, providing innovative solutions for the energy of the future.

DIGITAL

We use digital transformation to overcome challenges, creating innovative solutions and ensuring the transfer of ideas to the market.

PUBLIC SECTOR

We approach challenges with innovative and feasible solutions, of the highest level, capable of responding to local needs.

ARCHITECTURE

Faced with a perspective that architecture is reduced to a mere product, we want to show greater sensitivity towards the process as a whole.

ELECTRONICS & TELECOMMUNICATIONS

We implement the latest technology, for the purpose of helping our clients achieve their business objectives.

HEALTH

We pay special attention to one of the important challenges of today's society: improving access to quality healthcare.

TRANSPORTATION SYSTEMS

Transportation systems are the backbone of the economic and social activity of cities.

SCIENCE & ASTRONOMY

We participate in large scale astronomy and nuclear physics projects, and we provide high performance and precision instruments.

WATER CYCLE

We contribute to extending the universal right to water and sanitation in many different countries.

ENVIRONMENT

Sustainable development is the focus of our projects on climate change and the circular economy.

Specialized, sustainable, cutting-edge technology, at the service of our clients

ITER, reproducing the power of the sun and the stars

France

ITER, reproducing the power of the sun and the stars

An experiment that aims to demonstrate the viability of fusion as a source of energy

ITER (France), the largest research and engineering project in the world, aims to demonstrate that fusion will be the source of energy for the future. Fusion is the process that feeds the sun and the stars, the energy that makes life possible on planet earth, a potential source of unlimited safe energy without CO_2e emissions.

ITER brings together seven representatives that make up half of the world's population - Europe, Russia, Japan, China, India, South Korea and the United States. December 2025 is the scheduled date for the first power-up of the machine, a crucial milestone called ITER's First Plasma.

IDOM is undertaking an important role in the management of the implementation of the installations of the infrastructure, providing a multidisciplinary and multicultural on-site team dedicated to the development of the project since 2010. IDOM's responsibilities with respect to this task include the management of projects and contracts for the design, construction, assembly, installation and commissioning of buildings, infrastructures and energy supply.

IDOM is also contributing its experience and collaboration in the project in several relevant fields of the same. The design and integration of the European diagnostic ports, which house around 20 diagnostic instruments, should be noted for its complexity and sophistication. This high-tech scientific instrument is of utmost importance for ITER and has improving the knowledge of fusion and plasma behaviour as one of its main objectives. IDOM is collaborating with the most important fusion laboratories in China, Russia, Japan, Europe and the USA, integrating the most advanced instruments of reflectometry, spectrometry, polarimetry, etc. into five of the ports giving access to the plasma.

IDOM is also collaborating by providing advanced engineering services in the field of radiation and thermo-hydraulic transport, and performing dynamic, seismic and structural calculations, among others, in the multiple stages that constitute the project, as well as collaborating in the design of some of its systems and components.

In this international experimental project, IDOM is collaborating in the integration of activities carried out in Europe, Russia, Japan, China, India, South Korea and the United States

Germany

BEAT 6.1 TEST BENCH FOR FRAUNHOFER IWES

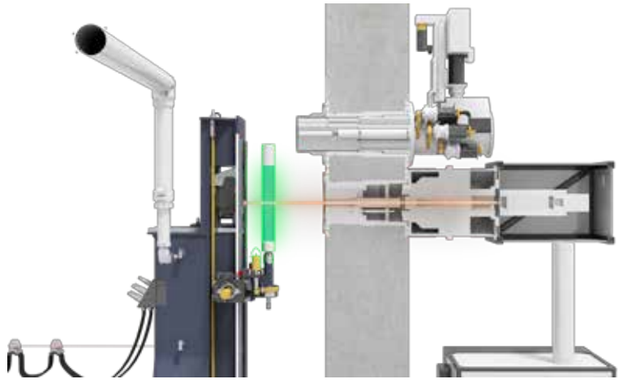
Blade bearing test stand for large-scale next generation wind turbines

To add to its research infrastructure, Fraunhofer IWES decided to undertake, in Bergedorf (Hamburg), the construction of technologically advanced test facilities for blade bearings on next generation wind turbines. This is how the BEAT 6.1 project came about, a high-performance test bench capable of testing bearings of up to 6.5 m in diameter with the most unprecedented dynamic capabilities and precision to date.

The innovative design developed by IDOM is based on an 8-meter-high, Stewart Platform with an 11.5-meter diameter, powered by 6 hydraulic servo-actuators (each with a 350-ton capacity, and equipped with precise load cells) that are able to apply, both statically and dynamically, high loads and moments on a set of bearings (specimens) simulating, in an accelerated way, the efforts to which they will be subjected during their useful life. The features of the bench/stand are complemented by an additional cylinder that simulates the pitch movement of the wind turbine blade and a series of adapters and steel and composite parts that emulate the rigidity of the hub and blade.

The turnkey project (design, manufacturing, assembly and commissioning) was awarded to IDOM in the summer of 2017. Following the completion of the mechanical, hydraulic and electrical assemblies in record time during the summer of 2018, the commissioning works of the test bench and data acquisition systems will be carried out during the last quarter of 2018. The acceptance tests by the client are expected to be carried out in early 2019.

Permits the testing of bearings, of up to 6.5 m in diameter, with the most unprecedented dynamic capabilities and simulation of realistic conditions



France

Jules Horowitz Nuclear Reactor for Materials and Fuels Research

Gamma ray scanning and emission tomography systems, and X-ray scanning and tomography

Experimental fission reactor facilities are essential for the development of nuclear technology for peaceful uses. New formulations and configurations of nuclear fuels are studied, critical operating conditions are experimented on to improve the safety of current and future designs, materials subjected to extreme neutron radiation flux are studied and, as a by-product, essential isotopes are obtained for use in medicine, biological research and other cutting-edge applications

All countries with nuclear technology have one or more of these reactors. Inevitably almost all reactors of this type are reaching the end of their useful life and, in most cases, there are no plans to replace them, especially in Europe. To deal with this problem, France has decided to design and build an advanced experimental reactor, the Jules Horowitz Reactor (JHR). The purpose of this project – whose construction is well advanced in the facilities of the Commissariat à l'Energie Atomique (CEA) in Cadarache - is to provide a unique infrastructure in Europe with the latest technology for pure and applied research in the nuclear field. France has brought together a consortium of countries that will be able to use the facility, and who are participating in its construction with in-kind contributions. One of these countries is Finland.

The Finnish contribution is especially relevant, as it involves the provision of the key equipment to analyze the experimental samples in different phases, after having remained in the core of the reactor or in specific cavities of high neutron radiation called reflectors. This complex equipment includes the UGXR (Underwater X-Ray and Gamma-Ray Radiography and Tomography) stations that analyze the test devices with experimental samples, in the reactor pool itself – immediately after their extraction from the core or the reflector locations – or in later phases in one of the storage pools. In these stations, the internal structure of the materials (fuel or not) is analyzed by means of X-ray radiography and tomography, gamma-ray scanning and gamma-ray emission tomography. This equipment is essential for the experimental purpose of the facility.

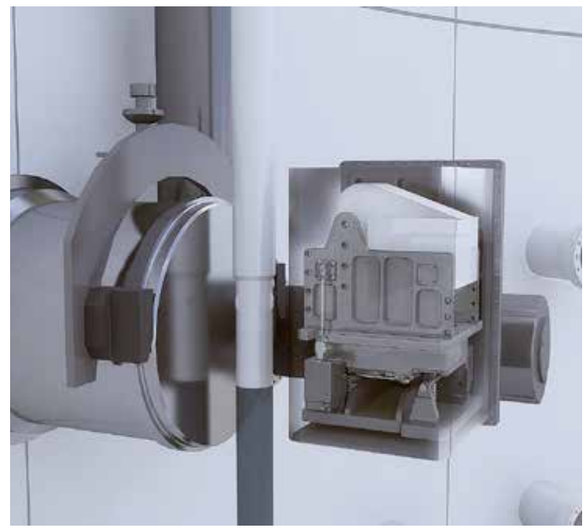
Additionally, Finland is providing similar equipment to perform the same type of observations and measurements on smaller samples in the "hot cells" of the plant, with biological protection and by remote control: the HGXR (Hot-Cell X-Ray and Gamma- Ray Radiography and Tomography).

VTT Technical Research Centre of Finland, responsible for providing this equipment for the JHR, commissioned IDOM to develop the conceptual and detailed design, the manufacturing, testing, installation in the JHR, and the commissioning of all this equipment.

The design of this equipment stands out for the positioning accuracy and unprecedented movements of the manipulator. In the case of the UGRX stations, over 4-m long poles of different shapes and diameters are positioned underwater with a point-to-point accuracy of 25 µm in linear movements and of 36 '' in rotating movements. Likewise, the station allows the micrometric positioning and horizontal alignment of the X-ray camera. Finally, the station has a gamma-ray collimator set made of tungsten with multiple slits with a minimum opening of 0.25mm in height and 200mm in length. For its part, the HGRX station stands out for its compatibility with high doses of radiation –as it is designed to withstand a radiation dose of 10 ^ 6 Gy without damage–, as well as its compatibility of remote operation. Because the sizes of the experimental samples that this test bench will examine are smaller, the ranges of movement in altimetry are reduced, which leads to greater precision in all movements.

Having completed the design phase, IDOM is now carrying out the assembly phase and factory acceptance tests.

This equipment is a key system for the measurement and analysis of this advanced experimental nuclear reactor



The certification of the Oil&Gas division of IDOM in Belarus, reinforces the presence of our firm in Eastern Europe

Photograph
© Naftan

Belarus

The Naftan refinery in Novopolotsk

Basic and detailed engineering for the recovery of gases from the coker unit

Founded in 1956, the OJSC NAFTAN refinery located in Novolopotsk (Belarus), with annual production close to 12 million tons, is one of the largest in Europe. With the help of the Ministry of Industry, in recent years, NAFTAN has developed numerous projects to improve the efficiency and capacity of the facility, with the aim of increasing the generation of petroleum products by 1.6 million tons/year. One of these modernization projects is the construction of a “Delayed Coker” Unit (DCU), which will improve refining efficiency (up to 92%).

IDOM has been contracted by Duro Felguera (a company specializing in the execution of turnkey projects), to actively participate in the DCU project, providing the necessary engineering services to finally make it a reality. Some of the important work developed by IDOM includes:

1. Development of basic and detailed engineering of the gas recovery system associated with the “Delayed Coker”, which will allow the gas generated during the coke production process to be used as fuel in the refinery (thermal cracking). It is estimated that around 13,000 tons of gases, that would otherwise be burned and emitted into the atmosphere, will be recovered annually. This will improve the efficiency of the unit and mitigate the environmental impact of the new activity.

2. Procurement management and supervision of suppliers, to ensure the correct fulfilment of the criteria and output established during the design phase.

As a result of the good understanding between IDOM and the end client (NAFTAN), it is expected that our firm will continue participating in the near future, with a multidisciplinary group of professionals to assist in the assembly of the work itself.

France

Offshore wind power

Saint-Brieuc Bay offshore wind farm

IDOM is actively contributing to reducing global warming - a consequence of the greenhouse effect - by providing professional engineering services to the renewable energy sector, specifically in offshore wind power.

Iberdrola, Renewable Energy Systems & Caisse des dépôts et consignations (Ailes Marines) have put their confidence in IDOM to deliver the engineering services for one of their recent international offshore wind farms flagship projects: Saint-Brieuc Bay (496 MW).

The offshore wind farm of Saint-Brieuc Bay, with an installed capacity of 496 MW, is the first large-scale offshore wind project in Brittany and one of the first in France. Once put into operation by Ailes Marines in 2023, it will meet the energy needs of 835,000 people.

Located 16.3 km off the French coast in the Saint-Brieuc bay, the wind farm will cover an approximate area of 75 km². The 62 (207-metre high) wind turbines, each with a capacity of 8 MW, will be configured in 7 rows.

IDOM is responsible for the 3D modelling of the offshore substation, including not just the jacket foundation, but also the different levels of the topside structure (cable deck, main deck, utility deck, and roof deck). IDOM has also worked on the layout of the equipment (electrical, HVAC, fire protection, cable trays, and piping).

Photograph
© Iberdrola

Ethiopia/Kenya

HVDC connection

A high voltage (2,000 MW) bi-directional transmission project

The mega-hydroelectric plant (6 GW) being built by Ethiopia on the Blue Nile, will be an important boost to the economic development of not just the country itself, but also neighbouring East African countries with energy deficits, and of course Kenya. This will be possible thanks to the important electric transmission and distribution project in which IDOM is participating, a bi-directional transmission line capable of transferring electricity between Kenya and Ethiopia, increasing the security, stability and quality of electricity supply in both countries.

The project is a 2,000 MW HVDC power transmission connection between the national electricity systems of Ethiopia and Kenya, through 1,000 km of high voltage direct current (HVDC) overhead line. The HVDC will operate as a bipolar configuration (± 500 kV), although monopolar operation will be allowed.

IDOM is developing the basic and detailed engineering of the facilities located at the ends of the connection (Suswa in Kenya and Sodo in Ethiopia), composed of bipolar converter stations (400/220/33 kV, ± 500 kV), valve hall buildings and associated transformers, the control buildings, as well as the expansion of the existing 220 kV alternating current substations, and the 220 kV and 400 kV overhead connection lines between the existing substations and the new yards. Likewise, IDOM is developing the detailed engineering of the ground electrodes associated with the converters of both countries, with a vertical configuration of double ring.

The scope of the services provided by IDOM includes electrical, mechanical, control, civil and infrastructure disciplines.

Photograph on left page
© www.siemens.com/press

The design of the new stations and the expansion of the existing ones will contribute to the development of both countries

China

Thermosolar energy production

Thermal storage and thermal transmission systems using molten salts

The successful participation of IDOM, providing value in the design of plants in the renewable energy sector, has opened the doors to many countries, among which China currently stands out.

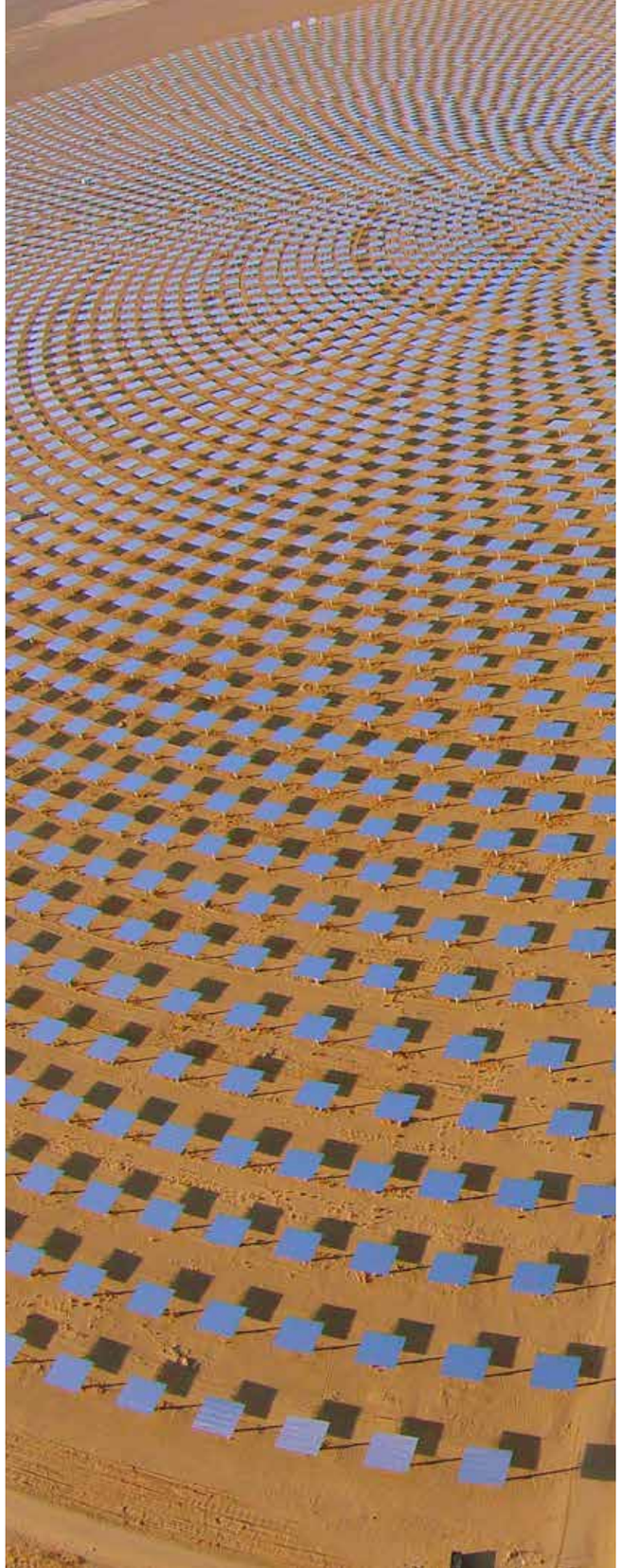
In a country where thermosolar energy is a technology under development, IDOM is collaborating in several important projects that will allow the commercial exploitation of this energy source in China. The total installed power of the thermosolar projects in China in which IDOM has participated, amounts to 397 MWe so far. Specifically, IDOM has recently been developing the following projects:

1. Full engineering of the thermal storage system using molten salts for the 50 MWe Delingha plant, the first commercial-grade thermosolar power plant that is being connected to the grid in China.

2. Full engineering of the thermal storage and thermal transmission systems using molten salts for the 50 MWe Gansu Akesai plant, the first project in the world to use molten salts as a heat transfer fluid with parabolic trough collectors.

3. Basic engineering of the molten salts system for the 50 MWe Gonghe project based on a central tower.

4. Basic engineering of the molten salts system for the 12 MWe Lanzhou Dacheng project based on Fresnel technology and using molten salts as a heat transfer fluid.



5. Basic engineering of the 50 MWe Gansu Yumen project, based on parabolic trough collectors.

6. Conceptual engineering of the thermal storage system using molten salts for the Qinghai Delingha project of 135 MWe, based on central tower technology.

7. The design of the salt system of the Lanzhou Dacheng project, 50 MWe, based on Fresnel collectors and using salts as a heat transfer fluid.

This collaboration with China in the energy sector transcends its borders and thus, IDOM has been collaborating for several years with the Chinese company SEPCO III in the design of combined cycle plants in the Middle East, among which are: Salalah II (445 MW) in the Sultanate of Oman, Zarqa (485 MW) and Samra V (+ 75 MW), both in the Hashemite Kingdom of Jordan and Azzour South 3 (+ 250 MW) in the State of Kuwait.

IDOM is participating in several thermosolar energy projects in China, increasing the installed capacity of the country by close to 400 MWe

Photograph
© Cobra

Bahrain

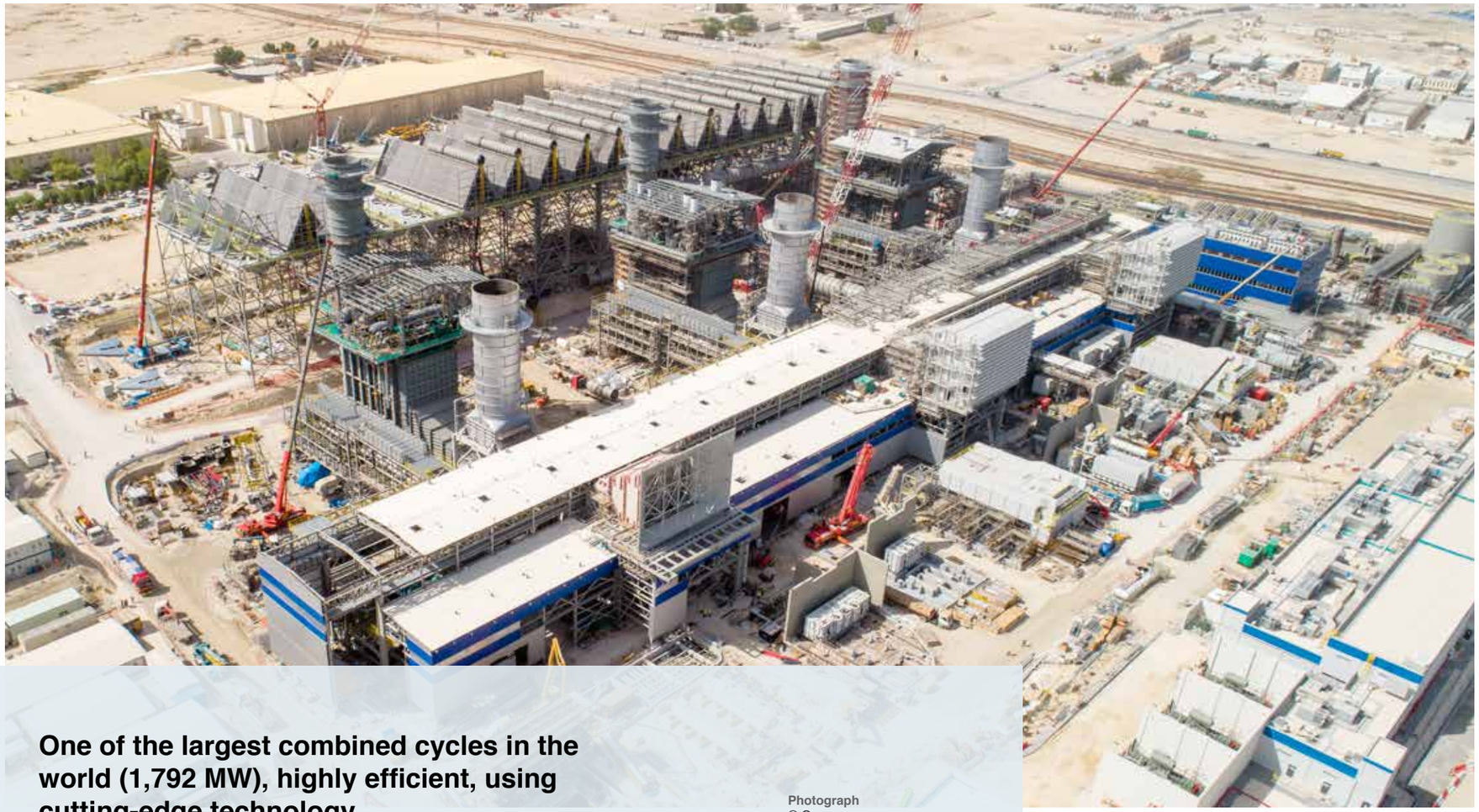
Power generation plant for the expansion of ALBA

Power Station 5 will supply power to the new Smelter 6 line

Aluminum Bahrain B.S.C. (ALBA) is implementing a new smelter line (Smelter 6) in its facilities in Bahrain. This will make ALBA the largest single site producer of cast aluminum in the world. It is expected that with the commencement of production at the beginning of 2019, output will increase by 540,000 t/year, reaching a total annual production of 1.5 million tons.

A new 1,792 MW power generation plant (Power Station 5 - PS5) will supply the energy demand of the new line. This efficient and environmentally sustainable installation incorporates the new General Electric (GE) 9HA gas turbines. This leading-edge technology offers outstanding efficiency (54% to 60%) and is at present the largest heavy-duty gas turbine in the world. The PS5 combined cycle power plant is composed of three GE-9HA gas turbines, three steam turbines and three heat recovery boilers for steam generation (HRSGs).

GAMA, which together with GE makes up the EPC contractor consortium of the PS5 project, contracted IDOM to provide professional engineering services such as the basic and detailed engineering, on-site technical assistance, as well as procurement management and follow-up of suppliers. In particular, the design work of IDOM for the prefabricated modular racks for the process pipe racks is noteworthy. This is a technical milestone in the power plants, which has been designed and executed for this PS5 project, and which represents an important competitive advantage for the assembly of the racks with piping and trays on site. All of which result in savings in the time and cost involved.



One of the largest combined cycles in the world (1,792 MW), highly efficient, using cutting-edge technology

Photograph
© Gama

Peru

New steelworks for Aceros Arequipa

Delivering EPCM services for the extension of the facility in Pisco

Aceros Arequipa plans to build a new steel mill with an electric arc furnace at its existing facilities in Pisco (Peru). Output will reach an annual production of 1.25 million tons/year of liquid steel from raw material in scrap format; an increase of 50% compared to the current production capacity of the existing steelworks. This expansion and modernization project will also augment the range of products manufactured in this production centre.

It is expected that the works of the new plant - with a budget of US $180 - be completed and commissioned by mid-2020.

The project design includes next generation technology provided by the SMS Group, as well as auxiliary equipment and infrastructure that will guarantee state-of-the-art production output and quality. Likewise, the design of the plant will provide solutions to ensure care of the environment while optimizing the consumption of resources such as water, significantly improving efficiency and sustainability.

Aceros Arequipa has entrusted IDOM with the provision of EPCM services to carry out its construction project for the new steel mill, from the conception phase to start-up. IDOM has assembled a multidisciplinary team of professionals; one group are working from our offices and a second group are based at the client's facilities. The scope of the contract includes the professional services of Engineering, Procurement, Project Management and Construction Management.

The range of products will be extended and the productive capacity increased, improving efficiency and sustainability

Photograph © Aceros Arequipa

Our approach to architecture is multidisciplinary, from a sensitive awareness to technical capacity, management and art

Biocruces Institute

Spain

Biocruces Institute

A new facility for biomedical and health research

The new headquarters of Biocruces is a new building designed to house the Health Research Institute and laboratory animal facility. The program is distributed over 8 floors, 3 of which are basement. Above ground level, the floorplan is divided into two blocks of laboratories separated by a block of common areas on the East elevation and the communications core on the West façade.

Given that this is a building of laboratories, it was proposed that it be flexible to adapt to changes. The design of the installations was key, with a complexity far superior to a conventional laboratory.

The construction of the building was conditioned by the complexity of the plot, with limited space and close proximity of the surrounding buildings. Fulfilling the program required the building extend to the limits permitted by regulations, with little distance to neighbouring buildings.

Without the possibility of increasing the volumetric, the exterior design focused on formalizing a dense grid of slats as protection from the direct solar radiation and the view from neighbouring buildings. Only in singular spaces such as vestibules or resting areas were large windows introduced that show their character. The building's image was reinforced by the use of the colour white, in contrast with the environment.

The interior spaces follow the story line of the façade, with light colours that fill the building, generating luminous work spaces. Wood is used for contrast, giving warmth to more representative spaces. Intermittently, colour is used as a reference for the user.

II Architecture Awards with Eñe.
First prize, Light Façade Category.
VETECO-ASEFAVE 2018 Awards

Equipped with the most modern technology, accommodating close to 800 professionals

Spain

San Jorge University, Zaragoza

General Services Building

The project responds to the logic of its setting, on a large scale, yet close in scale. In this first phase, a preferential north-south orientation L-shaped module of has been built, taking advantage of all the light and heat energy of the south, while protecting itself from the loss of thermal load from the north. A covered and glazed passage will continue in a north-south direction, to unite the future modules and protect the eastern courtyards from the wind, creating inviting spaces in harmony with the landscape of the Gállego Valley.

The building has been designed following the principles of economy of means, fast execution and maximum flexibility in its use and future growth.

The building is configured as a 12 m span free floor, with 500 m2 of diaphanous space, on three floors. Each of them is intended for a preferential use: library, away for noise, teaching rooms, close to the activity, lounges and media library, next to the natural environment, as an extension of the valley.

The building allows for any configuration or need of the Campus. The 6x12 metre module is diaphanous and free of pillars and includes circulation and toilet areas. The vertical communication core is linked to the covered longitudinal passage that will join the future modules, currently only partially built. In addition to allowing the horizontal and vertical circulation between the modules and the roof, it will offer an ideal space for temporary exhibitions.

The project is efficient in the circulation and distribution of spaces, while also being energy efficient. The air conditioning proposal continues with the criterion of geothermal use of the land, already existing in other buildings on the campus, and centralizes this installation in this first building.

“In addition to being flexible, efficient and sustainable, the building is respectful with the environment, the client and the students”

Anatxu Zabalbeascoa,
Journalist & Art Historian

Spain

“Beronia Rueda” Bodega

Technology and architecture in harmony with nature

The new bodega or winery, in addition to meeting the production needs for high quality white wines by incorporating the latest advances and technologies in field of enology, has also to respond to a wine tourism program, creating an attractive image in line with the character of the wines that are being produced.

One of the key aspects of the project is the integration of the winery with the landscape and the vineyard itself using the following strategies:

- Selection of the site on the highest point of the plot, surrounded by the vineyard and next to a group of trees that distinguish in landscape.
- Making the most of the topography, with half the building underground, thus reducing visual impact.
- Floorplan arrangement, adapting to the terrain, separating the production and visitor’s area from the bottling and storage areas, which have a more industrial character.
- Integration of the loading and unloading area into the landscape through landscaped slopes, so that it doesn’t stand out from the surroundings.
- Choice of a select range of façade materials whose colour and variation, over time, combine with the colours and evolution of the vineyard throughout the year.
- Visual relationship from inside the bodega with the landscape, through large windows and terraces on the upper level.

In addition, it was necessary to incorporate a small social program focused on visits, promoting wine tourism in the area.

The production area is conceived as a unitary space that revolves around a central nucleus, presided by a sculptural staircase and around which the laboratory, the cask room and the tasting room are located, with concrete tanks on one side and stainless-steel ones on the other.

The structure of the winery is resolved with by 6 wall porticoes, large concrete beams spanning 10 metres, and prefabricated concrete slabs stretching up to 14 metres. The latter give the interior space and external volume a unitary image, configuring the identity of the bodega.

A limited range of materials is used for construction, using the same finishes found in the winemaking and bottling elements; concrete, steel, wood and glass.

The design has taken into account sustainable aspects such as the generation of heat using a biomass boiler; the reuse of rainwater for water tanks and irrigation of gardens; the reuse of process water – following purification – for the irrigation of vineyards; use of the hygrothermal stability of the land; reception of grape by gravity; reinforced thermal insulation; passive solar protection; natural lighting for indoor spaces combined with LED lighting regulated by photoelectric sensors…

———

International Architecture Awards.
2018 Award - Chicago Athenaeum

WAF Awards
Finalist Category: Production energy and recycling - Completed Buildings - 2018

International Design Awards
Honourable Mention 2018

Incorporating the latest advances in field of enology

Clínica Universidad de Navarra.
Headquarters in Madrid

Spain

Clínica Universidad de Navarra. Headquarters in Madrid

Home comforts for a quick recovery

The new Clínica Universidad de Navarra headquarters in Madrid project responds to a high specialization hospital model, incorporating teaching and research, where all the care activity is centred on the patient.

A compact building has been designed, where the travel routes are minimized, the form factor and construction economics are improved, and the use of natural light is maximized. Development and vertical communications are promoted as a strategy of quick and easy attention to the patient.

The project aims to recreate an environment for the patient which is close to the comfort conditions of home, effectively promoting the recovery of the patient.

It is organized functionally around 6 care areas: Oncology, Predictive Medicine (check-ups), Woman and Paediatrics, Advanced Surgery, the Cardiovascular and Orthopaedics Area and Sports Medicine.

The Clinic has 58 hospital beds, 7 ICU and 7 neonatal ICU patient rooms, 3 delivery rooms, 6 operating theatres, 1 hybrid operating room, 4 procedure rooms, 2 accelerators for oncological treatments and 65 consulting rooms to treat up to 46 medical specialties.

The project designed by IDOM meets the objectives and assumes the values proposed by the Clínica Universidad de Navarra. To ensure compliance with the needs and medical-functional requirements of the Clinic, close collaboration and participation was maintained with all the medical departments and the different departments of the Hospital.

The result is a building with a vertical and dense vocation, where natural lighting plays a leading role in the main rooms and the functional organization is efficient, reducing patient and staff movements.

Through a large central atrium and a concourse, direct communication and the spatial relationship between the different areas is ensured, characterizing, at the same time, the different public spaces of the building.

The project also integrates the requirement of flexibility, essential in a hospital infrastructure, always subject to modifications. To this end, a large-span structure has been designed. The envelope modulated in different orders and vertical communication and service cores are dimensioned and strategically located.

Future extensions of the building are planned, through the occupation of reserve space which has already been built in, and also with the extension of the building prolonging the structural circulations that organize the building.

The project has a comprehensive and holistic conception of hospitalization, incorporating all the complex factors that affect the patient. The work has focused on making the stay of the patients and the staff of the Clinic agreeable, friendly and pleasant.

The Clínica Universidad de Navarra was inaugurated in November 2017.

The design minimizes travel routes, optimizes the form factor, and seeks construction economics

France

A new building, promoting the collective transport network of the city of Nantes

Connecting the place of residence with the place of work

This project, awarded by public tender, is part of the collective transport network of the city of Nantes. The main building is a 783-place superstructure car park, along with an intermodal bus and tram station.

Located in a low-density residential area in Bouguenais, in the south of Nantes, the project seeks to achieve the optimal integration of the building in its urban and landscape environment. The inclusion of landscaped patios on the façade coinciding with the vertical communication nuclei has been foreseen. This is a strategy to divide the volume of the building, while at the same time improving the experience of the user and creating a natural orientation for them.

This project covers all the disciplines involved in the urban development project of the future bus station, including its accesses and landscape treatments, in addition to the disciplines associated with the construction of the new car park. IDOM will be responsible for the project, from conception to the Project Management of the Works.

The project pays special attention to the urban and landscape integration in a low-density residential environment

Extension of the Universities of Bambey & Saint Louis

Senegal

Extension of the Universities of Bambey and Saint Louis

Higher education as the foundation of the country

In Senegal, shade and water are everything. These projects of classrooms of Bambey and San Luis, which we developed on behalf of the Ministry of Education and the World Bank, aim to respond to this context as the perfect machine, beautiful in its efficiency and without motor.

In San Luis, a high-performance sports training centre with classrooms, a covered sports centre and an Olympic-size swimming pool was proposed. In Bambey, the exclusively educational program includes classrooms, an amphitheatre with 500 seats, laboratories and computer rooms.

We propose the design from the section, providing the building with a large double roof and a large latticework of the south façade, a shield in the shape of a “L” lying down, which avoids direct solar radiation, but is permeable to air. This shield creates a Venturi effect generating a constant air flow between enclosure and classrooms reducing the interior temperature by 10-15ºC compared to the usual 40-45ºC outside.

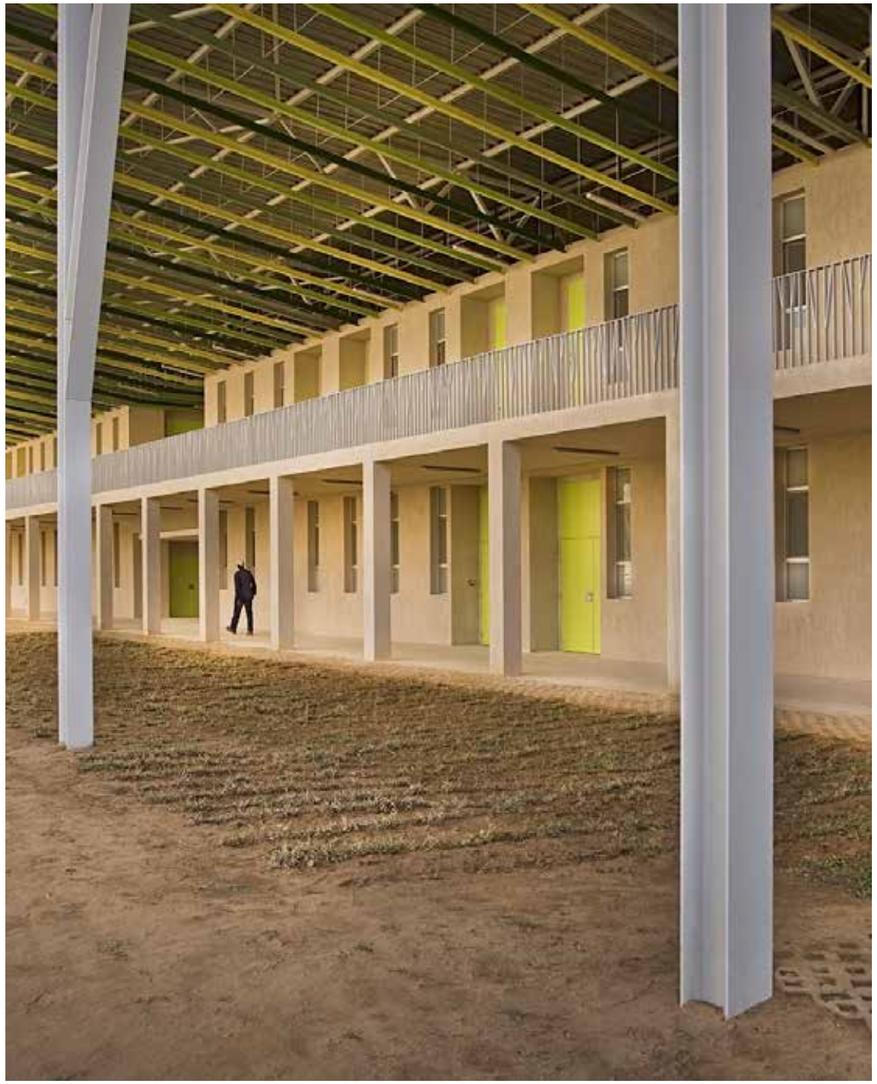
The buildings are constructively simple, adapted to the possibilities of the place: concrete blocks built on the construction site covered with mortar and lattice steel beams; repetitive, with only one type of window; long, creating a visual and artisanal reference, the manufacture of the 20,000 lattice blocks, in the case of Bambey, employed more than one hundred Bambey workers for 6 months. In the work of San Luis, the latticework of the façade of the base of the pool is made of perforated blocks made by hand on site and the facade of protection to the south is made of perforated steel, painted as the nets of the ships of the Port of San Luis, with the colours of their canoes, and with a soft movement, as when they dock after the hard day of fishing.

———

WAN Awards
First prize, Sustainable Buildings category - 2018

LEAF Awards
First prize, category Best Regenerative Impact - 2018

BEAU, Spanish Biennial of Architecture and Urbanism
First Prize - 2018



“The work of IDOM, innovative and creative, has managed to optimize our resources and reduce the ecological footprint”

Socé Diop Dione. Director of the Public Buildings Construction Agency of Senegal (Agence des Bâtiments et des Edifices Publics du Sénégal / ACBEP).

Senegal

Technology Park

A space dedicated to the digital economy

Diamniadio is a new city created by the Government of Senegal with the intention of reducing the congestion suffered by the country's capital, Dakar. The city will be an attractive space for investment in which, in addition, the entire population will have access to technology. Information and communication (ICT).

Located 35 km from the capital and next to the new international airport (AIDB), Diamniadio has an extension of 4,000 Ha for new construction.

With the objective of making the digital economy the heart of this new administrative and business city, the Government will create an office space in an area of 25 ha, where ICT companies, public and private, National and international, will be established.

The total investment is 70 million euros, of which 61 million comes from financing from the African Development Bank and 9 million from the Government of Senegal. The first phase of this project involves the design and construction of 15,000 m2 of offices, including a Tier III data centre, integrated into a 25-ha park.

IDOM has been chosen to develop the Master Plan of the digital park, the architecture and basic and detailed engineering, as well as provide onsite technical assistance during the construction phase.

This entire operation is being carried out within the framework of the Emerging Senegal Plan (PSE / Plan Sénégal Emergent), promoted by the Ministry of Communications of Senegal, to stimulate the development of the information and communication technologies sector.

The park is part of a national plan to promote information and communication technologies

Santiago Metro, Chile

Chile

Santiago Metro, Chile

A connection between neighbourhoods, more efficient than the automobile

In the relationship of the metro with the city and the local culture, the project combines the latest technologies using a special sensitivity. The stations incorporate murals created by various artists, archaeological excavation materials, and bibliometers (a Metro library service).

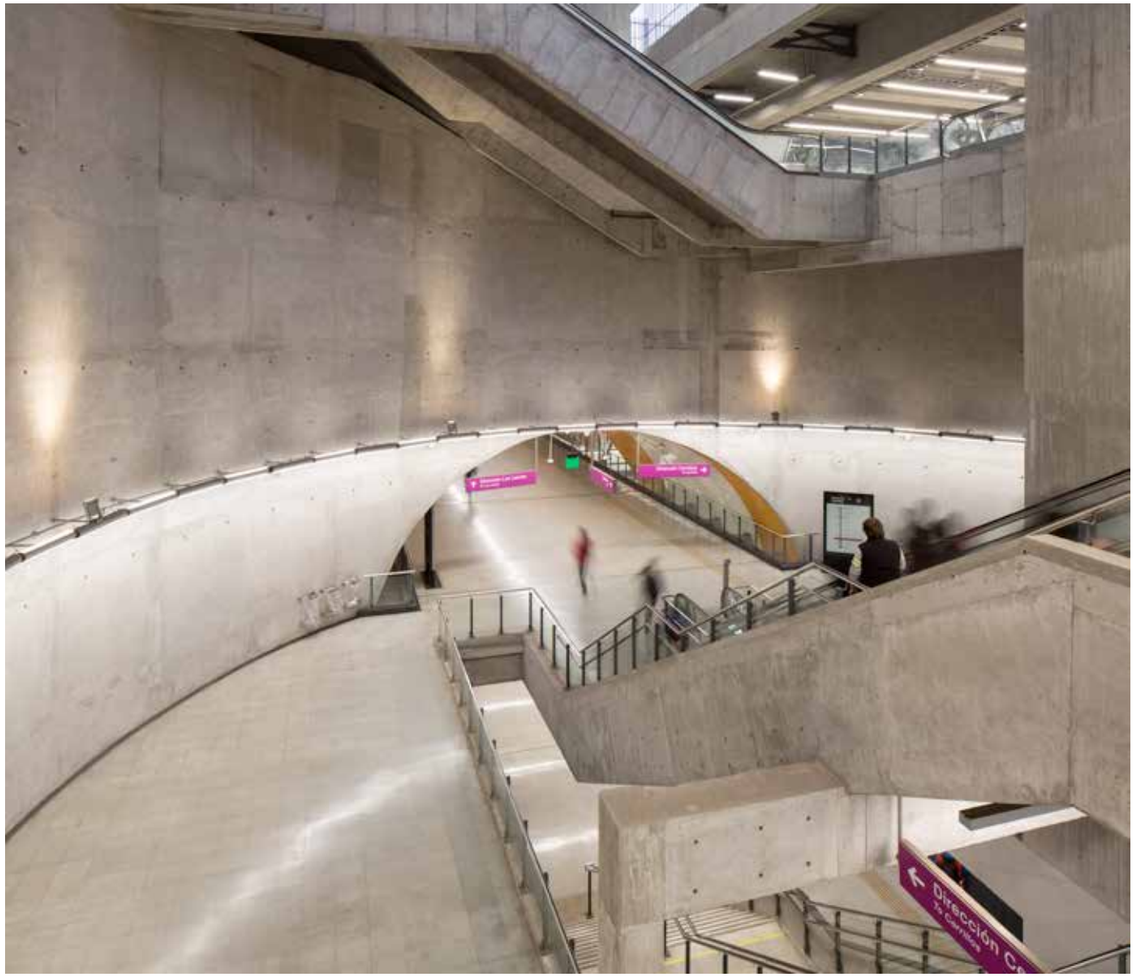
The new Metro Line 6 of Santiago de Chile offers a modern transport solution to neighbourhoods not previously connected to the metro network, a fast and effective alternative to the automobile. The recently inaugurated line has generated a network of connections with green areas, bringing users closer to existing urban parks or providing new accesses to plazas built around the stations.

The project defined a new image for Line 6, developing a single design for all the stations while the external formalizations respond to the urban contexts in which they are located, with the potential to constitute optimal places for the concentration of services and spaces for social and cultural exchange.

The fact that the stations have been developed unoccupied areas or in existing parks, gave us the opportunity to open them up to the city by creating access plazas that contribute to urban regeneration of less developed areas.

The work took as a starting point the projects of tunnels and galleries, from which IDOM developed the conceptual designs of the stations. Subsequently, the architecture, structures and installations of the stations were prepared, as well as all the surface actions associated with them: access plazas, avenues, commercial use, etc. The action plans were defined for the existing stations with which the new line would be combined, with solutions that need to guarantee the continuity of the service.

During construction, IDOM provided the technical assistance from the bidding phases of each lot until the start-up, advising the owner and supervising the project during these phases. However, IDOM's participation in Line 6 is not limited to the stations, as we also carried out the technical inspection for the assembly, testing and commissioning of the systems and equipment (the same works as on the Line 3).



In addition, in 2018 IDOM reaffirmed its commitment to Metro de Santiago, providing three new services. The first one consists of providing specialized consultancy for the engineering and construction of the entire Line 7 project, for which inauguration is scheduled for 2026. The second is to provide consultancy services for the execution of architectural and engineering projects, which are being carried out as part of the different actions on existing lines: rehabilitation of enclosures, creation of new accesses, improvements in workshops, incorporation of elevators… This work began at the end of 2017. And finally, noteworthy, are the technical inspection of the civil works that we have been carrying out in the Depot of Line 2 of Vespucio Norte and the Los Libertadores Intermodal Station on Line 3.

A project sensitive to culture, incorporating archaeological materials, metro libraries and exhibition areas

India

India International Convention and Expo Centre

An icon that symbolizes the image of the new India

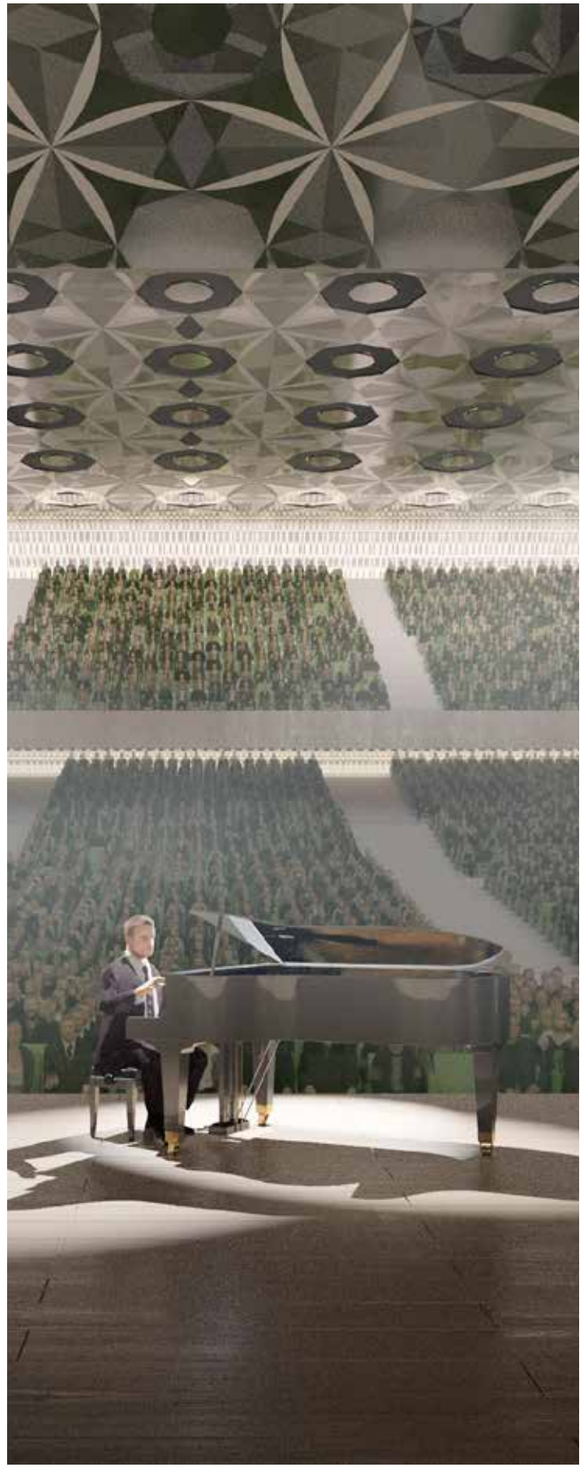
The awarding of the contract for the India International Convention & Expo Centre in Dwarka (IICC Dwarka) is the result of the international bidding competition organized by DMICDC (Delhi Mumbai Industrial Corridor Development Corporation) in January 2017. The project, which was fully developed in less than three months, involves the preparation of the necessary documentation for the tender process for the entire building and the urban development of the complex. This will be executed in two phases, the first of which will be inaugurated at the end of 2019.

Located 11 km from the Indira Gandhi Airport in New Delhi, the IICC will be the largest exhibition centre in India and South Asia. Conceived as an anchor project for the future development of the country and strategically located between New Delhi and Gurgaon, the development covers 90 hectares, integrating exhibition spaces (403,000 m^2), a convention centre (73,200 m^2), offices (236,000 m^2), hotels (339,000 m^2), commercial spaces (156,000 m^2), a multi-purpose pavilion with a capacity for 20,000 people (64,200 m^2), and more than one million square metres of parking, totalling almost 2.5 million square metres.

Strategically, the operation has four main objectives: 1) an icon that symbolizes the image of the new India, 2) a destination in itself, an example of the state of the art within the international circuit of fairs and conventions, 3) obtain the platinum certification of the IGBC (Indian Green Building Council), given its contribution to sustainability and urban mobility, and finally, 4) flexibility, capable of hosting world-class events and celebrations of a diverse nature, such as the celebration of the G-20 summit on 75th anniversary of Independence of India.

The first stone of the IICC was laid in September 2018.

A flexible design that will allow events of the highest level and most diverse nature to be hosted



Innovation making our clients more competitive

European CarEsmatic Project

Photograph
© Surapol Usanakul

Spain

European CarEsmatic Project

Study on the Logistics of the Electric Vehicle in the Port of Barcelona

The Port of Barcelona is promoting the logistics of the shipping of electric vehicles through the European CarEsmatic Project, an initiative that aims to use Short Sea Shipping (SSS) lines to transport new vehicles between the main Mediterranean ports used for shipping vehicles, Barcelona and Koper (Slovenia). The project involves the participation of the leading vehicle shipping company in the area, Neptune Lines, as well as one of the main vehicle terminal operators in the Mediterranean, Autoterminal Barcelona.

CarEsmatic was born from the initiative to adapt maritime services to the transportation of electric vehicles, as well as adapting and improving the existing infrastructure in both ports, ensuring that logistics operations for these alternative vehicles do not come up against barriers during transportation. Aligned with these objectives, the CarEsmatic project aims to reduce the congestion of the main transport corridors of the European Union (EU) and promote a more sustainable logistics system in the medium and long term.

IDOM has been collaborating with the Strategy and Innovation Department of the Port Authority of Barcelona to identify the specific logistics needs related to the transport, storage and handling of electric vehicles, both in the different port terminals, and in the modes of transport that allow the intermodality of this type of vehicles. The objective is that the Port to leads a change in the strategy and logistics operations of this market segment.

The study proposes a roadmap that considers the technical solution investments to be undertaken in a proposed time horizon, planning the upgrade of the infrastructures and the operative flows to the requirements of plug-in vehicles. This roadmap is based on a demand analysis of these types of flows as they pass through the port, contemplating the speed of absorption and other drivers that will facilitate and enhance both the adoption in the domestic market and the adaptation of the productive force and exporter of the automotive industry. Finally, during the project, changes in power relations between the different actors involved in the electric vehicle value chain have been identified and documented, highlighting the fundamental role that battery manufacturers have assumed as a driver of change. Special attention should be paid to Asia, and particularly China, as a large emerging market.

A project that will lead the change in the logistics of the electric vehicle market

Senegal

Sustainable Development Strategy and Urban Master Plan for Saint Louis

A transversal vision to develop urban resilience, balancing the territory and boosting the economy

In recent decades, the African continent has experienced the accelerated and uncontrolled urban growth of its cities. The effects of this growth are a high number of inhabitants who live in informal settlements which are deficient in terms of urban services, access and amenities.

In this context, the city of Saint Louis in Senegal is demonstrating these same symptoms, exacerbated by the lack of land available for development. Located in an archipelago between the Senegal River and the Atlantic Ocean, the growth of the city exceeds its physical limits and several neighbourhoods are located in areas which are vulnerable to climate change.

Therefore, the scope of the study has been extended beyond the municipality, in order to establish a balanced growth strategy in the territory, in accordance with the resources and natural limitations of the location. Integrating five municipalities that need to define their role in this diverse metropolis, the final document will be one of the first Metropolitan Urban Plans in the country and will be based on an extended process of institutional coordination and citizen participation, to ensure the support of the entire society for the Plan.

The study will include Pilot Projects for the redefinition of the existing city (urban redensification, identification of new opportunity spaces, rehabilitation of informal areas...), as well as the adaptation of the metropolis to the new climatic challenges (relocation of residents from risk zones, preservation of ecosystems...), in order to create a model of polycentric and cohesive agglomeration.

It should be noted that the historic centre of the city, the former political capital of the French colony and French West Africa, is classified as a World Heritage Site by UNESCO. Therefore, a strategy of rehabilitation, enhancement and adaptation of the Island of Saint Louis is an opportunity for the development of value-added economic activities, especially tourism. The proposal of this key area of the city includes, among others, improvements in the design and urban landscape, incentives for the rehabilitation of heritage, training of SMEs in the tourism and gastronomy sector and measures to adapt to climate change.

New metropolitan identity following the principles of sustainability, social integration and adaptation to climate challenges

Guatemala

EmprendamosGuate Program

Guatemala, towards the knowledge economy

In the knowledge economy, entrepreneurship is one of the main factors of economic and social growth in a country. Promoting it requires the creation of social, educational, business and financial conditions for entrepreneurs to emerge. That is, the creation of an entrepreneurship ecosystem. This is precisely what Guatemala is looking for with the EmprendamosGuate Program, being implemented by IDOM.

Looking towards 2030, Guatemala wants to be a benchmark reference in the region in the creation of new ventures, companies or start-ups with a high technological base and specialization of knowledge, that stimulate innovation and creativity and that contribute to the creation of quality employment. There will be new opportunities for people that, without doubt, will provide a response to the needs of society.

IDOM advises, facilitates and leads the construction process of the entrepreneurial ecosystem, necessary for entrepreneurial, curious and creative activity to emerge and take root. This is a challenge, which requires great coordination between public and private agents, and for which Guatemala has an advantage, as it is a country with great potential for entrepreneurship and with a great entrepreneurial attitude.

The Ministry of Economy of Guatemala (MINECO), through the National Competitiveness Program of Guatemala (PRONACOM), is taking up this challenge, and has made a clear commitment to transforming Guatemala's economy into a knowledge-based economy. With the support of IDOM, over 60 consultants are being trained and certified. These will, in turn, provide training and support to 1,500 entrepreneurs located throughout a network of 25 training and innovation centres across the country.

Government support for the growth and consolidation of the business ecosystem

Mexico

Integral Vision of the National Infrastructure

A plan to define the infrastructure of the future

The National Public Works and Services Bank (BANOBRAS) of Mexico is spearheading an effort aimed at strengthening the long-term planning for infrastructure while giving continuity to investment in the short term (2019-2020). To address this unprecedented challenge and with the aim of increasing the country's competitiveness, the Deputy General Directorate of Infrastructure Promotion of BANOBRAS has been working with IDOM.

The main planning document for Mexico is the National Development Plan (NDP). Based on the NDP, different sectoral plans have been developed. Despite the existence of infrastructure planning reference cases such as the National Infrastructure Program, the National Strategic Road Infrastructure Program (ProNEIC) or the ITS Strategic Plan, there are several opportunity areas that could be reinforced, including: the long-term vision, intersectoral vision, homogeneous prioritization criteria, short, medium and long-term portfolios, transparency and participation of public, academic and private sectors.

In this context, an exercise has been carried out to build an Integral Vision of the National Infrastructure (VIIN) that allows new opportunities of development to be generated, transversal to all sectors such as water, environment, communications and transports, energy, social and the tourism, and that includes the contributions of public, private and academic fields. The proposal will also a standard and consistent methodology to be defined to carry out the National Infrastructure Strategy (ENI) in the future.

The work collects contributions from the private, public and academic spheres

Turkey

Connection with the Trans-European Transport Network

Information Management System to monitor and analyze the process

The Republic of Turkey is working closely with the European Union (EU) to improve transport connections within the framework of the accession process. The trans-European transport network (TEN-T) aims to facilitate the movement of people and goods through the connection of national networks (road, rail, air and sea), to achieve the most optimized transport infrastructure possible.

The development of TEN-T in Turkey is strategic for political, social and economic reasons, both for the country and for the EU. Turkey is an important transport node connecting Europe with the Caucasus and the Middle East, so the improvement of its transport infrastructure will be beneficial for its economic and social integration with the EU and neighbouring countries.

Within this objective, IDOM has been collaborating with the Ministry of Transport and Infrastructure of the Republic of Turkey (MoTI) in the design of a central database, and in the implementation of a Transport Information Management System (TIMS) that includes a viewer. The result of the development of the TIMS of the MoTI, is a robust tool to monitor the development of the TEN-T in Turkey.

The TIMS is a strategic project undertaken by the MoTI, with co-financing from the European Union. It is based on geographic information systems (GIS) and has the capacity to analyze the current state of the TEN-T for Turkey and its future needs.

With all the latest data on all modes of transport, included and available in a central database, decision-makers can make more precise transport decisions and investment decisions. TIMS has become a solid base that allows the incorporation of new technologies related to the modelling and analysis of transport networks.

The TEN-T program facilitates the integration of the regions of Europe, the Caucasus and the Middle East

Madrid, Airport City

Spain

Madrid, Airport City

A gateway to connectivity and the economy of the future

Aena, the world's largest airport operator, wants to expand its activities by developing the full potential of its infrastructures as generators of activity, and urban development drivers.

For Aena, IDOM has developed an integral model for the development of its flagship, the Adolfo Suárez Madrid-Barajas Airport, the fifth European airport and the best airport in Southern Europe (2017). The proposal aims to consolidate the airport as a driver of the regional economy, a major employer, asset manager and promoter of spaces for opportunity in the economy of the future.

The Master Plan prepared by IDOM foresees more than 2.5 million square metres of built-up area in a privileged environment, well connected and in close proximity to the city. This is an excellent opportunity for the balanced development of the zone to the east of the metropolitan area of Madrid with the implementation of logistics, technological, hotel firms, and corporate headquarters. The Airport City in front of the iconic T4 will be the ideal place for the most innovative and competitive companies to locate in an exceptional urban environment, with hotels, conference centres, education and research areas, and passenger services. The logistics development on the Henares Corridor will offer the best complementary services to form a world-class Logistics Park, with direct access to the rest of the world through a privileged infrastructure, a global hub: the Adolfo Suárez Madrid-Barajas Airport.

Aena is promoting Smart Growth along with excellent infrastructures

Colombia

National Observatory of Logistics

Web platform for the integration, analysis and dissemination of logistics sector information

In recent years, as a result of its internationalization process, the Colombian economy has increased its production and presence in international markets. Public and private investment have been concentrated on developing new infrastructure, and not necessarily reinforcing transport services.

The high cost involved in the logistics of transporting both freight and passengers in the country, impacted greatly by the geographical conditions of the country and the dispersion of information of logistics, has led to the creation of the National Observatory of Logistics (ONL).

This is a strategic tool to capture, analyze and disseminate national logistics information, generate indicators and a quantitative model to facilitate efficient decision-making regarding public policies and the prioritization of public and private investments, with the objective of improving the country's competitiveness.

The platform offers users 48 indicators classified in 6 groups that represent the thematic axes of the logistics sector. At a technical level, the solution includes a Web portal component, a Business Intelligence (BI) and Big Data component, and a Geographic Information (GIS) component.

The ONL web portal (https://onl.dnp.gov.co/en/Paginas/Inicio.aspx) constitutes the functional framework of the solution and has been implemented following the GEL (Government Online) strategy, interoperability and Open Data criteria, including: indicators, GIS viewers, analytics, Big Data, news, events, etc.

The Big Data module serves to support strategic decision-making, through which descriptive and predictive analysis can be performed by processing Big Data GPS and algorithms for the generation of visualizations on maps.

Big Data solutions for the strategy of a competitive country

Sustainable infrastructures, resilient to changing environments

Viaduct over the Almonte River

Photograph
© AVE Alcántara-Garrovillas Joint Venture (FCC & CONDURIL)

Spain

Viaduct over the Almonte River

Several international awards

The Viaduct over the Almonte River, Cáceres (Spain), has been widely recognized, receiving international awards from renowned entities. The Viaduct has been called an innovative, versatile, creative and outstanding work, where sustainability and respect for the environment have been positively evaluated.

Among these accolades are the prestigious Gustav Lindenthal Medal and the Highest Honor given by the American Concrete Institute (ACI) at the Annual Excellence in Concrete Construction Awards.

The new Viaduct over the Almonte River, 996 m in length, forms part of the High-Speed Line that will link Madrid with Extremadura, being undertaken by ADIF Alta Velocidad. Since 2011, IDOM has been involved in this singular structure, participating in its design and providing site supervision.

The arch, with a 384 m span, also boasts three world records: it is the largest high-speed arch bridge in the world, it is the largest concrete railway arch, and it is the third largest concrete arch in all categories.

Highest Honour in Annual Excellence
in Concrete Construction Awards 2018
American Concrete Institute (ACI) - Las Vegas

fib Awards for Outstanding Concrete Structures 2018,
Civil Engineering Category, Special Mention
International Federation for Structural Concrete (fib) - Melbourne

Outstanding Structure Award 2018, Finalist
IABSE (The International Association for Bridge and Structural Engineering) - Nantes

Global Best Projects Awards of 2017: Bridge/Tunnel
ENR Engineering News-Record - United States

III ACHE Engineering Awards, Accésit in the Category of Bridges
ACHE (Scientific-Technical Association of Structural Concrete) - A Coruña

Gustav Lindenthal Medal
International Bridge Conference (IBC) 2017 - Engineer´s Society of Western Pennsylvania (ESWP) - Maryland

Technical innovation, aesthetic merit and respect for the environment

Photograph
© AVE Alcántara-Garrovillas Joint Venture (FCC & CONDURIL)

Ireland

MetroLink Dublin. Urban Transport 4.0

The National Transport Authority (NTA) and Transport Infrastructure Ireland (TII), have placed their confidence in IDOM to design MetroLink

In competition with other leading companies in the sector, IDOM won the Engineering Services Contract for the implementation of the MetroLink – a 26 km high-frequency rail through Dublin. The project will be developed in 5 stages over the next 10 years, from preliminary design to start-up. Our extensive experience gained on similar international projects, as well as the demonstrated capacity of our design teams, were deciding factors for Transport Infrastructure Ireland (TII) and the National Transport Authority (NTA) of Ireland to place their confidence in IDOM to develop the project.

MetroLink is a project tailored to the needs of the society it serves. Consultations are conducted with the public and all affected stakeholders including educational and health institutions; sport and business organisations; other transport companies and elected representatives. Their opinions are sought and analysed by the client to ensure the route, construction and operation of MetroLink are optimised for the benefit of all users. This exciting dynamism adds dimension, nuance and richness to the services we are providing. We feel connected and part of the community. We are developing an urban transport system 4.0: consensual, accessible, efficient, respectful to the environment and sensitive to all social sectors.

Jacobs is our partner in this stimulating challenge. IDOM is developing all the engineering associated with the implementation of MetroLink as an urban rail system: the layout of the tunnels, viaducts and stations, in addition to the railway systems, rolling stock and depots/workshops. Including the operations study. BIM Level 2 is being used for the design, across all disciplines.

MetroLink, the first metro line in Dublin, will link the north and south of the city along 26 km. The centre of Swords will connect to the airport, and then on to the city centre, stopping at the legendary O'Connell Street. There will be two connections with Irish Rail, and then the service will travel southwards from Charlemont to Sandyford. The line has 25 stations and the alignment adapts to the urban environment, running underground, in open sections, elevated or at grade level, depending on the section. On the southern section, the existing tram line (Luas) will be upgraded to the automatic Metro Standard (GoA 4), the standard to be used for the operations of the entire MetroLink system.

A new urban transport system, designed to meet the needs of the citizen, agreed with all stakeholders, accessible, efficient, respectful to the environment

Saudi Arabia

Mobility in Jubail & Ras Al-Khair

Smart Mobility in the leading industrial cities of the country

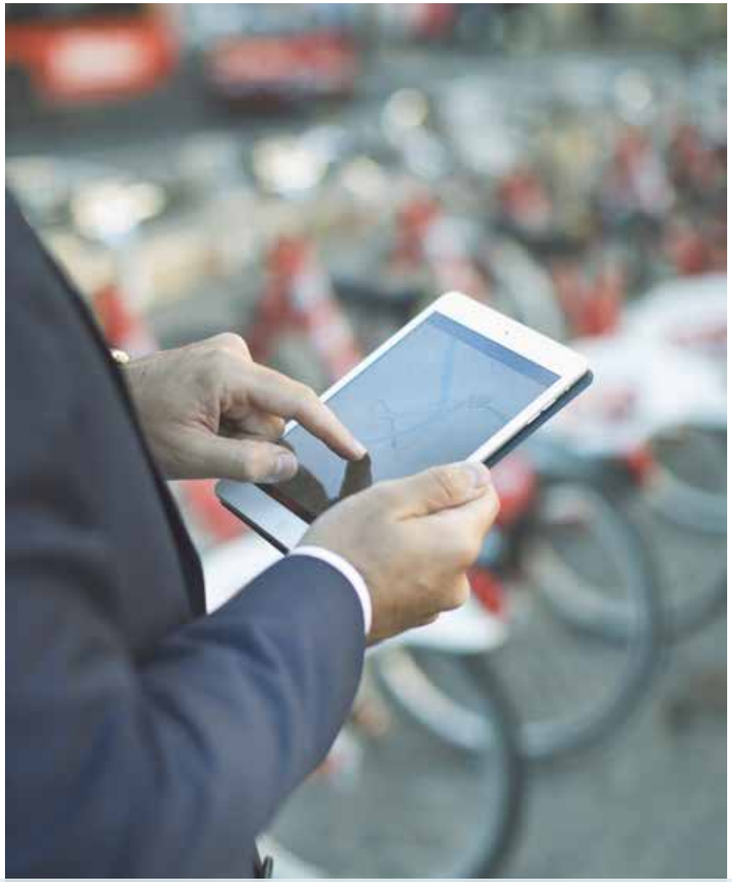
Jubail and Ras Al-Khair are two industrial cities located on the east coast of Saudi Arabia. Both are immersed in an important process of growth. With over 430,000 inhabitants between them, these metropolises are in need of a new high performance urban and interurban transport system for the efficient and sustainable development of both cities.

IDOM is collaborating with the Royal Commission of Jubail and Yanbu in the realization of a study to analyze the feasibility of a new safer interurban public transport system that mitigates road congestion and offers solutions to the appearance of uncontrolled and itinerant car parks in certain areas, due to the dependence on private vehicles.

Specifically, IDOM is developing a transport model, using the most advanced technologies for data collection: BTM Bluetooth antennas (for origin/destination traffic data collection), video measurement of traffic and radars (SR4 Doppler and RTMS SX 300) for the average daily traffic and traffic density. With this system, a more representative and better-quality sample is obtained compared to other traditional methods.

The study is divided into two phases: firstly, the suburban transport service between both cities is defined (both for passenger and freight traffic), and, secondly, the urban mobility evaluation of Jubail and Ras Al-Khair is carried out, with the aim of developing the strategic plan for sustainable urban mobility.

The final objective of this project is to develop and maintain analysis and forecasting tools (multimodal transport model), providing an instrument that defines current and future challenges, and practical solutions and transportation initiatives to resolve them.



Using new technologies for the detection, classification and monitoring of traffic, and simulation of new forms of mobility

Improving the road network in the Caucasus

Georgia

Improving the road network in the Caucasus

North-South Corridor (Kvesheti-Kobi) Road Project

Located along a transit corridor connecting Europe and Asia, Georgia has the potential to link a number of countries in the region to the Global Economy. Roads from the break of bulk points on the Black Sea ports such as Poti, Sokhumi and Batumi, as well as from Russian Federation and Turkey. Aware of these circumstances, a number of infrastructure projects have been initiated by the Georgian Government to improve the physical as well as the operating climate of the land transport, with the support of international development partners.

The North-South Corridor Project is a strategic project in the Government's effort of transforming Georgia into a transport and logistics hub for trade between Central Asia and the Far East on the one hand, and Turkey and Europe on the other. Connecting to the main border crossing points is becoming a critical part of Georgia to enhance its role as a transit country along the Silk Road.

The former Georgian Military Highway has become a key traffic hub in the Caucasus region. The traffic discontinuity is a major impediment to meeting the increasing transport demand on the North-South Corridor and harnessing the tourism potential of the region (Gudauri ski resort, Kazbegi National Park, etc.). The North-South Corridor is a lifeline for Georgian and Armenian economic activities as the only land access to the Russian Federation from this region. In addition, once the infrastructure is improved, it will be an important alternative for traffic between Russia and Turkey or Azerbaijan.

The current conditions along the more than 110 km of high mountain road that connects the towns of Jinvali and Larsi raised doubts about the technical feasibility of the project. The objective was ambitious: to substantially improve the features of the infrastructure, making it possible to maintain the road permanently open to traffic, protected from the instability of the land and the extreme weather conditions. Currently, the weather, specifically snowfall is the reason for the road being closed many days during the winter months.

The pre-feasibility and feasibility studies developed by IDOM have demonstrated the viability of the investment, as well as defining the general lines of action, all in accordance with the technical professionals of the Roads Department of Georgia, and the involved international financial institutions (World Bank, Asian Development Bank and European Bank for Reconstruction and Development).

IDOM has been developing this high mountain infrastructure project, from concept to detailed design

The solution designed in the Detailed Engineering phase, for the central section, Kvesheti-Kobi, reduces the length of the route from 35 km to 22 km, and the travel time from one hour to approximately 20 minutes, improving road safety conditions during operation. To achieve this, the future road will include several viaducts and tunnels, including an arch bridge, 432 m in length and with a span of 285 m over Khada valley.

At the highest point of the route (3,300 m), under Mount Sadzele, a 9-km tunnel will be built using a 15 m in diameter tunnel boring machine (TBM). The design of this long tunnel includes both the civil works and security installations according to European Standards.

Tramways in Copenhagen and Odense

Denmark

Tramways in Copenhagen and Odense

Projects in the main Danish cities

Both light urban transport systems will increase the accessibility of Greater Copenhagen and the City of Odense, creating value and increasing attractiveness for private investment and urban development while improving the quality of life of its inhabitants.

Greater Copenhagen Light Rail (Hovedstadens Letbane, Line L and Line VBG Copenhagen), with 28 km of double track and 29 stations, running from Lyngby to Ishøj, will allow easy access to the Technical University of Denmark, Herlev and Glostrup hospitals, and other work, leisure and cultural and sports centres. 29 vehicles (2.65 m wide and 35 m long) will provide service at a frequency of 5 minutes. The total investment will be 6.2 billion Danish kroner in 2017-prices including correction reserve.

Odense Letbane is configured as a 14-km line that will connect the city - Tarup in the north to Hjallese in the south – allowing Odense to expand and grow. The architecture of the 26 stations along the line, the depots and workshops has been developed by the team from IDOM.

Both projects have been developed entirely with BIM, combining operations and efficiency in the design of the facilities, the urban insertion, the architectural value of the buildings, to a level where they are key elements in the identity of the lines.

IDOM designs efficient and safe tram/LRT networks in Denmark, a pioneering country in public transport

Hydrowind Power Plant of the island of El Hierro

Spain

Hydrowind Power Plant of the island of El Hierro

The challenge of achieving energy self-sufficiency

Adding renewable energies to the energy mix is essential to ensure the sustainability of electrical power systems. However, energy sources such as wind or photovoltaics are limited by the fluctuations in the power generated and not being able to satisfy demand. Energy storage methods, such as hydraulic reservoirs, can help mitigate these problems and improve the integration of these systems. Renewable energies are an important step towards a cleaner and more sustainable planet, reducing the emission of greenhouse gases as much as possible.

The island of El Hierro has taken up the challenge of ensuring that the electric power supplied to the island comes mostly from renewable energy sources. To this end, a hydrowind power plant has been built and commissioned. This plant combines 11.5 MW of installed power from wind generators with a reversible hydroelectric plant. The hydroelectric power plant has an installed power of 11 MW of generation and 6 MW of pumping power. Considering that the demand peak of the island is 7.5 MW, this configuration means that, in certain conditions, demand on the island can be fully met with clean and inexhaustible energies.

IDOM has participated in the project from the conception phase to its implementation, providing engineering services, procurement management and technical assistance for the construction and commissioning. The El Hierro Hydrowind Power Plant began operations in July 2015 and its operation has been refined over time until, in February 2018, it reached the milestone of supplying the island's consumption for 18 days in a row with 100 % renewable energies. It is expected that, in the coming years, the plant will supply over 65% of the total demand of the island. Increasing the renewable power generation (more wind, solar, etc.), the system could come close to 100%.

The island of El Hierro has successfully met the challenge of ensuring that the electricity supply comes mainly from renewable energies

An iconic project for a modern Riyadh

Saudi Arabia

An iconic project for a modern Riyadh

Landscaping, transport, architecture and engineering

Since 2012, IDOM has been collaborating with the Riyadh Development Authority (RDA) to transform the Abi Bakr Al-Siddiq Road into a modern highway. Phase 1 has been completed, and is now in operation, facilitating north-south transit in the city. The work of IDOM has included the preliminary, detailed and constructive design. We have also been in charge of the management and supervision of the works. In terms of Phase 2, the works are at an advanced stage, with most of the structures already completed.

This is a global project that combines landscaping with transport, architecture and engineering. One of the elements introduced was the “Dune” concept, unifying the entire urban development, as can be seen not only from the bridge over the intersection with Iman Saud Road, but also with the rest of the structures, pedestrian walkways, side medians and areas adapted to the different needs of pedestrians.

The highway, which links the city from north to south, at speeds of 100 km/h, stretches for 12 km, has structures on three levels, and cutting-edge urban telecommunications services, traffic control and lighting.

As a city looking to the future, Riyadh is committed to technology and design. In this line, IDOM has also developing the project for another bridge at the intersection of Al Oruba Road and Takhasussi Road. One of the features of this project is the use of three arches and multi-stem pillars. Currently, the bridge is in the construction phase and will surely become another of the new landmark of the city.

Transformation of Abi Bakr into an urban highway with cutting-edge technology

For further information, visit our website

IDOM.com

PHOTOGRAPHY

Cover photo:
© “Picture property of RDA – All Rights Reserved”

Óscar Arribas
Carlos Azuaga
Iñaki Bergera
Alfonso Calza
Manuel Leira
Cristina Novio
Aitor Ortiz
Fenando Pérez
Francesco Pinton
Nico Saieh
Ali Saltan
Ulrike Stein
José Torralba

Photos from Shutterstock.com
Fokke Baarssen
Icswart
Fat Jackey
Metamorworks
Nmedia

iStock.com/loveguli
Kliempictures
Rawpixel