



FACTS &  
FIGURES

2018



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## PROFILE

VINCI Construction Grands Projets is a subsidiary of VINCI, a global player in concessions and construction.

We are part of a lineage of companies that have been operating for over 100 years and whose names are associated with landmarks in France and around the world.

We design and build major civil engineering structures and buildings:

- > Transport infrastructure - bridges and viaducts, underground works, linear surface works, marine works;
- > Mining infrastructure - access tunnels, earthworks, underground and open-pit work, civil engineering;
- > Energy and oil & gas - LNG tanks, thermal and nuclear power plants;
- > Buildings - office and residential towers, luxury hotels, hospitals, car parks, airports, administrative and cultural facilities;
- > Hydraulic infrastructure - dams, hydropower plants, pumping and wastewater treatment stations, water distribution and evacuation;
- > Environment - drinking water supply and sanitation systems, technical landfill centres.

To carry out these major projects and fulfil our vocation, our teams make use of specialized expertise in project management, construction and engineering, relying on a network of shared experience that allows them to address quickly project risks. Whenever possible, we work in close partnership with local companies to find solutions that are comprehensive yet specifically tailored to the needs of each client, in both the private and public sectors.

«*Designing and building high-tech structures all around the world is a passion that drives each and every one of our employees. Our experience and accomplishments dating back more than a hundred years enable us to reset the boundaries of what is achievable, while managing risk and ensuring safety for all participants on our projects. We feel compelled to strive for excellence at all times, and our most gratifying reward is our clients' satisfaction and the satisfaction of the people who benefit from the structures we deliver.*»

**Patrick Kadri**, Chairman



## EXECUTIVE COMMITTEE

FROM THE TOP DOWN AND LEFT TO RIGHT:

- // **Lionel Ravix**, France, Europe and Russia Director
- // **Fadi Selwan**, Americas and LNG tanks Director
- // **Philippe Tavernier**, Qatar, Africa and Middle-East Director & CEO of QDVC
- // **Philippe Masselot**, Chief Financial Officer
- // **Yanick Garillon**, Asia, Building and Water works Director
- // **Jean-Luc Toris**, Engineering & Technical Capabilities Director

- // **Arnaud Brel**, Quality, Safety, Health, Environment and Information Systems Director
- // **Stéphanie Malek**, Communications Director
- // **Patrick Kadri**, Chairman
- // **Éric Seassaud**, Legal Counsel
- // **Eric Chambraud**, Strategy and Development Director
- // **Patrick Béchaux**, Human Resources Director




## OUR VALUES

### SAFETY

We believe that nothing is inevitable. We take every step possible to ensure that everyone's health and safety is guaranteed on our worksites. Ours is a zero-accident culture.

### EXCELLENCE

Listening to our clients and stakeholders and with a constant drive to satisfy them, our people strive to promote excellence, from the simplest to the most technical of tasks, in the design and construction of major projects that provide lasting improvements to the quality of life of communities.

### PROJECT FOCUS

Projects are our foremost focus and our organization is centred around them. At all times the women and men of all departments within the company engage in providing their skills for the benefit of the projects.

### CULTURE OF PROFIT

Our culture of global performance, profit and risk management is deeply rooted and is a guarantee of sustainability and fulfilment of our commitments to everyone in the long term.

### COLLECTIVE MINDSET AND INDIVIDUAL RESPONSIBILITY

Our people work as a team and in cooperation with each other. They are empowered with autonomy and given the necessary means to perform their tasks for transparency and loyalty in return.

### EMPLOYEE RECOGNITION

Our women and men are our most treasured wealth and their diversity drives our success. We are committed to fairly recognising and rewarding everyone's contribution to our achievements and nurturing their personal and professional development.

### INNOVATION

Since each project is unique we use our know-how, inventiveness and technological expertise, creating tailor-made solutions to meet the very specific needs of our clients and end users.

### SOCIAL AND ENVIRONMENTAL RESPONSIBILITY

Our women and men are highly conscious of their social responsibility in the regions where they operate, working ethically, respecting the human rights, caring for the common good and actively promoting environmentally responsible solutions.

## OUR MISSION

Building on their heritage as master builders and engaging actively in today's world, the women and men of VINCI Construction Grands Projets offer their high-performance culture and expertise to clients and communities, designing and constructing all over the world, in a sustainable and exemplary way, the major infrastructure projects of tomorrow.



# YOUR CONTACTS AROUND THE WORLD

## AREA MANAGERS



**Christian Tricoire**  
North America



**Philippe Athuyt**  
France and overseas  
French territories



**Sébastien Bliaut**  
Northern Europe



**Philippe Gouley**  
Mediterranean Europe and  
Central Europe



**François Pogu**  
British Isles



**Alexandre Ambrosini**  
Building & International  
QDVC



**Guenther Halmayer**  
Infrastructure, QDVC

## Worldwide presence



**Laurent Benard**  
Buildings



**Hosni Bouzid**  
LNG tanks



**Julien Rayssiguier**  
Water works



**Jean-Luc Audureau**  
Latin America  
and Carribean



**Éric Coppi**  
Africa



**Pierre Bourgeois**  
Asia and Oceania  
Civil works

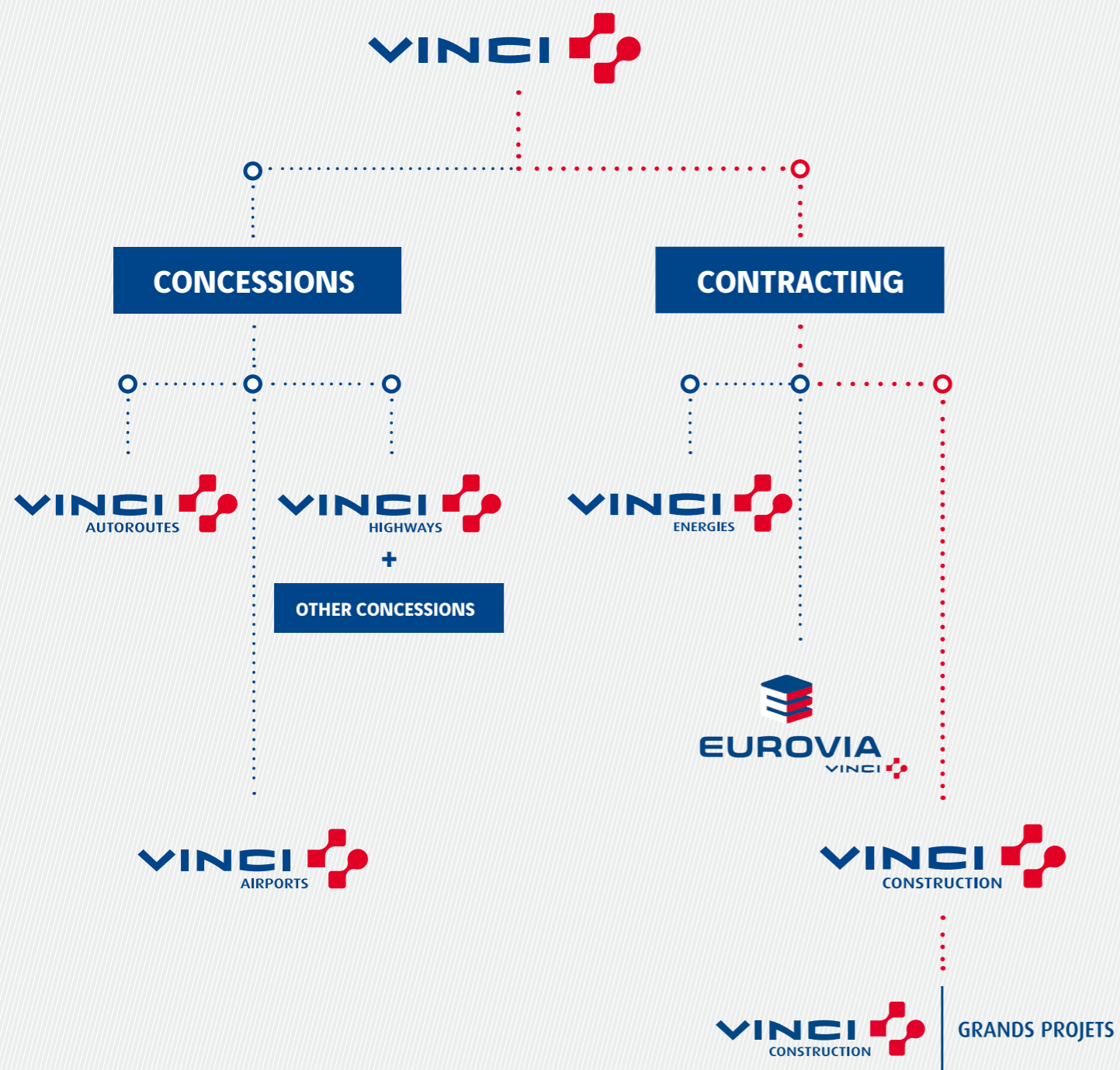


At December 31, 2018 (including joint ventures)

# ESSENTIALS

VINCI is a global player in concessions and construction, employing more than 195,000 people in some 100 countries.

Its mission is to design, finance, build and operate infrastructure and facilities that help improve daily life and mobility for all.



○ 211,233

○ 71,400

**6,098**  
EMPLOYEES  
WORLDWIDE



○ €43,500 M

○ €14,231 M

**€1,063 M**  
OF REVENUE



○ €4,997 M

○ €400 M

**€48.8 M**  
OF OPERATING INCOME  
FROM ORDINARY ACTIVITIES



○ €33.1 Bn (Contracting)

○ €15.1 Bn

**€1,913.6 M**  
ORDER BOOK

○ 300,000

○ 30,000

**84**  
PROJECTS

**€463.4 M**  
CASH

○ figures VINCI

○ figures VINCI Construction

● figures VINCI Construction Grands Projets





## CURRENT WORKSITES



### TRANSPORT INFRASTRUCTURES

#### Bridges and viaducts

- 1 // Atlantic Bridge, **Panama**
- 2 // Viaduct of the New Coastal Road, Reunion Island, **France**

#### Underground works

- 3 // Ottawa LRT, **Canada**
- 4 // Cairo metro, line 3, phases 3 & 4B, **Egypt**
- 5 // Lusail, Light Rail Transit phase 2C, **Qatar**
- 6 // Shatin to Central Link metro line, packages 1103 & 1122, **Hong Kong**
- 7 // Fehmarnbelt Tunnel, **Denmark-Germany**
- 8 // EOLE - CNIT station, Paris - La Défense, **France**
- 9 // Grand Paris Express, lines 15 south lot T3C and 14 south lot 2, **France**
- 10 // Copenhagen metro line 4, **Denmark**
- 11 // City Rail Link, Auckland, **New Zealand**

#### Motorways and railways

- 12 // M4 Relief Road motorway (ECI), **United Kingdom**
- 13 // M6 Smart Motorways (and M4 - ECI phase 1), **United Kingdom**
- 14 // HS2, packages N1 & N2 (ECI), Birmingham, **United Kingdom**
- 15 // Rijnlandroute Tunnel, **Netherlands**
- 16 // Bogota-Girardot Highway, **Colombia**

#### Bridges - tunnels

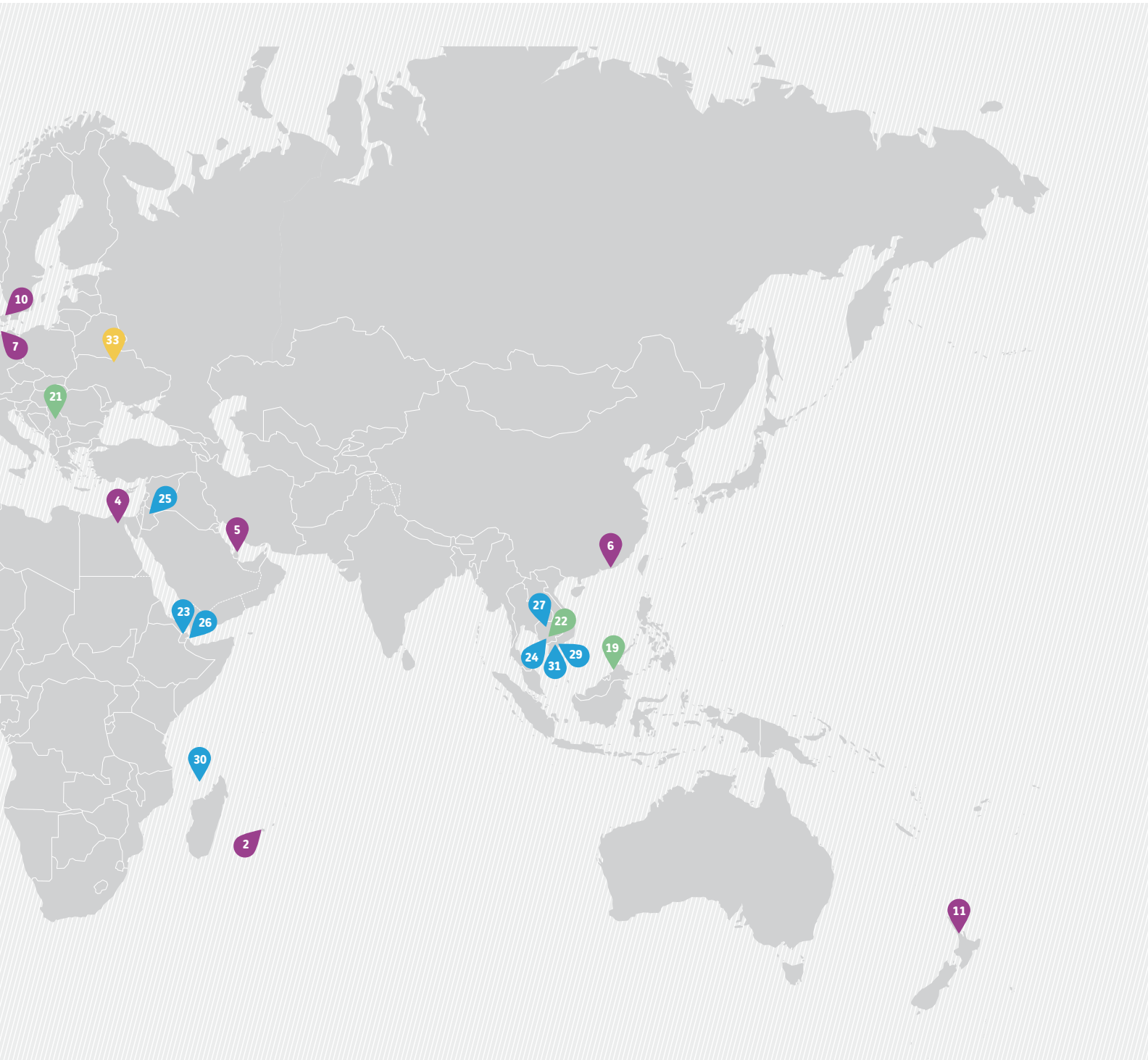
- 17 // I-64 link, Hampton-Norfolk, **USA**



### BUILDINGS AND FUNCTIONAL STRUCTURES

- 18 // Extension and renovation of Santiago airport, **Chile**
- 19 // Alila Resort, Kota Kinabalu, **Malaysia**
- 20 // Mandarin Oriental hotel, London, **United Kingdom**
- 21 // Extension and renovation of Belgrade Airport, **Serbia**
- 22 // Phnom Penh airport ground hanging building, **Cambodia**





## HYDRAULIC INFRASTRUCTURES

- 23 // Improvement of drinking water and sewer networks, **Djibouti**
- 24 // Renovation of Chamkar Mon drinking-water treatment plant, Phnom Penh, **Cambodia**
- 25 // Yarmouk water-network modernization, **Jordan**
- 26 // Upgrading of the drinking water supply network, phase II, **Djibouti**
- 27 // Siem Reap wastewater treatment plant, **Cambodia**
- 28 // Tideway, package East, C415, London, **United Kingdom**
- 29 // Transfer of drinking water supply, Ho Chi Minh City, **Vietnam**
- 30 // South Mamoudzou Sewage treatment plant, Mayotte, **France**
- 31 // Sewage treatment plant, Ho Chi Minh City, **Vietnam**



## ENERGIES AND OIL & GAS

### Nuclear

- 32 // Tokamak reactor building, ITER project, Cadarache, **France**
- 33 // Chernobyl New Safe Confinement, **Ukraine**

### Energy Storage

- 34 // Pumped-storage hydroelectric plant, Abdelmoumen, **Morocco**



**THE NEW COASTAL ROAD VIADUCT**  
LA RÉUNION, FRANCE

**CHALLENGE MET FOR THE NEW COASTAL ROAD VIADUCT COMPLETELY PREFABRICATED ASHORE**

The last of the 1,386 voussoirs for the offshore viaduct was installed on 19 April 2019. The viaduct will connect Saint-Denis and La Grande Chaloupe. The 5,400-m viaduct in the open sea – a record in France – will connect Saint-Denis to La Grande Chaloupe. This new dual 3-lane carriageway will enable the more than 50,000 motorists per day who use the coastal road to travel in complete safety despite the cyclonic swells that sweep across the island on a regular basis. 95% of the viaduct is precast onshore, a construction solution that helped to reduce the effect of weather conditions on work schedules and minimize the impact on wildlife.



**3,229,000**

*The number of hours worked from the start of the project to the end of March 2019.*



**900**

*The number of partners and engineers mobilised on site by the group during the peak period.*



**ATLANTIC BRIDGE**  
COLÓN, PANAMA

**DECK JOIN-UP OPERATIONS COMPLETED OVER THE PANAMA CANAL**

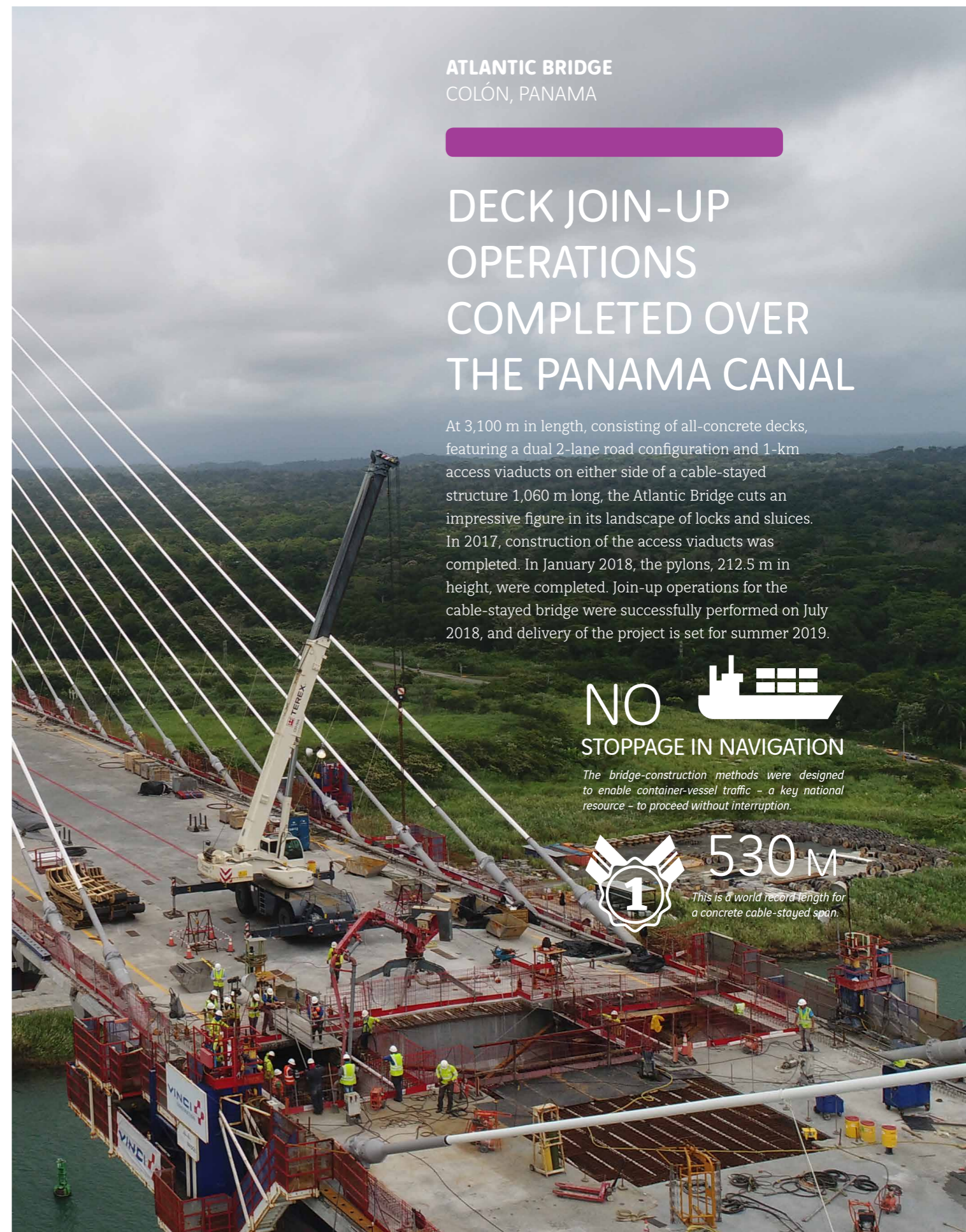
At 3,100 m in length, consisting of all-concrete decks, featuring a dual 2-lane road configuration and 1-km access viaducts on either side of a cable-stayed structure 1,060 m long, the Atlantic Bridge cuts an impressive figure in its landscape of locks and sluices. In 2017, construction of the access viaducts was completed. In January 2018, the pylons, 212.5 m in height, were completed. Join-up operations for the cable-stayed bridge were successfully performed on July 2018, and delivery of the project is set for summer 2019.

**NO STOPPAGE IN NAVIGATION**



*The bridge-construction methods were designed to enable container-vessel traffic – a key national resource – to proceed without interruption.*

**530 M**  
*This is a world record length for a concrete cable-stayed span.*

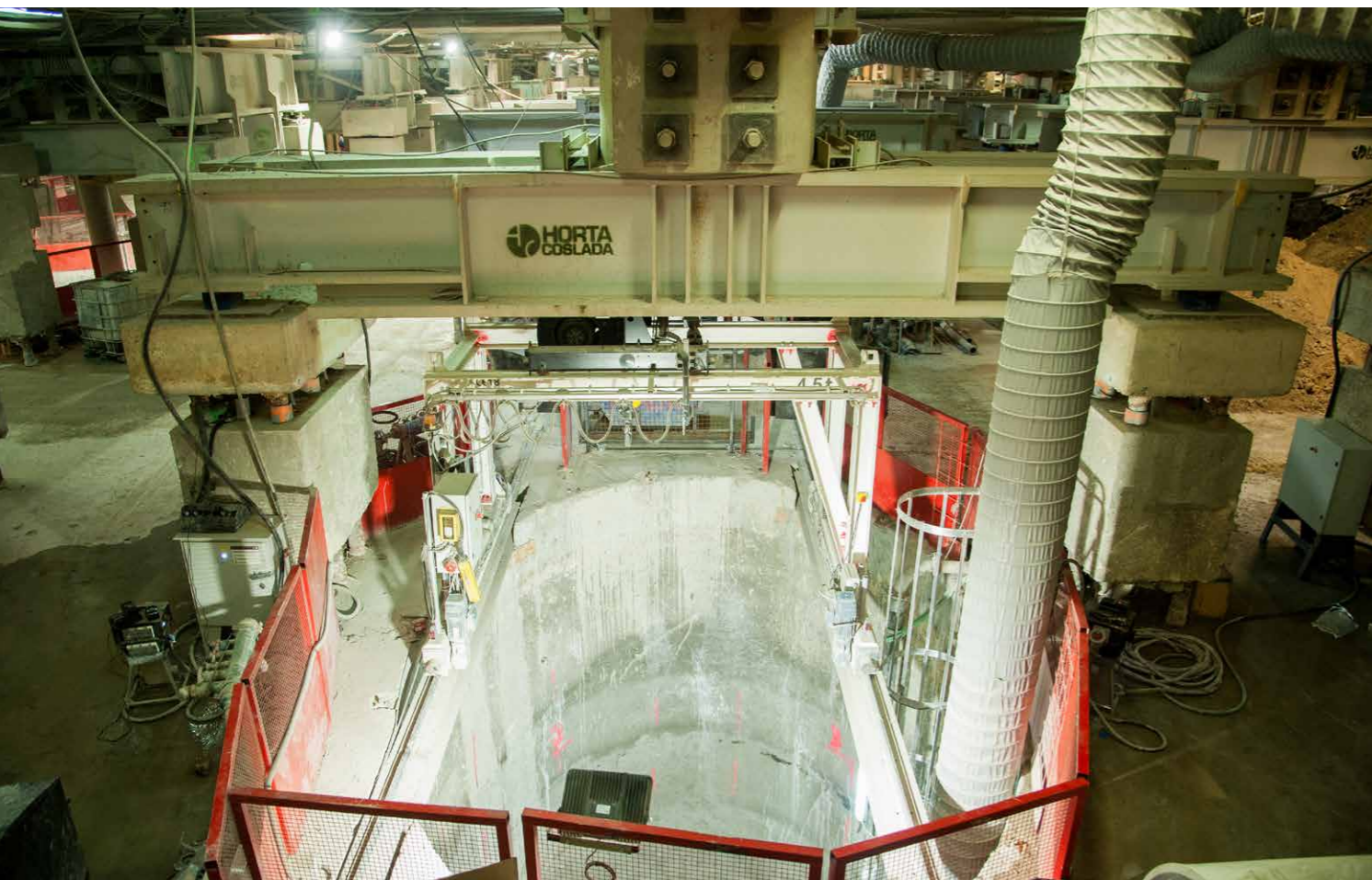




**RAIL STATION BELOW CNIT AND ADJACENT TUNNELS  
- EOLE PROJECT**  
PARIS - LA DÉFENSE, FRANCE

**“SUSPENDING” A SHOPPING  
CENTRE WITHOUT STOPPING  
ITS OPERATIONS**

To build the new RER E rail station at La Défense, along with a km-long set of tunnels, a shaft 40 m deep and 15 m in diameter, and several underground pedestrian passageways, many challenges have to be overcome. One of the major achievements of the projects, successfully completed in 2017, was to underpin the 118 piles in the CNIT car park in efforts to “suspend” the site and carry out excavation for the underground rail station. Construction of the station’s future piles has started and will then allow boring down to the level of the future platform, at a depth of more than 30 m. Minimising works-related nuisances is another key issue in this project since the shopping centre – including a four-star hotel – had to continue to operate.



« This ambitious project will mobilise the Group's expertise for the next 20 years. It's a fantastic technical challenge but also a true human challenge »  
**Xavier Huillard,**  
CEO, VINCI



**GRAND PARIS EXPRESS - LINE 15  
SOUTH, LOT T3C**  
ISSY - VILLEJUIF, FRANCE

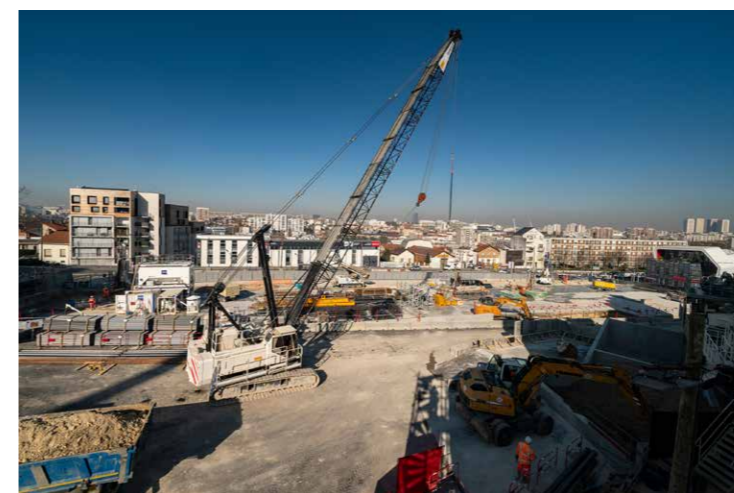
**INTERCONNECTING  
CITIES IN  
SOUTHERN  
ÎLE-DE-FRANCE**

Île-de-France Region has launched its largest infrastructure project of the 21<sup>st</sup> century: Grand Paris Express. We are the lead contractors in the consortium that is building lot T3C, from the underground train station at Fort d'Issy-Vanves-Clamart to the future train station at Villejuif-Louis Aragon, that is 8.2 km of tunnel construction in a very urban setting along with 8 shafts and 5 new train stations.

In 2018, the teams proved the relevance of an innovation: for the first time in France, a vertical tunnel boring machine was used to dig the access shafts.

**GRAND PARIS EXPRESS - LINE 14 SOUTH, LOT GC02**  
PARIS - L'HAY-LES-ROSES, FRANCE  
**NEW 2018 CONTRACT**

**A FUTURE METRO LINE TO LINK THE STADE  
DE FRANCE WITH ORLY AIRPORT**



To create this new link between Paris and Orly Airport, which will benefit 260,000 commuters, our consortium will create 4.6 km of tunnels, the new Kremlin Bicêtre Hôpital station and 5 ventilation and emergency shafts. 72 months of work to which we have committed 83,000 hours of work integration. In a very built-up area, the teams will pass under the operational A6 motorway and under Kremlin Bicêtre hospital, where the earthworks will be very closely monitored to avoid disturbing medical devices.



**LIGHT RAIL TRANSIT SYSTEM**  
LUSAIL, QATAR

**QATAR'S FIRST URBAN  
TRANSPORT NETWORK  
OPERATIONAL AS OF 2019**

Through our subsidiary QDVC (51% Qatari Diar, 49% VINCI Construction Grands Projets), we are assisting our client on an Early Contractor Involvement project to design and build a 30-km light-rail transit (LRT) system in the new city of Lusail, located north of the capital of Qatar. Civil engineering operations for the system's underground portion (including 10 km of track and 7 stations) have been completed. Construction of the Pearl intermodal station, which will connect the Doha metro system and Lusail's tramway network, is under way. In June 2014, Alstom joined the project to form, in conjunction with QDVC, the consortium that will deliver the final and most important phase of the mandate, which includes – for QDVC – technical and architectural work packages, the depot, the ventilation, communication, and control systems, – and for Alstom – tracks, power-generation, and, of course, rolling stock. The first line will be delivered in 2019 and the 3 following lines in 2020.

 **100 %  
FORECASTING**

*Urban mobility challenges are usually the reason for launching transport projects in cities. In this case, we had to forecast all potential problems since the city didn't even exist at the start of the project.*

 **ZERO  
CATENARIES**

*The Lusail LRT network is a leading-edge transport system that uses catenary-free technology for optimal visual appeal. As a result, power will be delivered at grade to the system by a third track on the ground.*

**RED LINE SOUTH**  
DOHA, QATAR

**FERRYING VISITORS TO QATAR  
FROM THE AIRPORT TO THE CITY'S  
HISTORIC CENTRE**

Football fans on their way to Doha for the FIFA World Cup in 2022 will use the metro network we are building. Our consortium is in charge of designing and building a 13.8-km twin-tube tunnel to ferry visitors to Qatar from the airport to the city's historic centre. The contract also calls for the construction of 6 underground stations, 51 safety connections between the tubes, and 3 emergency evacuation shafts.





## SHATIN TO CENTRAL LINK METRO LINE HONG KONG, CHINA

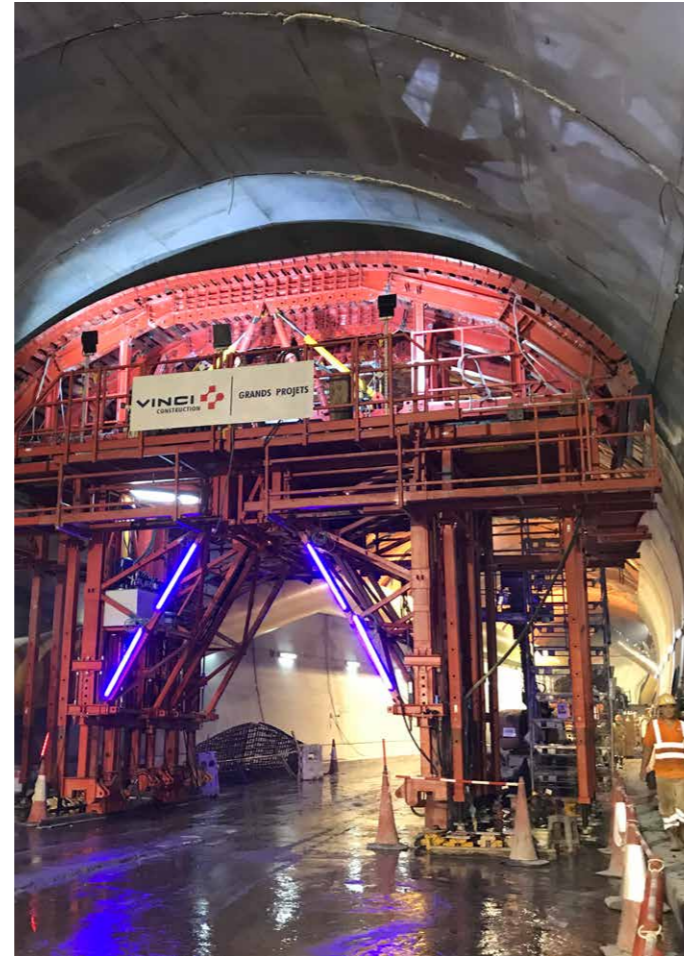
# THE CHALLENGE OF ENHANCING MOBILITY IN A HYPER-URBAN SETTING

In September 2016, the Hin Keng to Diamond Hill tunnels were delivered to the client, MTR. In 2017, project teams completed exterior works along with technical and architectural works. The line will be opened to the public in 2019.

### PROJECT OF THE YEAR



*in the €50-to-500 million category. The International Tunnelling and Underground Space Association (ITA) awarded its project of the year prize to us. "In a complex geological situation, different tunnelling methods had to be used such as cut-and-cover and drill-and-blast at only 6 m above a live water supply tunnel. Also, a TBM crossed twice at 6 m below an operating railway line," commented the ITA judges' panel at the awards ceremony.*



Our consortium won the design and construction contract for line 4 of the Copenhagen metro, which extends the network from the Danish capital to the south by connecting with the main circular line (Cityringen). This project will increase urban travel options for Copenhagen residents thanks to the two 4.4 km tunnels we are going to construct, as well as the 5 underground stations and 2 ventilation shafts. The architectural structures, the tunnel ventilation system and the electromechanical systems are also included in the contract.

## METRO LINE 4, SYDHAVN COPENHAGEN, DENMARK NEW 2018 CONTRACT

# CONNECTING COPENHAGEN'S METRO NETWORKS



## RIJNLANDROUTE LEIDEN, THE NETHERLANDS

# ENHANCING THE NETHERLANDS' MOTORWAY NETWORK

Once again, 5 years following the delivery of the Coentunnel project in Amsterdam, our consortium put its know-how to work for the Netherlands – this time in and around Leiden on the RijnlandRoute project. The project calls for widening a 12-km stretch of motorway, building N434 (a 4-km roadway, including drilling a 2.2-km tunnel), and installing newly required interchanges. Thanks to this work, the cities of Katwijk (via A44) and Leiden (on A4) will be more efficiently interconnected. The contract also calls for maintenance of this new infrastructure for 15 years.



**M4 AND M6 SMART MOTORWAYS**  
LONDON - BIRMINGHAM, UNITED KINGDOM  
**NEW 2018 CONTRACT**

**MAKING ENGLISH MOTORWAYS "SMART"**

After successfully delivering the M5 motorway in 2017, our consortium was awarded the work for the M6 between junctions 2 at Coventry and 4 close to Coleshill to the east of Birmingham, a 21-km section of motorway. As with the M5, the work involves increasing the flow from three to four lanes thanks to smart use of the hard shoulder. The project includes a system to manage traffic flows in real time based on traffic, with dynamic gantry signs. The work will take two and a half years to complete. In 2018, our teams also started preliminary work on the M4 between junctions 8/9 and 10 close to the English capital. Studies are ongoing to make the 51 km of the M4 smart.



**100 % VIRTUAL TRAINING**  
To make the site's safety training more interactive, the M6 project team has developed a virtual tour including what to do in the presence of active site machinery. Therefore, all new recruits are introduced to the site virtually before actually going there. An initiative heralded by our client Highways England.

**FROM AMERICA TO NEW ZEALAND, 3 HUGE PROJECTS AGREED IN EARLY 2019**

**CONFEDERATION LINE**  
OTTAWA, CANADA

**EXTENDING OTTAWA'S LIGHT RAIL NETWORK TO THE EAST AND WEST**

To extend the current network over 27.5 km of light rail infrastructure, our consortium will create 4 km of covered tunnels, 20 structures, 16 stations and a maintenance centre. The design and construction and financing contract also includes the widening of 12 km of motorway.



**I-64, ROAD LINK**  
HAMPTON - NORFOLK, USA

**THE LARGEST PROJECT EVER UNDERTAKEN BY THE STATE OF VIRGINIA**

More than 100,000 vehicles use the road built in 1976 every day, causing significant congestion. The State of Virginia has therefore awarded us the project to design and construct 5.3 km of offshore viaducts and new tunnels, as well as to widen 14.5 km of existing roads. The project comprises 18 months of study and 56 months of works. For the new section, the consortium will dig two 2.4 km tunnels between two artificial islands using a variable density tunnel boring machine with a diameter of 13.56 m. These 2 islands will be connected to the mainland by 2 offshore viaducts measuring 1 km and 1.9 km in length respectively. For the existing section, the demolition, reconstruction and widening works concern 14.5 km of road where two additional lanes will be created in each direction. Traffic flow will be maintained during the works.



**CITY RAIL LINK, LOT 3**  
AUCKLAND, NEW ZEALAND

**DOUBLING THE NUMBER OF AUCKLAND RESIDENTS LIVING WITHIN 30 MINUTES OF THE CITY CENTRE**

To transport 54,000 passengers an hour to Auckland city centre during peak times, the equivalent of two 2 x 4 lane motorways, we are going to create 3.45 km of new train lines, including 3.2 km in a tunnel excavated using an Earth Pressure Balance tunnel boring machine. 3 stations are also going to be constructed for this contract signed in July 2019.





**PUMPED-STORAGE POWER PLANT**  
 ABDELMOUMEN, MOROCCO

**SUPPORTING ENERGY  
 TRANSITION IN MOROCCO**

The Abdelmoumen power plant is a pumped-storage hydroelectric energy facility. The water stored in a tank located uphill will be released into a 3-km transfer line (1 km of which will be underground) and travel along a natural slope to a tank located 550 m downhill. A 350-MW hydroelectric power plant will be built along the penstock between the 2 reservoirs. This reversible-operation plant will generate electricity when operating in turbine mode and pump water from the lower to the upper reservoir in pumping mode, thereby generating renewable energy on demand.



 x20

*The system can be switched between pumping and turbine mode up to 20 times a day, depending on the amount of surplus electricity and the needs of the Moroccan power grid.*




**ITER PROJECT**  
 CADARACHE, FRANCE

**PARTICIPATING IN THE  
 NUCLEAR FUSION  
 EXPERIENCE, THE ENERGY  
 OF THE FUTURE**

Scientists from around the world are designing a prototype to demonstrate that it is possible to produce energy from nuclear fusion. This would resolve the problem of radioactive waste produced by nuclear fission, the method currently employed at nuclear power plants. We're supporting their efforts by constructing the building that will house the future reactor. The civil engineering requirements for this building are as complex as that of nuclear reactors of the latest generation.



*On the ITER project, checks are conducted using augmented reality: design plans and built structures are superimposed so as to quickly detect discrepancies.*

**300**  
 kg/m<sup>3</sup> 

*This is the high density attained in certain areas by steel reinforcements. A high number of inserts are also being developed to accommodate equipment and openings in future. All of it is being built with millimetric precision.*



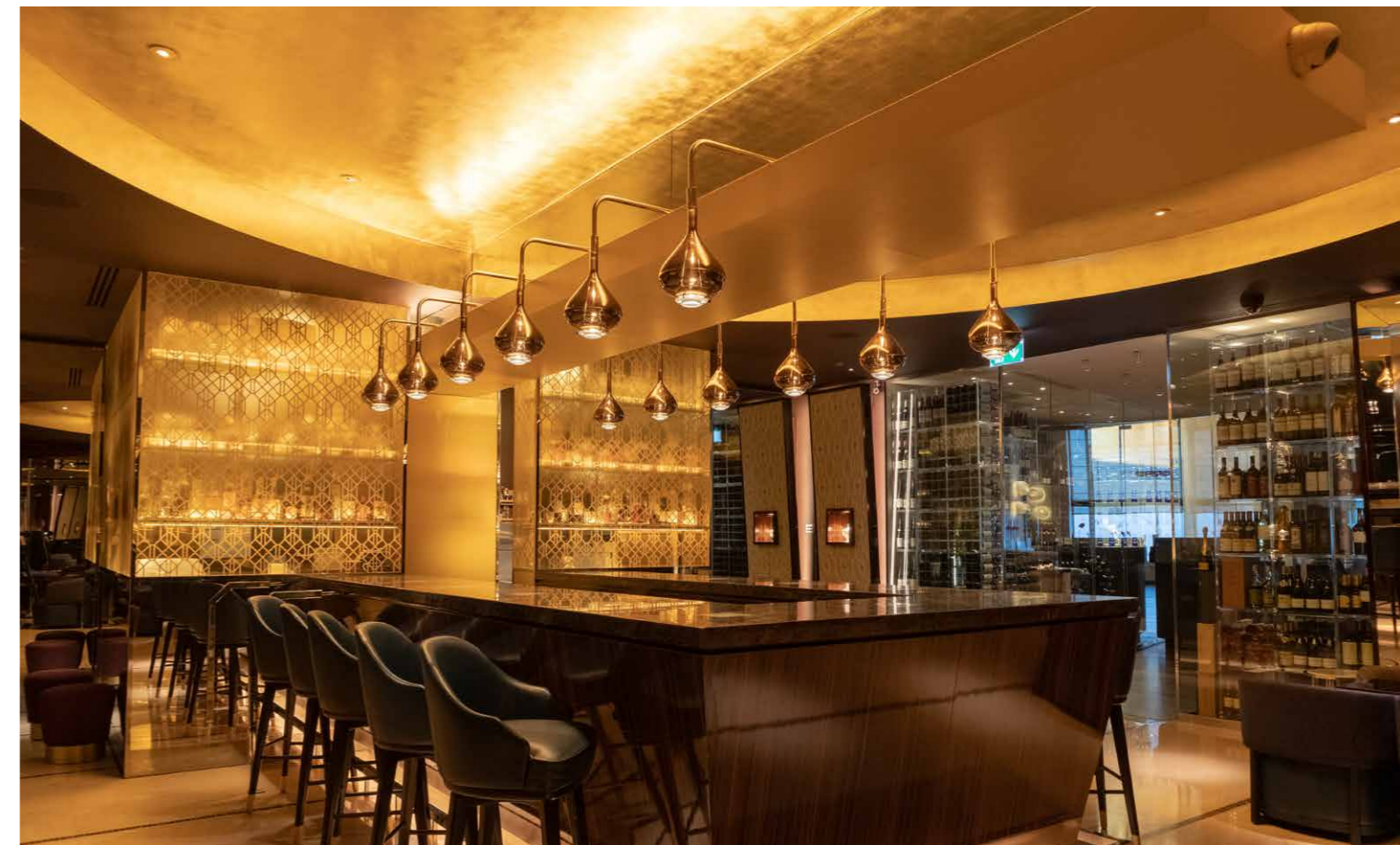
## EXPANDING AND RENOVATING SANTIAGO AIRPORT SANTIAGO, CHILE

# DOUBLE THE AIRPORT'S CAPACITY TO CONSOLIDATE SANTIAGO'S POSITION AS A REGIONAL HUB

To raise Santiago Airport's capacity from 16 million to 30 million passengers by 2020, the concession-holding company (including Aéroport de Paris, VINCI Airports and Astaldi) awarded a design-build contract for a new terminal to our company. The new facility will feature 350,000 m<sup>2</sup> of floor space but also 550,000 m<sup>2</sup> of new tarmac and taxiways and 185,000 m<sup>2</sup> of car parks. In addition, the existing terminal will be renovated. Planning is crucial on this project since work is being carried out without impeding current airport operations. On this project, the use of BIM (Building Information Modelling, see p.41) is being extended to the post-construction operations and maintenance phases.

18 dec.  
2018 

*In late 2018, we delivered the first of the new terminals, the T2C, in the presence of the Chilean President. The first contractual milestone had been reached.*



## MANDARIN ORIENTAL HOTEL LONDON, UNITED KINGDOM

# A 12,000-M<sup>2</sup> PLUS RENOVATION IN A VIP SETTING

London's Mandarin Oriental, located in the up-market area of Knightsbridge, adjacent to Hyde Park, is getting a makeover. The project calls for renovating 12,000 m<sup>2</sup> of rooms and reception spaces (lobby, reception area, hallways, a spa, lifts) and upgrading electrical and plumbing systems as well as the building's façade. The project includes creating 2 new suites on the 9<sup>th</sup> floor with a view of Hyde Park, which will bring the number of rooms at the hotel to 170. In 2017, half of the rooms were renovated and delivered to the client. But on 6 June 2018, a fire devastated the hotel. We supported our client through this difficult time, and the restaurant areas were reopened for Christmas 2018 and the rooms in May 2019.

100% **Plendi**

*London's Mandarin Oriental is the Plendi brand's first project. Plendi brings together the know-how of VINCI Construction companies in the area of luxury facilities. To find out more, visit [plendi.com](http://plendi.com)*



**ALILA RESORT**  
KOTA KINABALU, MALAYSIA

**SUPPORTING  
THE TOURIST  
DEVELOPMENT  
OF EASTERN  
MALAYSIA**



Our teams are continuing to develop the eastern part of Malaysia, in Kota Kinabalu on the island of Borneo. After having delivered the Menara Hep Sengh building (which would become Shell Plaza when it opened in August 2015), the island's first LEED-certified building, in September 2016, our teams delivered the 3 Jesselton towers and were involved in the construction of a 152-room resort, by the sea, 30 km north of Kota Kinabalu. The main building is 250m long and has 6 floors. The architecture is reminiscent of the "longhouse" design traditional in Borneo. 2 adjacent buildings, for the spa and restaurants, are also being constructed.

**NIKOLA-TESLA AIRPORT**  
BELGRADE, SERBIA  
**NEW 2018 CONTRACT**

**10 MILLION PASSENGERS  
IN 2023**

At the end of December 2018, VINCI Airports was entrusted with the design and construction of the extension of Belgrade Nikola Tesla Airport. Aim: to double the capacity of the facilities in 5 years to accommodate 10 million passengers. Passengers and their families will benefit from a new 40,000 m<sup>2</sup> terminal and more than 15,000 m<sup>2</sup> of existing space will be renovated. Boarding will take place via 11 new bridges, a new runway will be added and the current runway will be renovated.



**BRUSSELS SOUTH WATER TREATMENT PLANT**  
BRUSSELS, BELGIUM

**THE PUREST WATER  
IN EUROPE**

The Brussels South water treatment plant was opened on 15 March 2019 by the Brussels-Capital region's Minister of the Environment, Céline Fremault. The plant houses the second largest ultrafiltration membrane in Europe. Now, a quarter of the wastewater from the Brussels region, the equivalent of the consumption of 360,000 inhabitants, is treated using a high-performance process that filters out bacteria and enables the water to be reused for watering or irrigation.



*The surface area of the membranes installed over a 1,500 m<sup>2</sup> footprint. Exceptional compactness that meets the demands of the water treatment plant site in a very dense urban area.*



**DRINKING-WATER SUPPLY**  
HO CHI MINH CITY, VIETNAM

**BRINGING DRINKING WATER TO THE RESIDENTS OF HO CHI MINH CITY**

This new water treatment plant located in district 2 of Vietnam' economic capital will be used to purify the daily environment of 1.1 million inhabitants with a capacity of 34,000 m<sup>3</sup>/hour. We are going to design and construct a water treatment plant comprising a pumping station, biological treatment, disinfection and odour treatment, as well as the connection to the city's network. This contract, funded by the World Bank, was signed on 8 March 2019, for 5 years for the design and construction, and for 5 years for operation and maintenance of the facility.



**2 CHALLENGING INTERFACES**

*The project site runs along Line 1 of the metro system currently under construction and will also run below the Saigon River.*


Saigon Water Corporation (Sawaco) awarded to our consortium with Bessac (a subsidiary of Soletanche-Freyssinet) a design-build mandate for a drinking-water supply line 10 km long. The project, on which we will oversee the design phase, calls for the production and installation of prefabricated reinforced concrete components 3 m in external diameter using the pipe-jacking technique. We will also deliver 16 shafts, 11 junctions, and 5 branches for future junctions.

**NHIEU LOC-THI NGHE WATER TREATMENT PLANT**  
HO CHI MINH CITY, VIETNAM

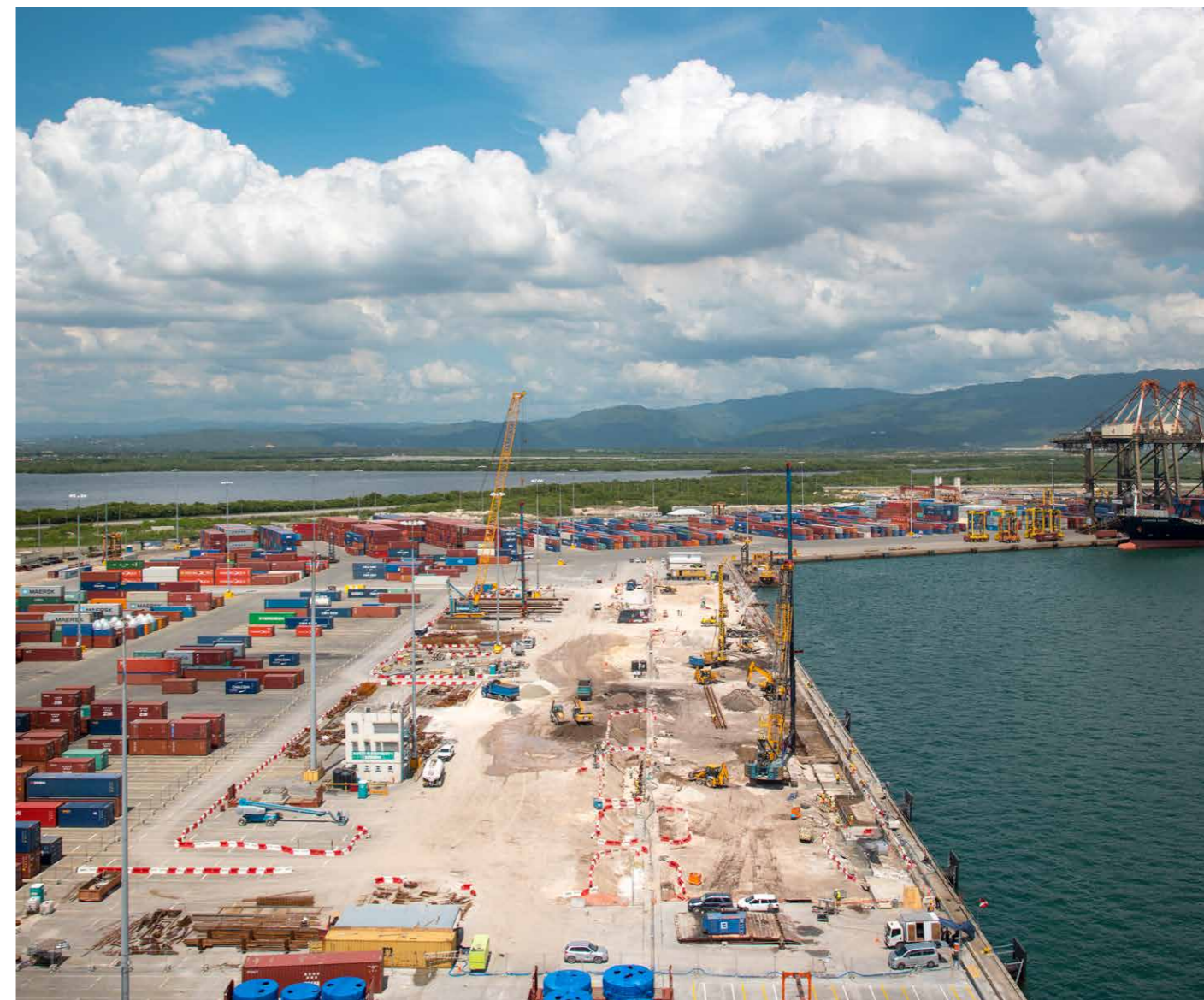
**... AND TREATING THEIR WASTEWATER IN RETURN**

**EXPANDING AND UPGRADING THE PORT**  
KINGSTON, JAMAICA  
**DELIVERED IN 2018**

**HELPING KINGSTON ACCOMMODATE HUGE SEA VESSELS**

**x2**   
*The port's capacity has more than doubled, from 1.4 million twenty-foot equivalent units to 3.6 million.*

Following the launch of new locks in the Panama Canal, the port of Kingston completed work to upgrade and expand its facilities to accommodate the world's largest container ships, including changing all dock equipment, dredging an access channel, reinforcing the soil, rehabilitating 50,000 m<sup>2</sup> of traffic areas, and anchoring the port's new cranes - all at a busy site prone to seismic and cyclone activity. This technically challenging project required innovative variants to allow us to meet tight deadlines all the while ensuring worker and employee safety at this busy port.





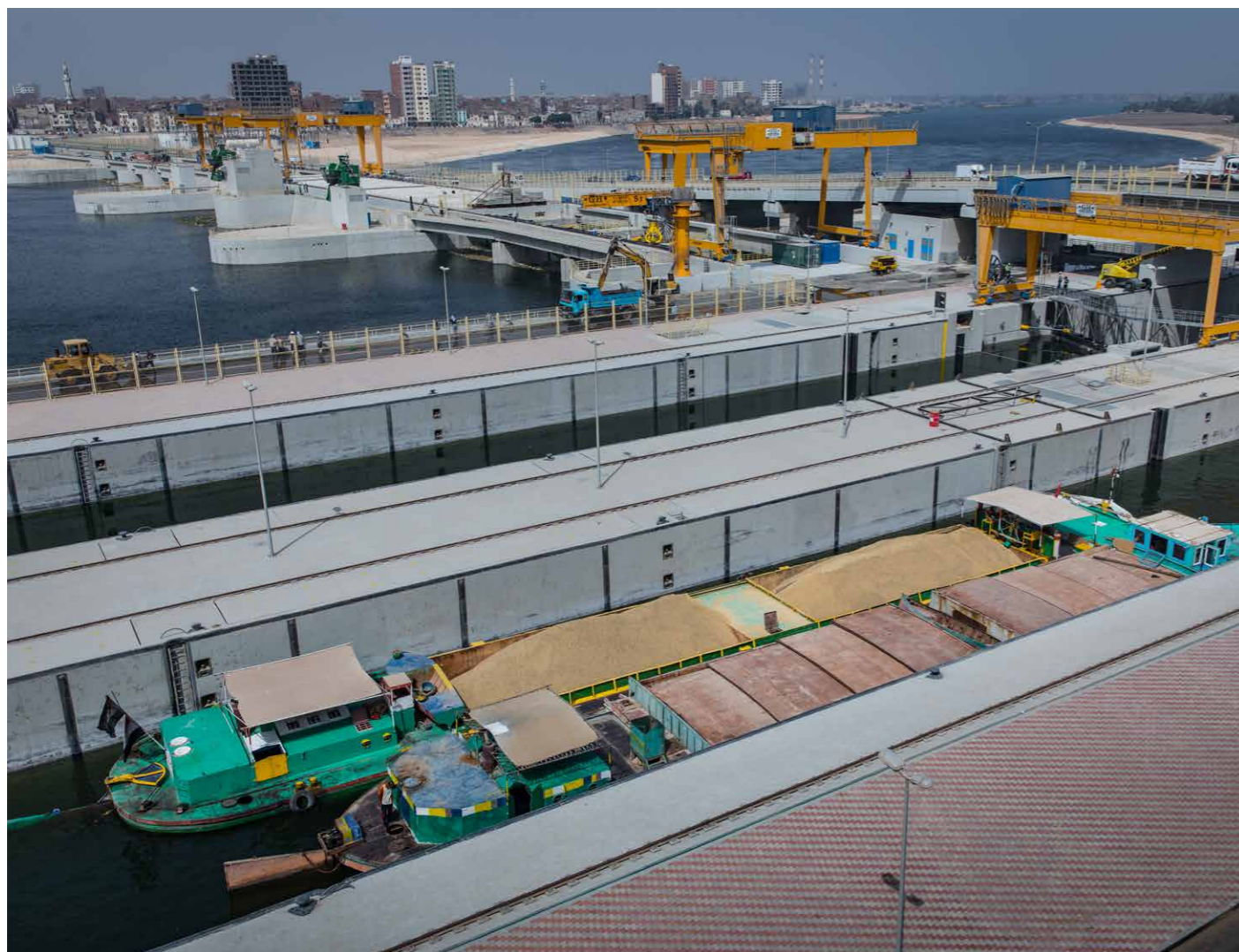
**NEW DAM**  
 ASSIUT, EGYPT  
**OPENED IN 2018**

## THE NILE DIVERTED AND RESTORED

In 2012, 27 years after the delivery of the Aswan Dam, and 4 years after that of the Naga Hammadi dam, we launched a new dam-building project in Egypt. The mandate was to design and build a new dam 400 m downstream from the existing Assiut Dam, which was erected in 1902. To that end, we diverted the Nile at this location to dry-build the new dam, 2 locks to ensure river navigation, a power-generation plant consisting of four 8-MW turbines, 2 spillways equipped with eight 17-m gates, and a 4-lane road bridge. In 2016, the course of the Nile at the location of the diversion was successfully restored. The opening took place on 12 August 2018 in the presence of the Egyptian President, Abdel Fattah el-Sisi.

**690,000**  
**HECTARES** 

*The agricultural area that can now be irrigated thanks to the new dam connected to the spillway of the Ibrahimia irrigation canal.*



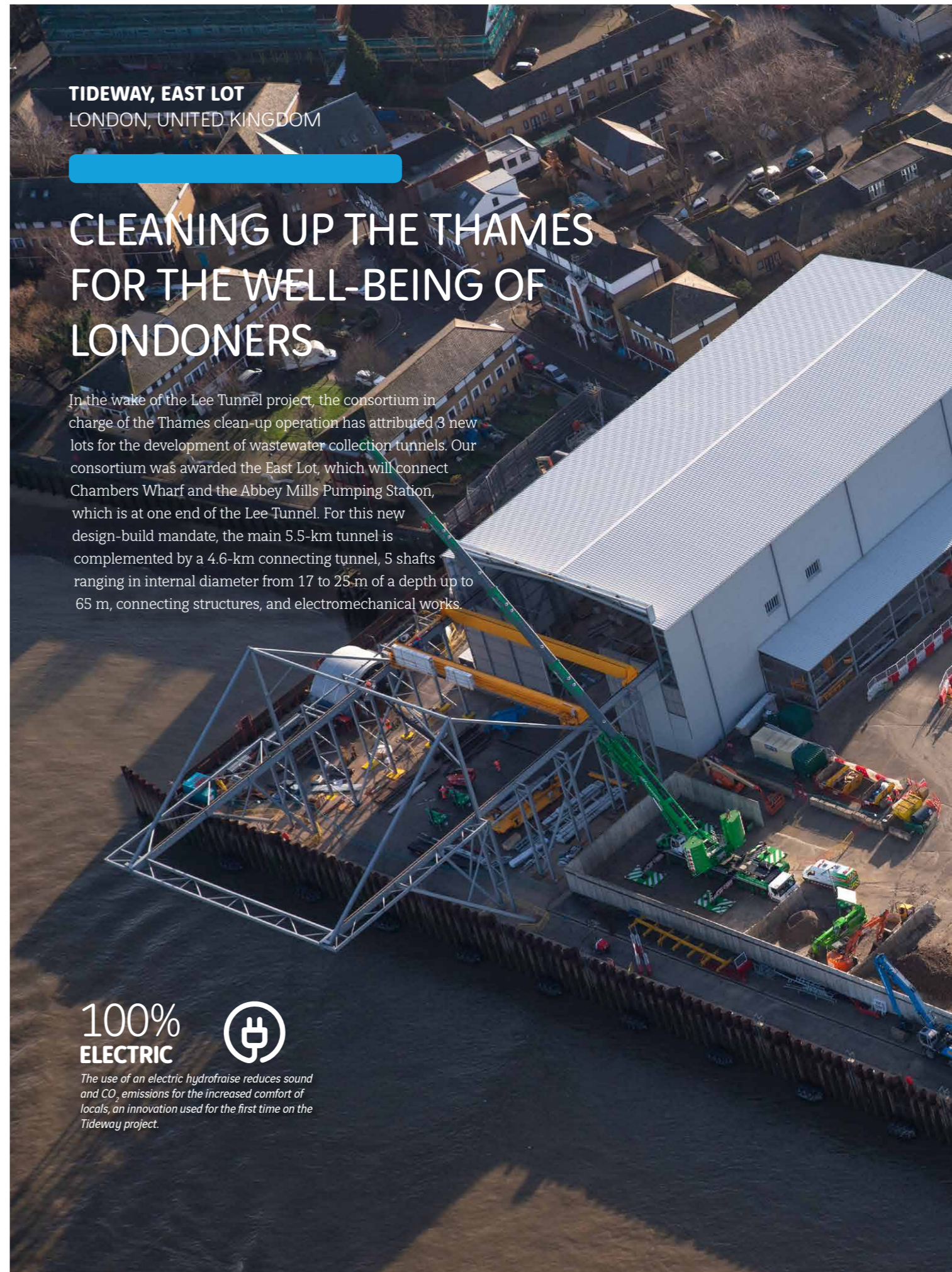
**TIDEWAY, EAST LOT**  
 LONDON, UNITED KINGDOM

## CLEANING UP THE THAMES FOR THE WELL-BEING OF LONDONERS

In the wake of the Lee Tunnel project, the consortium in charge of the Thames clean-up operation has attributed 3 new lots for the development of wastewater collection tunnels. Our consortium was awarded the East Lot, which will connect Chambers Wharf and the Abbey Mills Pumping Station, which is at one end of the Lee Tunnel. For this new design-build mandate, the main 5.5-km tunnel is complemented by a 4.6-km connecting tunnel, 5 shafts ranging in internal diameter from 17 to 25-m of a depth up to 65 m, connecting structures, and electromechanical works.

**100%**  
**ELECTRIC** 

*The use of an electric hydrofraise reduces sound and CO<sub>2</sub> emissions for the increased comfort of locals, an innovation used for the first time on the Tideway project.*





**DRINKING-WATER TREATMENT PLANTS**  
CHAMKAR MON AND SIEM REAP, CAMBODIA

**ADDRESSING GROWING DEMAND FOR WATER IN CAMBODIA**

Given Phnom Penh's economic development and the growing inflow of tourists at Angkor Wat in Siem Reap, Cambodia's demand for water is surging. After delivering the Niroth treatment plant in early 2017, our teams were already active the following summer on 2 drinking-water treatment plants in Chamkar Mon, a district of Phnom Penh, and in Siem Reap.

At Chamkar Mon, teams have already demolished the former plant to begin the design-build process for a new plant whose production capacity, at 52,000 m<sup>3</sup> per day, will be more than double that of the old plant. At Siem Reap, the project began with construction of a water intake with a capacity of 30,000 m<sup>3</sup> per day. Then came an increase in production capacity for the existing plant of 15,000 m<sup>3</sup> per day. Finally, the project will move toward completion with the installation of transfer piping over a distance of 6.5 km.



Communities across Glasgow will benefit for years to come from this latest extraordinary feat of engineering which lies hidden deep beneath the city

Roseanna Cunningham,  
Scotland's Environment Secretary



**SHIELDHALL TUNNEL**  
GLASGOW, UNITED KINGDOM  
**DELIVERED IN 2018**

**CLEANING UP THE RIVER CLYDE**

Neither former coal mines (treated beforehand with injection operations) nor glacial till nor even the shallow passageway under 3 operating railway lines and a motorway (M77) could stop our slurry-shield tunnel-boring machine, Daisy the Driller! Tunnel-boring operations were completed on October 12, 2017 after 5.1 km at depths of up to 20 m. The electromechanical equipment was installed and the project was inaugurated on 30 July 2018.

**90,000 m<sup>3</sup>**

of stormwater-storage capacity thanks to the Shieldhall project, the equivalent of 36 Olympic-sized swimming pools.



**HYDROPLUS AND WMI, TWO SUBSIDIARIES TO OFFER A GREATER RANGE OF SERVICE IN THE WATER-MANAGEMENT SECTOR**

Hydroplus was founded in 1991 in efforts to develop innovations to prolong the useful life of dams. Hydroplus invented and patented the Fusegate®, which can be used to increase dams' storage capacity and enhance their safety, thereby improving the performance of flood-protection dikes.

Find out more: [hydroplus.com](http://hydroplus.com)



To minimize water losses in drinking-water networks and improve water-network performance, WMI has been offering an integrated solution since 1989. WMI's expertise, already tested in more than 40 countries, translates into benefits all along the drinking-water value chain, from production to distribution to consumers.

Find out more: [wmi-water.com](http://wmi-water.com)



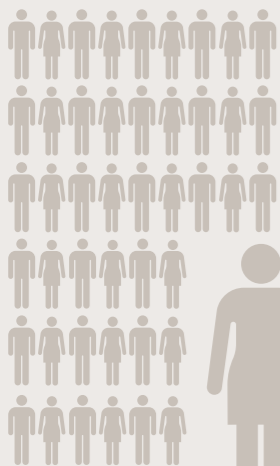


# OUR PEOPLE, OUR RESOURCE

**6,098**  
EMPLOYEES  
IN THE  
WORLD



INCLUDING  
**1,173**  
MANAGERS



**1,190**  
HIRES UNDER  
PERMANENT  
CONTRACT



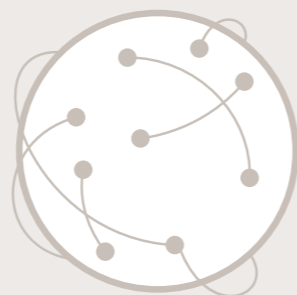
**21.78%**  
WOMEN



**137**  
VINCI  
MOBILITY  
CONTRACTS

VINCI Mobility contracts allow international managers to enjoy permanent contracts with benefits such as health insurance or a retirement savings plan. This type of contract helps to retain our best employees around the world.

**29**  
NATIONALITIES



The choosemycompany label is attributed in partnership with Les Echos Start and rewards excellence in managing and motivating trainees and work-study students! It's the students who get to judge the quality of their traineeship or work-study programme. VINCI Construction Grands Projets ranks in the top 10 of the 2,000 companies that were selected and evaluated. In fact, we obtained an overall grade of 4.15/5 and a recommendation rate of 90.2%.

## 21,332 HOURS OF TRAINING IN 2018 OR 3.37% OF TOTAL PAYROLL



### 34 EMPLOYEES TRAINED IN MULTICULTURAL MANAGEMENT

We gauge our success by our clients' satisfaction. It is therefore fundamental that we understand, from the very first meeting, the cultural context we're working in, on all five continents. Furthermore, the integration of partners and local economic networks into our activities demands that we fully comprehend these environments. Finally, an understanding of cultural differences ensures that the structures we build are fully adopted by the populations for whom they are intended.



### 91 EMPLOYEES ATTENDED ORCHESTRA TRAINING

Orchestra is the training available since 2007 for employees supervising works. Employees master worksite preparation and production, while developing appropriate quality and safety habits.



### 2,747 WORKERS ATTENDED SKILL-UP TRAINING

### 8 SESSIONS DELIVERED IN MOROCCO, MALAYSIA AND EGYPT

Since 2012, Skill up has operated as a mobile training school for workers around the world. Project managers identify tasks on which local workers need to be trained in order to achieve our quality and safety criteria. A knowledge and skills transfer program is developed, and then our multi-lingual trainers, once foremen themselves, go on site to provide hands-on training.



### 40 MANAGERS ATTENDED TEAM GRANDS PROJETS

### 44 SPEAKERS IN TEAM GRANDS PROJETS

Created in 2008, Team Grands Projets is the academy of excellence for future senior project managers. The company's experience and knowledge are passed on through direct testimonials, in a spirit of sharing that fosters a true company culture.





# SAFETY IN EVERY PROJECT



## “SAFETY FIRST”

Safety is one of the most important values at VINCI Construction Grands Projets. The “**Safety First**” policy applies to everyone within the organization, at every level, to ensure that worksites remain safe and that each and every person’s well-being is respected. Beyond the application of laws, regulations and contractual obligations, all means are put forward to protect the health and guarantee the safety of all stakeholders: employees, subcontractors, partners, clients, visitors and future users.



Launched in 2011 by VINCI Construction, the **Managing Safety** program is aimed at senior management teams. The goal is to build a genuine culture of safety by ensuring accountability at the highest level.

**66** employees,  
in **2** countries,  
for **8** sessions

**200**  
**QSE MANAGERS’**  
NETWORK AROUND THE WORLD

# BUILDING A CULTURE OF SAFETY



The safety of our workers, stakeholders and users of our structures must be guaranteed throughout the life cycle of our projects, and this begins with the design phase. Implemented at VINCI Construction Grands Projets since 2014, the **Safety in Design** approach consists in optimizing our construction works in terms of health and safety during their design and worksite preparation, to ensure optimal safety throughout the construction, operation and facility management phases.

**64** employees,  
in **3** countries, for **6** sessions



Created in 2008, **(A)live on site** training increases workers’ awareness of their attitudes and behaviours through the use of videos taken on site, on which workers are then invited to comment. This self-critiquing exercise raises the level of safety awareness on the worksite.

**330** employees,  
in **4** countries, for **37** sessions

## Prestart

**Prestart** training, which was created in 2017, enables works-management teams to develop their skill sets to ensure that their daily messages for workers regarding appropriate work preparation result in the best possible outcomes. **Prestart** allows participants to share easy-to-understand information on the tasks at hand, tools, work settings, potential hazards, and the need for vigilance.

**154** employees,  
in **2** countries, for **13** sessions



After implementing **Prestart** training in 2017, in 2018 the company launched **Pretask** meeting training. A **Pretask** meeting is the stage linking the engineers from the design offices and the works management teams to make sure that the risks inherent in the activities are properly understood and explained to colleagues during **Prestart**.

**10** employees,  
in **1** country, for **1** pilot session



**Accident Investigation** training, launched in 2017, aims to provide in-house certification to employees who can effectively analyse all types of incidents and accidents, provide crisis-management assistance, carry out investigations, detect root

causes, and recommend action to prevent any recurrence. Thanks to this trained team, we can deliver in-depth work and thereby reduce the number and severity of accidents in efforts to achieve our goal of zero severe accidents.

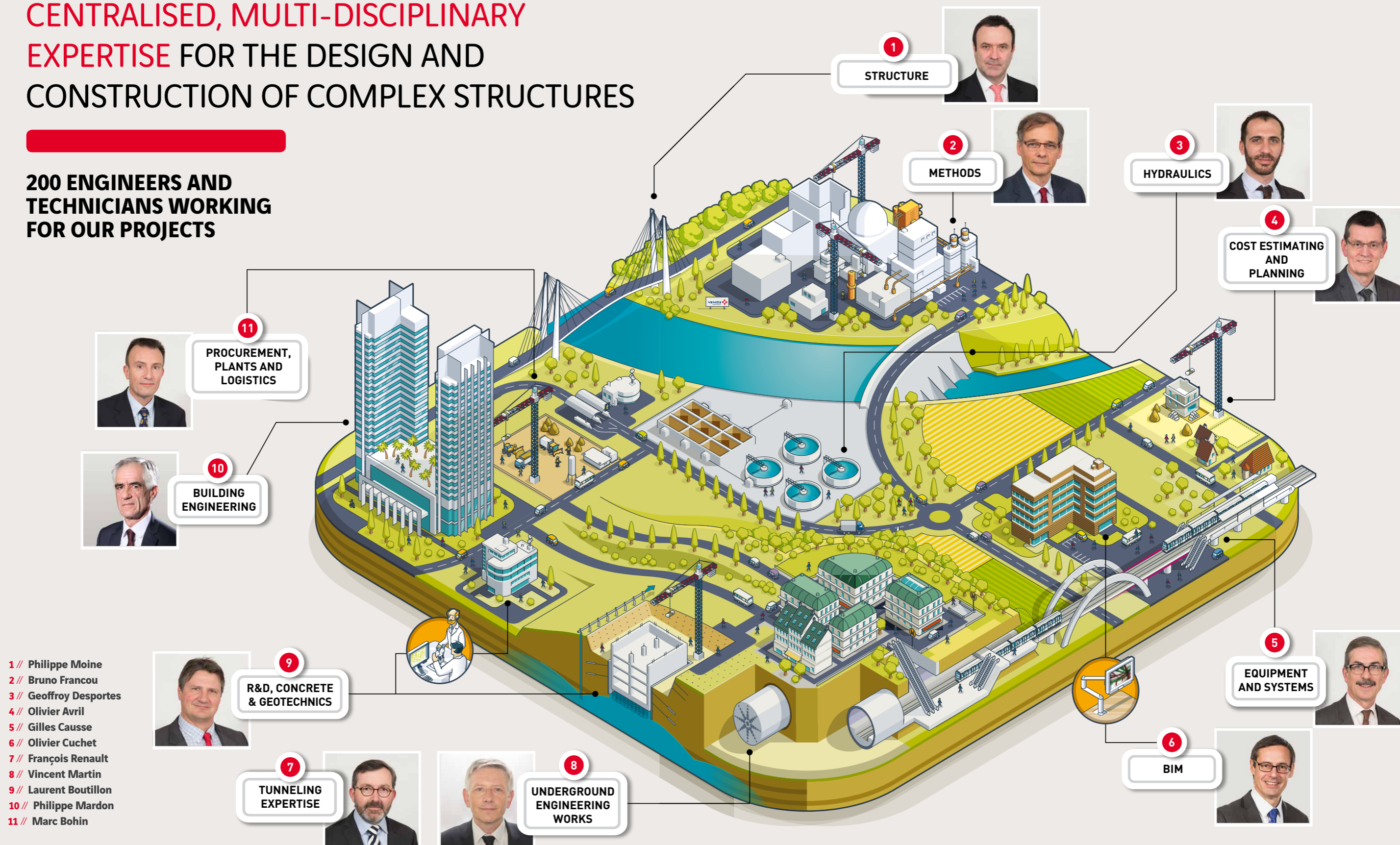
**56** employees,  
in **4** countries, for **6** sessions





# ENGINEERING CENTRALISED, MULTI-DISCIPLINARY EXPERTISE FOR THE DESIGN AND CONSTRUCTION OF COMPLEX STRUCTURES

**200 ENGINEERS AND  
TECHNICIANS WORKING  
FOR OUR PROJECTS**



- 1 // Philippe Moine
- 2 // Bruno Francou
- 3 // Geoffroy Desportes
- 4 // Olivier Avril
- 5 // Gilles Causee
- 6 // Olivier Cuchet
- 7 // François Renault
- 8 // Vincent Martin
- 9 // Laurent Boutillon
- 10 // Philippe Mardon
- 11 // Marc Bohin



# R&D AND INNOVATION PERFORMANCE LEVERS

In 2018, participation in:

**4** FRENCH RESEARCH PROJECTS

**16** ACADEMIC ASSOCIATIONS and **8** PROFESSIONAL ASSOCIATIONS

**9** Courses taught in ENGINEERING OR TECHNICAL SCHOOLS

**11** ACTIVE PATENTS

**LinKtech**

**COOPERATE**

At VINCI Construction Grands Projets, innovation and the technical optimization of worksites are part of our DNA.

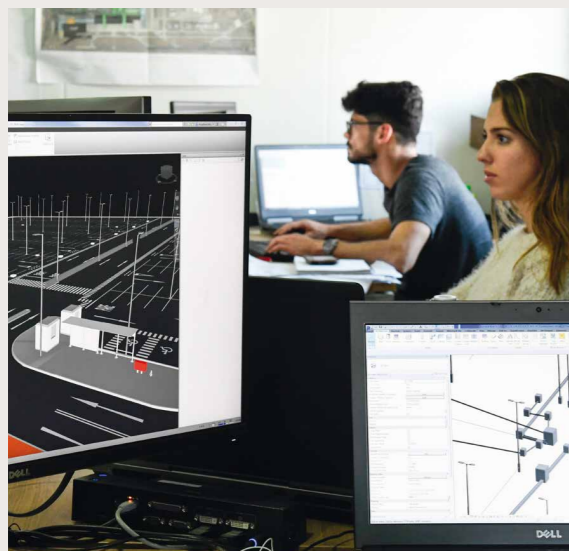
**LinKtech** is our network for members of the technical teams to discuss and exchange information, with the goal of increasing team effectiveness. In addition to capitalizing on experience in the field,

**LinKtech** also serves to anticipate construction issues that may arise in the future. The strength of the VINCI Group lies in its ability to unite the various construction business lines with operation and maintenance.

Through the internal network **Cooperate**, we have access to the know-how and expertise of our colleagues involved in the Concessions business line and we can therefore integrate the post-delivery needs of our clients right from the design stage. Externally, VINCI Construction Grands Projets is actively involved in a number of educational and research projects.

## "BIM D'OR" ACHIEVEMENTS

In 2018, VINCI Construction Grands Projets was once again rewarded in the "International Building" category. After earning this distinction in 2016 for our renovation of the historic Mandarin Oriental Hotel building in London, we were rewarded once again in 2017 for implementing BIM on our design-build airport project in Santiago, Chile. The project's digital model will also be used to manage maintenance and operations post-delivery. We won this award in 2018, for the third year in a row, with the design of the Astana ontological hospital in Kazakhstan, where our teams modelled over 500 medical devices for a true-to-life model.

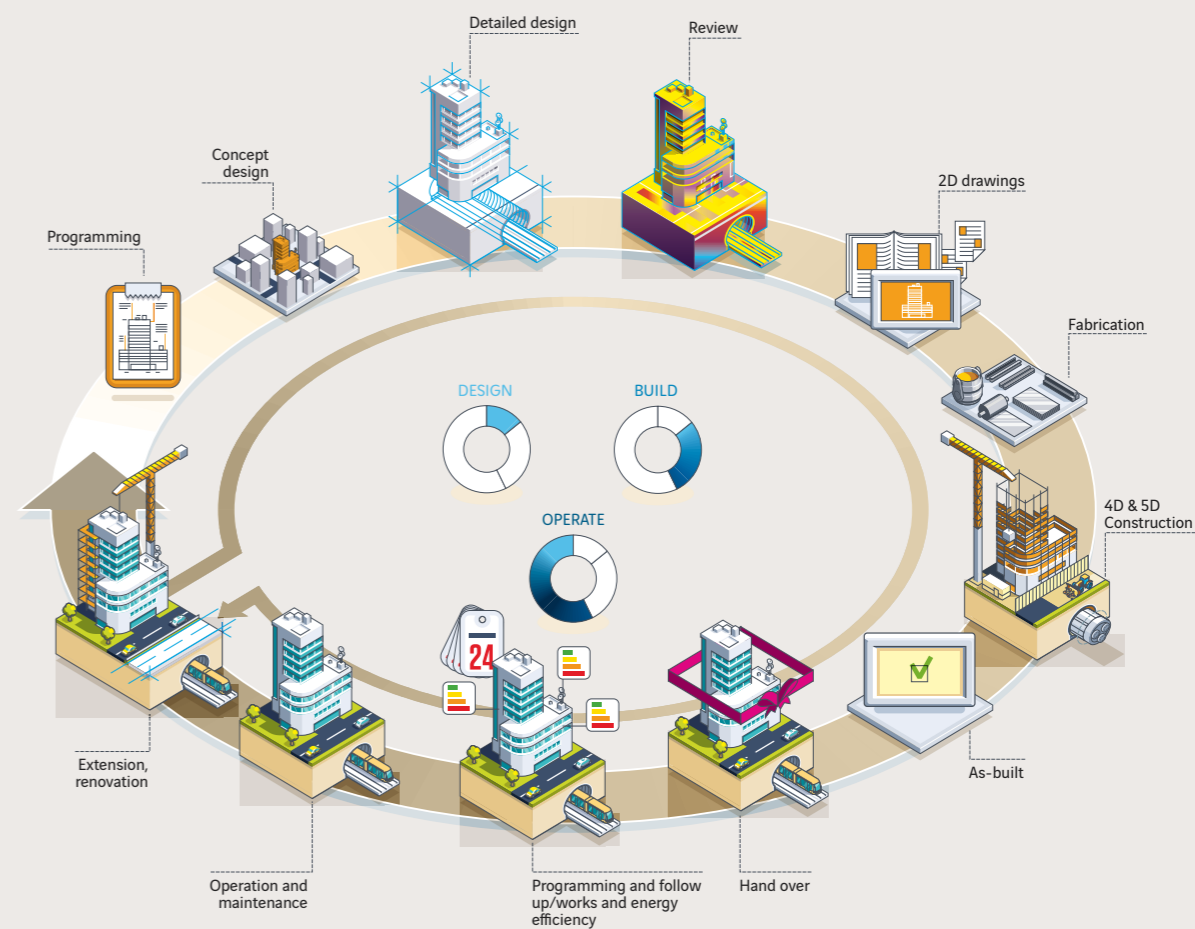


## INFORMATION SYSTEMS THAT ENHANCE PERFORMANCE

The recognized technical and scientific capacity of the Engineering department of VINCI Construction Grands Projets relies on the latest computer technology and calculation, design and project management software—or even better: in fact, we also develop our own, specialized tools for carrying out special projects.

### BIM: BUILDING BEFORE BUILDING

The expert use of BIM – from development to operations to maintenance – on building and infrastructure projects and processes adds value and delivers new services to project clients and users throughout the entire lifecycle of the structure. Given the need to ensure robust and sustainable building information models, we undertake all BIM management assignments into our projects. We leverage our acquired lifecycle expertise in our concession activities to meet requirements stipulated in the various types of contracts (set-up, design, construction) under which we operate.



### BIM IN OUR PROJECTS

**Buildings:** Phnom Penh (Cambodia), Santiago (Chile), Belgrade (Serbia) airports - Mandarin Oriental Hotel London (United Kingdom)

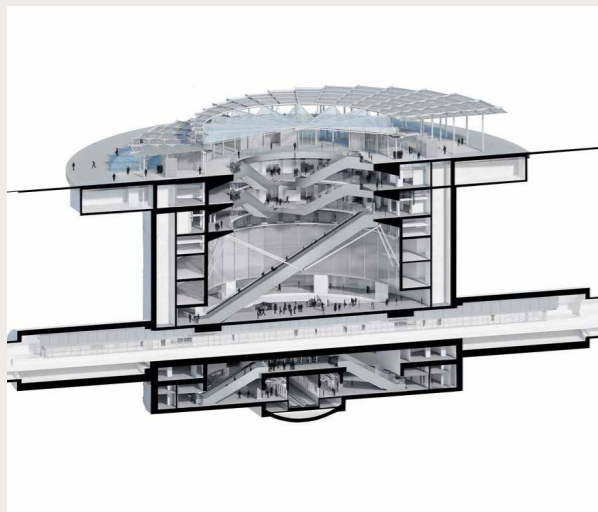
**Infrastructures:** Crossrail, London (United Kingdom) - Atlantic Bridge (Panama) - Doha Metro (Qatar) - Lusail LRT (Qatar) - Tideway, London (United Kingdom) - EOLE, rail station below CNIT, La Defense (France) - Rijnlandroute (Netherlands) - Smart Motorways (United Kingdom) - High Speed 2 (United Kingdom) - Grand Paris Express (France) - Abdelmoumen pumped-storage hydroelectric plant (Morocco) - Copenhagen Metro (Denmark) - I-64 motorway bridges/tunnels (USA) - Ho Chi Minh City Water Treatment Plant (Vietnam) - Femern tunnel (Denmark) - City Rail Link, lot 3, Auckland (New Zealand)



## "THE CITY BELOW THE CITY CAN BE A GROWTH DRIVER."

### Could you describe the city below the city concept?

**Patrick Kadri:** The city below the city is an urban space concept that makes different use of the potential of the underground. At a time when land is in scarce supply within cities and urban sprawl is reaching a limit, the idea is to offer solutions that re-think the city and sustainably decongest it. The city below the city, built in a restricted, densely occupied space, has several benefits. It optimises land use and creates new living spaces by connecting the underground and the surface. It facilitates mobility of people and goods. And lastly, it reduces distances and revitalises the city by providing new functions.



### What is VINCI Construction's approach to the city below the city?

**Patrick Kadri:** We consider that we have a lot to gain, collectively, from revealing and exploiting the city's underground potential. We can make the most of our geotechnical, special works and underground works capabilities to help develop the city below the city. But our expertise can only be employed if we accommodate life on the surface, and avoid disrupting activity there. Our ultimate goal is for our state-of-the-art techniques to serve wellbeing both within the city and below the city.

### What are VINCI Construction's main projects in this field?

**Patrick Kadri:** In France, we are working on the western extension of the RER E regional express line and are building a new underground station at a depth of 40 m. Beyond the technical challenge of supporting the CNIT centre to underpin its foundations, the project is being built without disrupting business activity. It will connect the station with the various transport lines and with shopping areas via direct access under the La Défense esplanade. We also use our expertise to build transport systems, and have bored more than 1,000 km of tunnels around the world. Among other things we are currently working on the Grand Paris Express and its iconic stations. For example, on Line 15 we are working with architect Dominique Perrault on the Institut Gustave Roussy station, which he has designed as "a downward extension of the city" and an "open-air journey 50 m below ground" with a 70 m diameter light shaft.



## OUR INNOVATIONS AWARDED AT VINCI COMPETITIONS

Research, Development and Innovation (RDI) is at the heart of our strategy. A differentiating factor for our clients, RDI is an essential feature for improving the safety of our projects, a major driving force for our company's overall performance, a key factor in attracting the talents the company needs and a significant contribution to our environmental and sustainable development approach. Our main RDI themes are:

- > Our "core business" techniques: design, methods, tools and materials;
- > Our managerial processes, notably the processes and information systems;
- > Integration of the most recent digital technologies.

All VINCI Construction Grands Projets employees, wherever they are and whatever their role or function, are invited to participate in or contribute to the company's RDI approach alongside a dedicated team based at head office.

## GRAND PRIZE "HAUTE COUTURE" AT 4,500 T

This innovation was developed as part of the construction of the Viaduct of the New Coastal Road at La Réunion. It is a new and highly precise method of positioning pier bases – some as heavy as 4,500 t – in the water. This procedure, which allows for to-the-millimetre placement of massive structural components, confirmed our decision to prefabricate everything on land for this project.



## SPECIAL JURY PRIZE ZOURITE

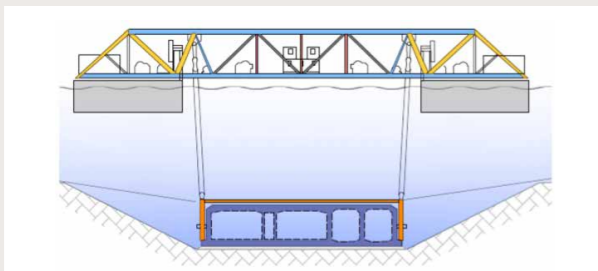
New Coastal Road project at La Réunion, cyclone conditions on the island and strong tides at the site led the consortium to minimise work at sea. Zourite is the first self-raising barge that can load, transport, and unload components weighing up to 4,800 t. By avoiding cyclone hazards at La Réunion, it optimises pier and viaduct-segment installation performance and enhances worker safety.





## SPECIAL JURY PRIZE SMART IMMERSION

To immerse the 89 tunnel elements on the Femern project, which will one day connect Denmark and Germany, our teams developed a new technique that consists in ballasting the elements prior to transport to achieve negative buoyancy. In other words, the elements tend to sink! To prevent them from doing that, they are attached to scragging pontoons which convey them to their destination. Here, the elements are lowered delicately using a lift system to the seabed without resorting to water-ballasting. The jury saw all of the advantages inherent in this innovation with respect to safety since no employee needs to be present within the elements during the immersion phase. The jury also saw the benefits in terms of quickness of execution – by doing away with complex water-ballasting operations at sea, the immersion process takes 30% less time to complete.



## INTERNATIONAL, GRAND PRIZE CHERNOBYL NEW SAFE CONFINEMENT

The New Safe Confinement (NSC), which was built and equipped 300 m from its final position, consists of 2 semi-arches whose components were assembled on the ground, starting with the centre of the structure, and lifted into position. The structure features a double cladding (interior and exterior) creating a sealed annular space above the confinement space.



## SPECIAL JURY PRIZE, FINAL "YAMAL SOCKS"

On this project calling for the construction of four LNG storage tanks in Siberia, the client required an effective solution to build foundations in permafrost soil. The solution put forward by the VINCI Construction Grands Projets-Entrepose Projets consortium was to encase the piles in a "sock" that enhances their flexibility in the 2.5-m layer of fill above the permafrost soil.



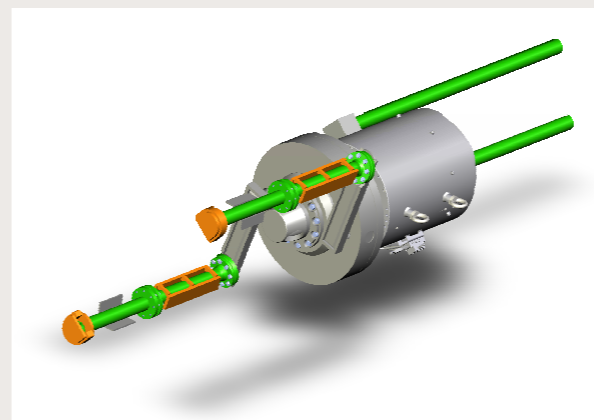
## PROCESSES AND TECHNIQUES PRIZE, CENTRALIZED ACTIVITIES EARLY-AGE CONCRETE SIMULATION

The ability to control early-age concrete cracking has an impact on the durability of structures. Clients require increasingly stringent specifications in this regard. This digital tool, which simulates early-age concrete thermal and mechanical behaviour, can be used to study the full range of concreting operations.



## EQUIPMENT AND TOOLS PRIZE ANTI-CLOGGING SYSTEM FOR TBMS

Construction of a new metro line in Hong Kong involved drilling two 1.7-km tubes using a TBM. During drilling operations for the first tunnel, the tunnel-boring machine, designed for soil consisting of alternating hard rock and decomposed granite, encountered abundant quantities of clay, which clogged the cutting wheel. Consequently, the team, in conjunction with the TBM manufacturer, Herrenknecht, designed an alteration to the cutting wheel that was effective in preventing clogging. Equipped with this new cutting wheel, the TBM excavated the second tube 3 months faster than the first.



## SAFETY PRIZE, CENTRALIZED ACTIVITIES RAISE

Our engineers specializing in underground works, equipment, and safety have developed a fire-alarm and wireless communication system for underground worksites, which they have called Universal Tunnel Emergency Point (UTEP). Thanks to UTEP, personnel working in tunnels can be contacted at all times.



## PROCESSES AND TECHNIQUES PRIZE TELESCOPIC FORMWORK SYSTEM

The 2 access viaducts for the Atlantic Bridge in Panama rise to 60 m above the ground. On this type of structure, formwork used for concrete-pouring operations at either end of the deck is supported by extensive shoring structures entrenched in the ground. In Panama, these shoring structures had to be resistant to strong seismic activity. VINCI Construction Grands Projets designed a telescopic formwork system in partnership with Hebetec Engineering (Soletanche Freyssinet). Thanks to this self-raising formwork system, the number of required work hours was divided by 3 and the number of work-at-height hours by more than ten.





R E A L  
S U C C E S S  
I S T H E  
S U C C E S S  
Y O U S H A R E

