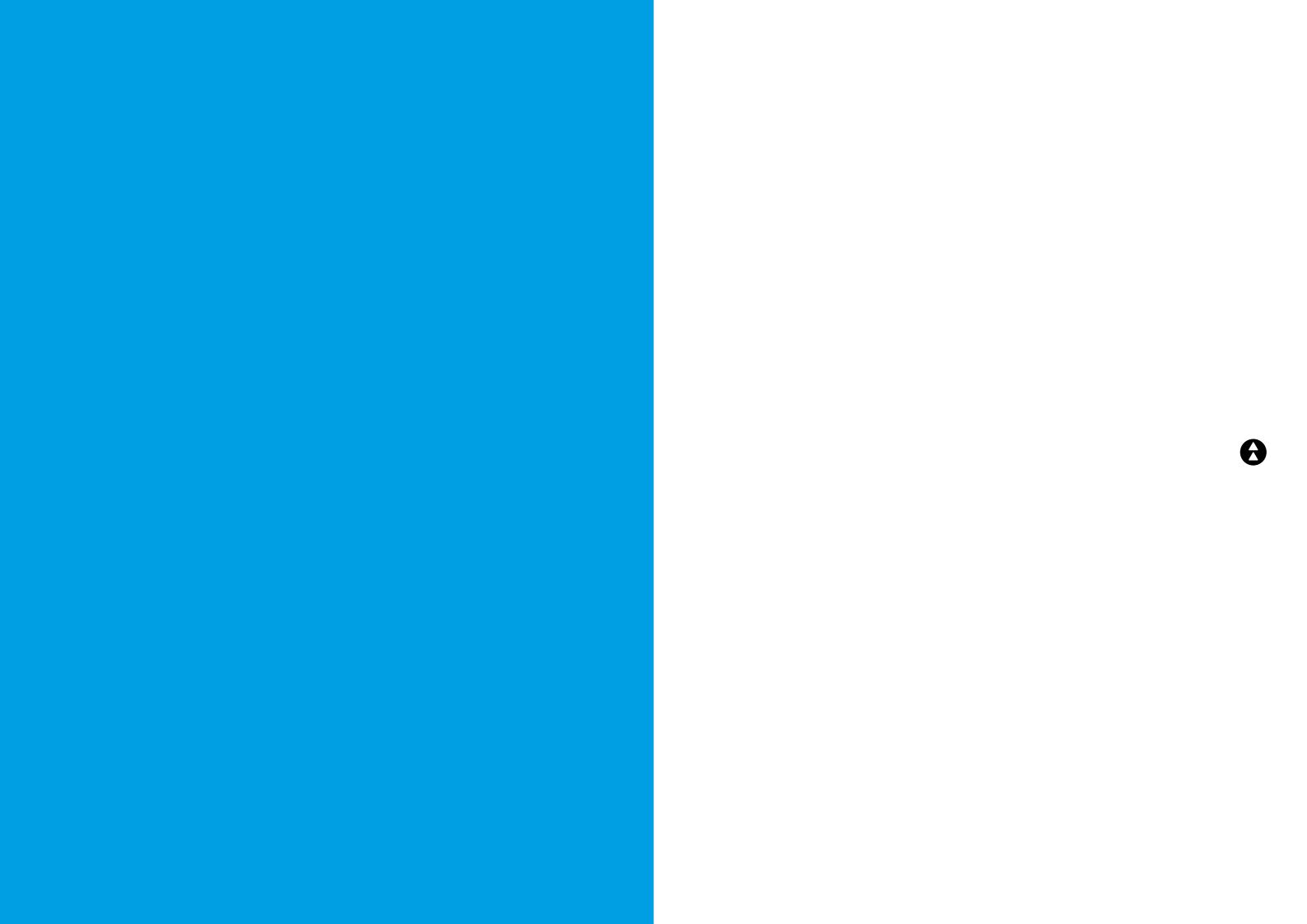
Around the WOILG IM eighty projects







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Around the world in 80 days Can it reall be done?

When the fictional Phileas Fogg sets out to accomplish this 19th century impossibility, readers know they are in for an adventure. And truly, Jules Verne's timeless novel Around the World in 80 Days delivers

We invite you on a similar thrill ride

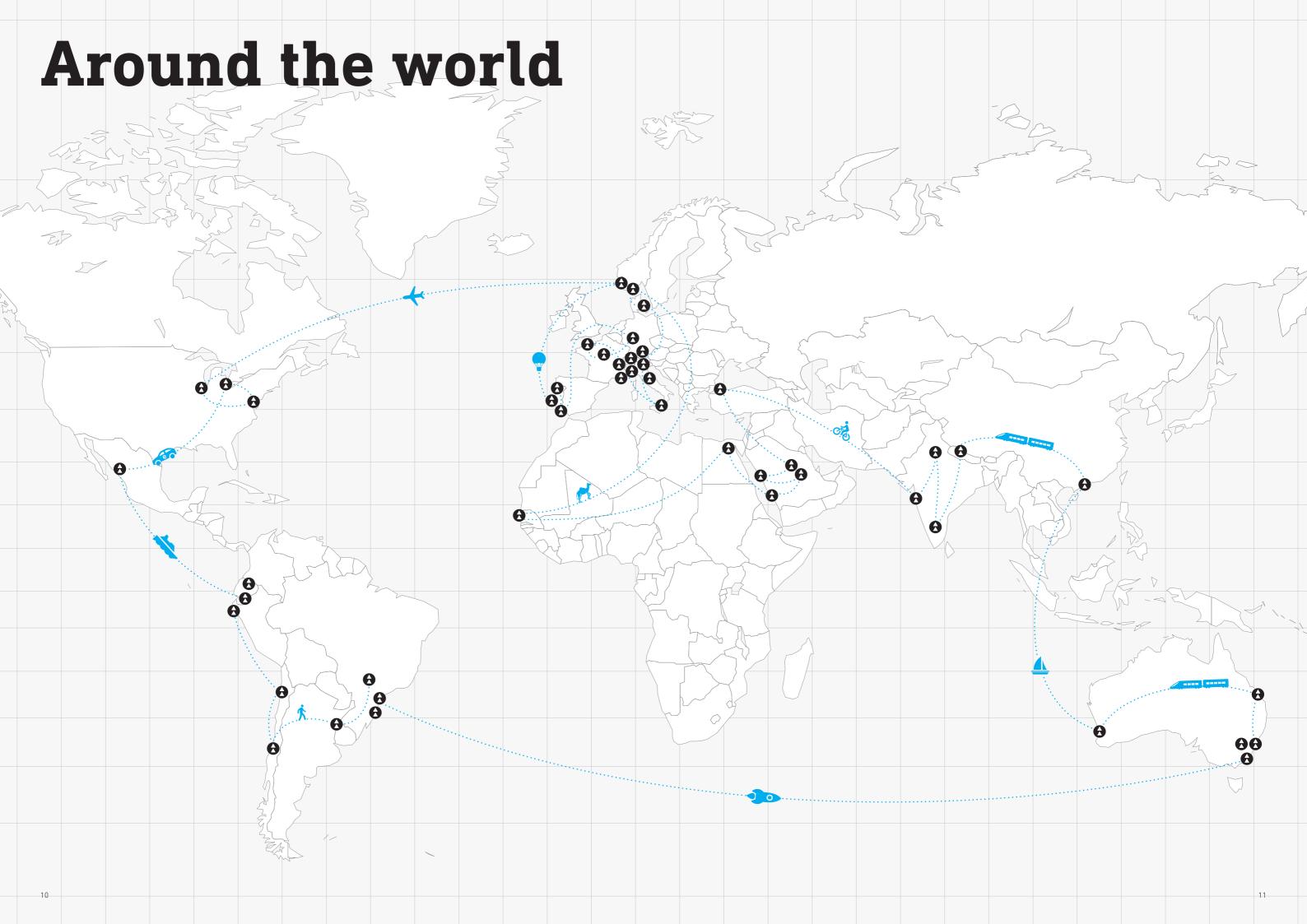
Our journey begins in Switzerland, traverses five continents and seven decades, spans mighty waterways, carves through mountain ranges, and burrows beneath bustling metropolises. You will see iconic bridges, elegant monorails, intricate tunnel webs, and even a futuristic metaverse in cyberspace. Through these 80 projects, ARX will take you to the very edge of innovation and elegance. Prepare to be dazzled by massive and miniscule engineering in Brazil, Australia, China, India, Italy, the US, and more.

And by the end, you'll have seen the precise point where science and art meet. This is ARX's World. Innovation. Precision. Unity.

Swiss values lay at the heart of ARX. Home to many cultures and much diversity, Switzerland embraces cooperation, and so too does ARX. Weaving global expertise with local wisdom gives our projects the edge in modern engineering. This philosophy fuels efficiency. It allows for agility. And most importantly, it inspires the talented individuals who make up ARX to pursue some of the most impressive engineering feats in the world. This structure nourishes growth that is as limitless as innovation itself.

In the words of Phileas Fogg himself: "Anything one man can imagine, other men can make real."

Bon voyage.



Our departure Europe

Our journey starts here: in the heart of Europe, beneath the mountains. It is the end of the 20th century, and Switzerland has decided to greenlight the new Railway Link through the Alps. ARX seizes the moment. Also this historic project is a catalyst for future ventures that break through impenetrable rock, cross national borders, and race into the world beyond.





Ceneri Base Tunnel

With a length of 15.4 km, the Ceneri Base Tunnel is the southernmost part of the larger Alp-Transit project, which is part of the European Rhine-alpine corridor. Thanks in part to its completion, northern and southern Europe are now closer together. Designed for a speed of 250 km/h, the project consists of two single-track tunnels connected by cross-passages every 325 m. The tunnel is mainly in rock with a maximum overburden of 800 m. Excavation is by drill and blast, TBM and mechanically assisted tunnelling in soft ground. After support measures with rock bolts, shotcrete and steel arches, the waterproofing and drainage system is installed and the final concrete lining is put in place. Interior finishes, cable network, concrete slab track, rigid catenary, ventilation and electrical equipment complete the infrastructure.

Country Switzerland



Domain

Railway; Tunnel & Underground

Client

AlpTransit Gotthard Ltd, Swiss Federal Railways (SBB)

Time frame

2006-2020

Construction cost

CHF 1'630'000'000

Services*

- Design
- Construction management
- Geology

Phases /

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners

© Alptransit (Nicola Demaldi)

When speed takes time

Shortening the Lugano-Locarno railway line by 21 minutes took almost thirty years, giving southern Swiss residents a new perspective on time and space. Previously distant places are now closer, there are more choices of where to live and work, and greater opportunities have become available. The Ceneri Base Tunnel is a regional, national, and European structure that runs along a main European railway corridor.

Drilling through a mountain is never an easy task. Drilling through the Alps even less so. But with respect for the mountains as motivation, ARX pushed forward to reduce heavy road transport and energy consumption, making roads safer and bringing people and cultures together. Facing the challenge of excavating up to ten meters under a motorway, they gathered their best experts and harnessed the team's creative abilities. The resulting design creatively combines functionality with aesthetics. There are projects that allow people and businesses to grow, projects that transform the life of a community. This is one of them.



























The Ceneri Base Tunnel is a milestone in the progress of rail mobility at the Swiss level, being a fundamental element within the ambitious AlpTransit project

This infrastructure significantly improves connectivity also between the major urban centers of Canton Ticino, promoting more sustainable and integrated mobility and marking an era of development that has involved the ARX for two decades.

All of this has deeply influenced my professional and personal development, so traveling through the Ceneri Base Tunnel is an emotion that is worth much more than the price of the ticket!

Davide Merlini

Group CTO

Commercial Building Europaallee Zurich Site B

Architecturally elegant and brimming with energy, this structure has presence. Pre-certified with the Gold Label of the Swiss Society for Sustainable Real Estate Management (SGNI), it boasts 90'000 m³ over 12 floors. It was created under the architectural direction of Stücheli Architects and now houses several offices, restaurants as well as a variety of retail stores. An asset to its location at the edge of a new quarter, it showcases both grandeur and sustainability. The project was awarded over 72 competing bids.

Country Switzerland



Domain

Buildings

Client

Swiss Federal Railways (SBB)

Time frame

2012-2018

Construction cost

CHF 80'000'000

Services

- Design
- Technical site supervision

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Commissioning, completion







Sinfonia d'Aua Flims

Rhone River bed management in the PfynFinges area

Country Switzerland



Domain

Hydropower

Client

Flims Electric AG

Time frame

2010-2014

Construction cost

CHF 22'000'000

Services

- Design
- Construction management
- High level supervision

Phases

- Preliminary studies
- Preliminary design
- Final design
- Tender design
- Construction design
- Construction
- Commissioning, completion

Country

Switzerland



Client

River engineering

Domain

Canton Valais

Time frame

2013-2016 2019-2024

Construction cost

CHF 12'000'000

Services*

- Design
- Construction management
- Measurement & Surveying

Phases

- Preliminary design
- Final design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners











Valais Hospital

The Valais Hospital in Sion regroups the medical activities of the Centre Hospitalier du Valais Romand (CHVR) as a part of a new medical campus for education, research, and rehabilitation. Firstly, we are constructing a new building with 14 operating rooms complete with new medical, technical, and logistical infrastructure; and secondly, we are reorganizing and modernizing the existing hospital according to current seismic design. The total extension area is 40'500 m², in addition to the 20'000 m² of the existing hospital under construction.

Country

Switzerland



Domain

Buildings - civil engineering

Client

Valais Hospital

Time frame

2016-2029

Construction cost

CHF 298'000'000

Services*

- Design
- Construction management
- Measurement & Surveying

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion









^{*} Services in JV with partners

N1 – Expansion Zurich's northern bypass 3rd Tube Gubrist Tunnel

N9 Vennes-Chexbres **Section TP5**

Country Switzerland



Domain

Roads; Tunnel & Underground

Client

Federal Roads Office (FEDRO)

Time frame

2019-2021

Construction cost

CHF 320'000'000

Services*

Construction management

Phases

- Construction
- Commissioning, completion
- * Services in JV with partners

Country

Switzerland



Bridges & other Structures;

Tunnel & Underground

Client

Federal Roads Office (FEDRO)

Time frame

2013-2024

Domain

Construction cost CHF 106'000'000

Services*

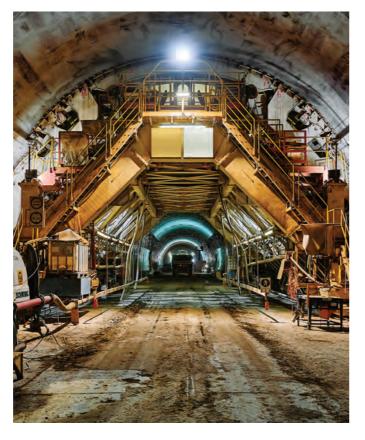
- Design
- Construction management

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion
- * Services in JV with partners

































Gottardo Arena

Renovation Bellinzona Railway Station

9

Country

Switzerland



Domain

Buildings - architecture; Buildings - civilengineering

Client

Valascia Immobiliare SA

Time frame

2019-2024

Construction cost

CHF 52'000'000

Services

• Consulting / Expertise - Financial controller

Phases

- Construction
- Commissioning, completion





Country

Switzerland

© SBB (Nicola Demaldi)



Client

Domain

Swiss Federal Railways (SBB)

Buildings - civil engineering

Time frame

2013-2016

Construction cost

CHF 13'500'000

Services*

- Design
- Construction management

Phases

- Preliminary studies
- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners



Scott Headquarters

New Cultural Center Lugano LAC

11

Country

Switzerland



Domain

Buildings - civil engineering

Client

Scott Sports SA

Time frame

2015-2018

Construction cost

CHF 60'000'000

Services

- Design
- Construction management

Phases

- Preliminary design
- Final design
- Permit-otaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion

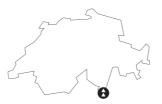
Awarded the BIM ARC AWARD 2017





Country

Switzerland



Buildings - civil engineering

Client

Domain

Lugano Municipality

Time frame

2009-2016

Construction cost

CHF 150'000'000

Services

- Consulting / Expertise
- Independent checking engineer
- Project owner support
- High level supervision

Phases

- Construction design
- Construction
- Commissioning, completion













Lötschberg Base Tunnel, **South Section**

Grimsel Dam (Spitallamm)

Country Switzerland



Domain

Railways; Tunnel & Underground

Client

BLS AlpTransit AG

Time frame

1994-2007

Construction cost

CHF 1'173'000'000

- High Level Supervision

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners

Services*

• Design











Country

Switzerland



Domain

Geology; Hydropower

Client

Kraftwerke Oberhasli AG (KW0)

Time frame

2023-2026

CHF 125'000'000

Services

Construction

Geology

Phases

Construction cost



15

N2 – Refurbishment Melide-Grancia Tunnel

4-metres corridor (4MK) on the Railway Gotthard line

Country Switzerland



Domain

Roads;

Tunnel & Underground; Equipments

Client

Federal Roads Office

Time frame

2017-2024

Construction cost CHF 40'000'000

Services*

- Design
- Construction management

Phases

- Final design
- Tender design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners

Country

Switzerland



Tunnel & Underground

Client

Domain

Railways;

Swiss Federal Railways (SBB)

Time frame

2011-2020

Construction cost CHF 125'000'000

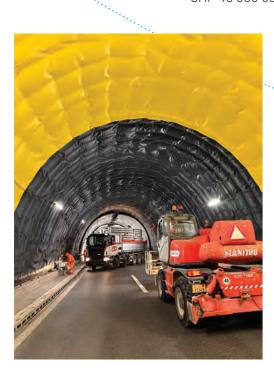
Services*

- Design
- Construction management

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design

* Services in JV with partners



















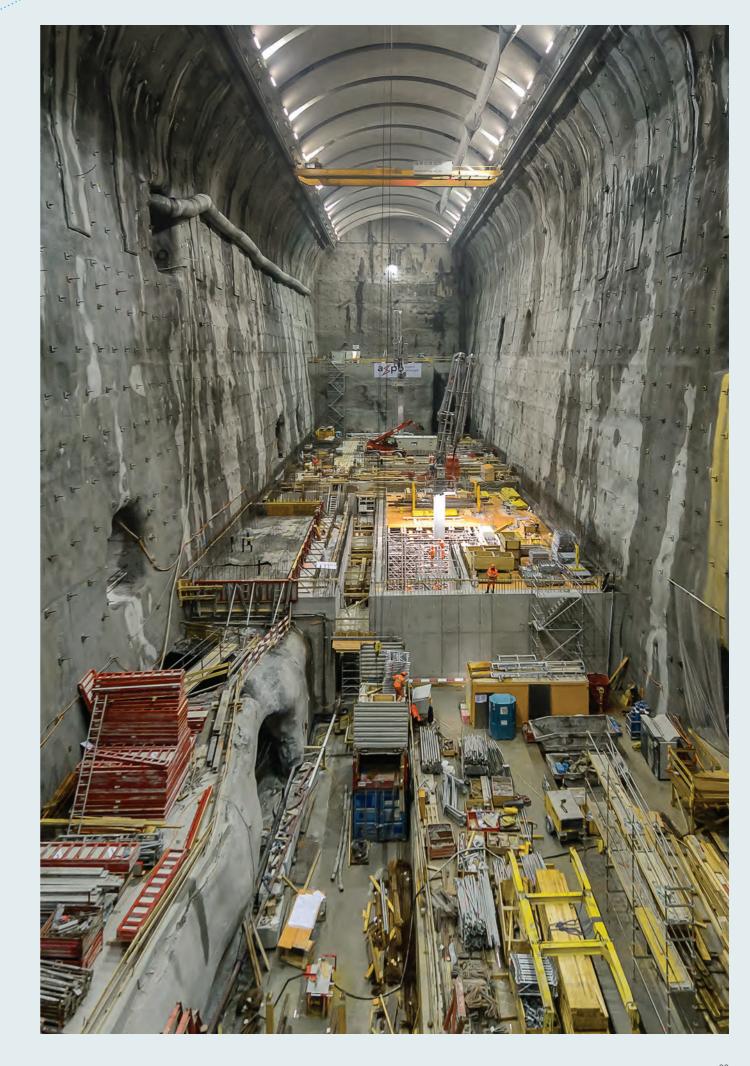
Maxi-hydroelectric power station in the heart of the Alps

The Limmern PSPP (1'000 MW) is a new underground hydroelectric power plant integrated into the existing power plants of Linth-Limmern hydroelectric complex, boosting the overall installed capacity from 480 MW to 1'480 MW. The plant is using the enlarged Lake Mutt (2'474 m a.s.l.) as an upper reservoir and the existing Lake of Limmernboden (1'854 m a.s.l.) as a lower reservoir. The underground power station consists of a power-house cavern with the 4 machine groups of 250 MW each (in pumping and turbine mode). It also includes a transformer cavern with the 4 transformers of approximately 200 tons each that convert the voltage of the generators from 18 kV to 400 kV. The energy produced feeds into the Swiss extra-high voltage grid.





Other underground works for the project: a headrace pressure tunnel with prestressed concrete lining; a surge shaft with reinforced concrete lining; 2 headrace pressure tunnels ($2 \times 1'030 \text{ m}$, D 5.20 m and 40° inclination ca. 84%); 2 tailrace pressure tunnels ($2 \times 500 \text{ m}$, D 5.50 m) with prestressed concrete lining; and several access tunnels and caverns including a smoke extraction shaft (L 252 m, D 4.20 m, inclination 98%).





The Linth Limmern project was extremely motivating both in terms of its scale, diversity, and the rare opportunity for us to be involved from the preliminary design review to commissioning

Personally, it constituted a significant portion of my professional life, spanning 7 years dedicated solely to it. Carried out in a JV, it also provided the opportunity to meet numerous colleagues from other engineering firms, as well as from the client.

Regis Marclay

Management member Sion Branch

40 *⋰*



Turin Automatic Metro – Line 1

Line 1 of the Turin Metro—running entirely underground with a 15.2 km-long, single-tube, twin-track tunnel (diameter of 6.8 m)—is a key element in providing a modern, collective transport network for the city. The choice of a Driverless Technology System (VAL System), the first in Italy, adds functional value to the metro in terms of reliability, economy, and safety.

Country

Italy



Domain

Metros

Client

Infra. To. Srl

Time frame

1999-2011

Construction cost EUR 718'000'000

Services*

- Design
- Construction management

Phases

- Final design
- Construction design
- Construction
- * Services in JV with partners









New Railway line Brescia-Verona

The new HS/HC Brescia East-Verona railway line is one of the linchpins of the Core Mediterranean Corridor set to connect the ports of the south of the Iberian Peninsula with the Ukrainian border. The alignment runs for approximately 48 km. The project includes the construction of three railway tunnels for a total length of almost 13 km. The tunnels are in a highly heterogeneous soft ground, for this reason the construction is performed by means of mechanized tunneling (EPB machine) and conventional method and as well as the execution of several sections by means of cut and cover and top-down. The main challenges of the project are represented by the excavation at very low overburden in soft ground underneath existing highways and buildings. Once completed, this significant railway project will allow for a swift connection between the cities of Brescia and Verona, becoming part of a broader expansion of the Italian high-speed rail network.

Country



Domain

Railways; Tunnel & Underground

Client

GC cepav due Final client: Italian Rail Network (RFI)

Time frame

2018-2025

Construction cost

.....

EUR 472'000'000

Services

- Design
- Technical site supervision

Phases

- Construction design
- Construction
- Commissioning, completion











New Railway line Messina-Catania, Giampilieri-Fiumefreddo Lot 1 and Lot 2

Tunnel Mont Blanc Rehabilitation

20

Country

Italy



Domain

Railways; Tunnel & Underground

Client

JV Webuild, Pizzarotti Final Client : Italian Rail Network (RFI)

Time frame

2020-2022

Construction cost

EUR 1'795'000'000

Services*

- Design
- Technical site supervision

Phases

- Detail design
- Construction
- Commissioning, completion

* Services in JV with partners





Domain

Roads; Tunnel & Underground

vault

Client

Spie Batignolles Génie Civil - COGEIS Final Client : GEIE Tunnel du Mont Blanc

Time frame

2023-2025

Construction cost EUR 47'800'000

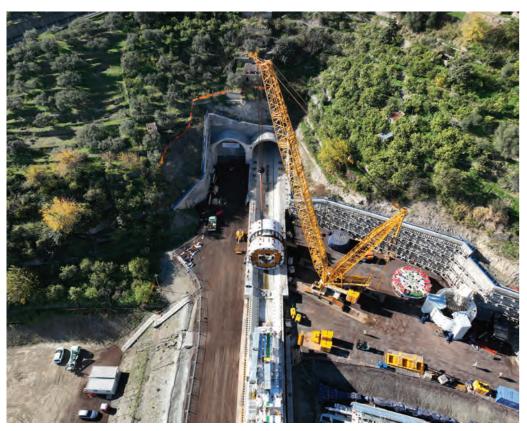
Services*

- Design
- Technical site supervision

hases

- Preliminary design
- Final design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners













TELT Tunnel Euralpin Lyon-Turin

The Tunnel Euralpin Lyon-Turin (TELT), part of the TEN-T transport network, has a main element of the cross-border section linking France and Italy via a 57.5 km high speed railway tunnel. The tunnel crosses various alpine geological units with very heterogeneous conditions and high overburden till 2'000 m, which posed particular technical and design challenges. The tunnel comprises two twin single-track tunnels which are connected by cross-passages every 333 metres. The system is completed by 3 underground emergency and 4 access tunnels. The total excavation length is approximately 160 km. For 75% of the total length, the base tunnel is excavated using different types of TBM, depending on the expected geological risks: Gripper TBMs; Shielded TBMs; Dual Mode TBMs. Other aspects requiring in-depth design studies include logistics and the reutilization of excavated material. The work has been divided into 12 main packages. ARX is playing a major role, participating in the main construction lots both in France and Italy: Lot CO8 - Underground works from the Saint-Julien-Montdenis portal; Lot CO6/7 - Underground works between Saint-Martin-la-Porte and Modane; Lot CO5a - Avrieux ventilation shafts and underground caverns; Lot CO 3/4 – Main Underground work in Italy, Lot CO2 – Civil works in Susa; Lot CO1 - Underground works for the connection of the existing line.

CountryFrance-Italy



Domain

Railways; Tunnel & Underground

Client

TELT SAS

Time frame

2021-2027 (Lot CO8) 2018-2028 (Lot CO6/7) 2020-2026 (Lot CO5a) 2020-2031 (Lot CO3/4) 2022-2031 (Lot CO2) 2022-2031 (Lot CO1)

Construction cost

EUR 230'000'000 (Lot CO8) EUR 1'430'000'000 (Lot CO6/7) EUR 220'000'000 (Lot CO5a) EUR 1'100'000'000 (Lot CO3/4) EUR 380'000'000 (Lot CO2) EUR 230'000'000 (Lot CO1)

Services*

- Design (Lot CO8, Lot CO6/7, Lot CO5a, Lot CO3/4, Lot CO2, Lot CO1)
- Construction management (Lot CO8, Lot CO6/7, Lot CO3/4, Lot CO2, Lot CO1)

Phases

- Final design (Lot CO6/7, Lot CO8
- Tender design (Lot CO8, Lot CO6/7, Lot CO3/ Lot CO2, Lot CO1)
- Construction design (Lot CO8, Lot CO5a)
- Construction (Lot CO8, Lot CO6/7, Lot CO3 Lot CO2, Lot CO1)

Services in JV with partners



Bringing France and Italy closer together; bringing Europe closer together

Base tunnels aim to level out gradients in order to speed up rail traffic. The TELT base tunnel will accomplish this, reducing travel time from 80 to 25 minutes, while using significantly less energy. Once it is operating, far-reaching environmental benefits will result. Additionally, intermodal transport will increase economic opportunities throughout Europe.

The tunnel will be excavated at an altitude of 250 m above sea level and a depth of 1.7 kilometers. The excavated material will then be processed into concrete. Requiring the highest level of technical expertise, the TELT base tunnel also relies on ARX's gravitas to navigate geopolitical and administrative complexities. Two nations; two ideologies; two sets of laws; one goal.









 $\overline{}$

The TELT base tunnel is one of the world's longest base tunnels, and the fifth of my career

This one is special in that it passes through the Alps, through little-known valleys, linking two major cities: Lyon and Turin. It strengthens the relationship between France and Italy, bringing neighbors together.

This professional adventure is also a human adventure, as over 1'000 people are working every day to bring the decades-long and ambitious project to fruition.

Adrian Fontana

Head of Construction Management

52 5.

CERN High Luminosity Large Hadron Collider (HL-LHC), Point 5

The Large Hadron Collider (LHC) at CERN, located on the French-Swiss border near Geneva, is the largest scientific instrument ever designed and built for fundamental research. The High-Luminosity Large Hadron Collider (HL-LHC) is an upgrade of the presently operating LHC, aiding scientific progress by increasing its current performance ten-fold to further enhance its discovery potential. In order to accommodate the new technical infrastructure at the LHC's Point 5 (which houses CMS, one of the two main detectors), it was necessary to construct new surface and underground structures, including a vertical shaft 80 m deep with an excavation diameter of 12 m, a service cavern 50 m long with an excavation area of 270 m², 600 m of galleries connected to the LHC tunnel, and 14 vertical connecting cores. The first part of the vertical shaft was excavated in loose material using excavation buckets; the remainder was excavated in rock by mechanical means using a roadheader and rock breake The new surface structures consist of a number of technical buildings on the Point 5 site, constructed of mixed steel and concrete with a pre-cast facade.

Country

France



Domain

Buildings - civil engineering; Tunnel & Underground

Client

CERN (European Organization for Nuclear Research)

Time frame

2016-2024

Construction cost

EUR 65'000'000

Services*

- Design
- Construction management
- BIM

Phases

- Preliminary design
- Final design
- Tender design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partner



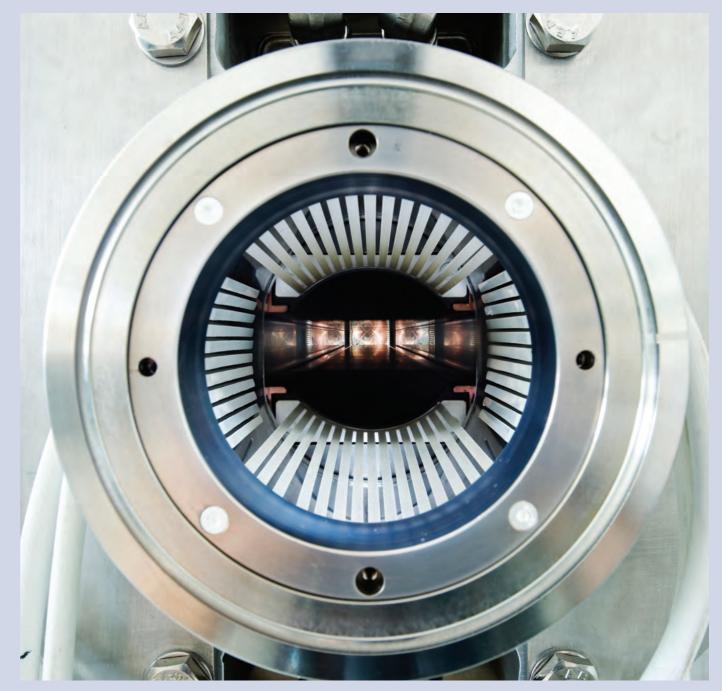
From the origins of the universe to cancer research

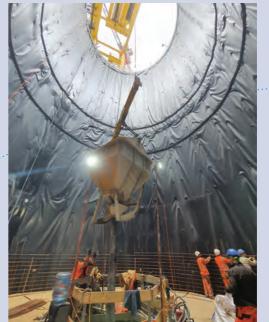
From day one, the upgrade of CERN's flagship particle accelerator captivated those who worked on it. They felt the significance of this pioneering research centre where engineers and scientists collaborated. CERN's scientific campus and its accelerator complex are home to a range of discoveries, including the invention of the World Wide Web, the operation of a unique antimatter facility, and the experimental discovery of the Higgs boson —a scalar particle with zero spin that gives mass to all other fundamental particles.

Excavation of the new underground areas for the HL-LHC upgrade was done in molasse. The proximity to the existing LHC infrastructure called for leading technical solutions, such as a BIM interface. This enabled the generation and management of intelligent data used throughout the project's life cycle.

Project awarded by The International Federation of Consulting Engineers (FIDIC)











It was my first underground project, and I was able to explore different underground works within this complex context of existing scientific infrastructures

For me, CERN has always been a mysterious place, where large scientific experiments are carried out. Now, I can say that I've played my small part in developing particle physics research in Europe.

The main objective of CERN's HL-LHC project is to fully exploit the potential of the LHC infrastructure, to study the Higgs particle, and to test the Standard Model of physics to the highest accessible accuracy.

Morgane Bertrand

Engineer Underground Works



Grand Paris Express – Lot 15 Sud Lot T3C

This 8.2 km section of the Grand Paris Express joins the Fort d'Issy-Vanves-Clamart to the future Villejuif-Louis Aragon station, incorporating 5 new stations and 8 ancillary structures. Key features include the Arcueil-Cachan station, which connects to line 15 south and RER line B, and the Chatillon-Montrouge station, part of the T3C section. Villejuif Gustave-Roussy station is a major hub for lines 14 South and 15 South, situated 48 meters underground. Additionally, the OA-P04 - Park Robespierre in Bagneux features a bi-lobed molded-wall enclosure, excavated to a depth of 36.7 meters.

Country

France



Domain

Geothecnics & Special foundations; Metros; Tunnel & Underground

Client

Vinci construction Final Client: Société du Grand Paris

Time frame

2017-2022

Construction cost EUR 926'000'000

Services

Construction design

Phases

- Construction design
- Construction management









European Pressurized Nuclear Reactor EPR Flamanville

Frankfurt Airport Program Management

Country France



Domain

Nuclear Plants

Client

Bouygues TP/Setec Final client: EDF

Time frame

2007-2011

Construction cost EUR 1'900'000'000

Services*

• Design

Phases

- Final design
- Construction design

* Services in JV with partners

Country Germany



Domain Airports

Client

Fraport AG

Time frame

2006 - 2012

Construction cost

EUR 8'500'000'000

Services

- Client's representative
- Consulting / Expertise
- General Planner
- High Level Supervision
- Project Owner Support

Phases

Strategic planning

©EDF







© Wikipedia







International Bridge over the Guadiana River

The International Bridge over the Guadiana River stands as one of the largest bridges in both Portugal and Spain. It was constructed in 1991 and rehabilitated from 2018 to 2021 due to corrosion detected in the cables. Boasting a central span of 324 m and a total length of 666 m, it serves as a vital link between the two countries.

Country Portugal-Spain

Bridges & other Structures • Design

Client

IP - Infraestruturas de Portugal

Time frame

Construction: 1990 Rehabilitation: 2018

Construction cost

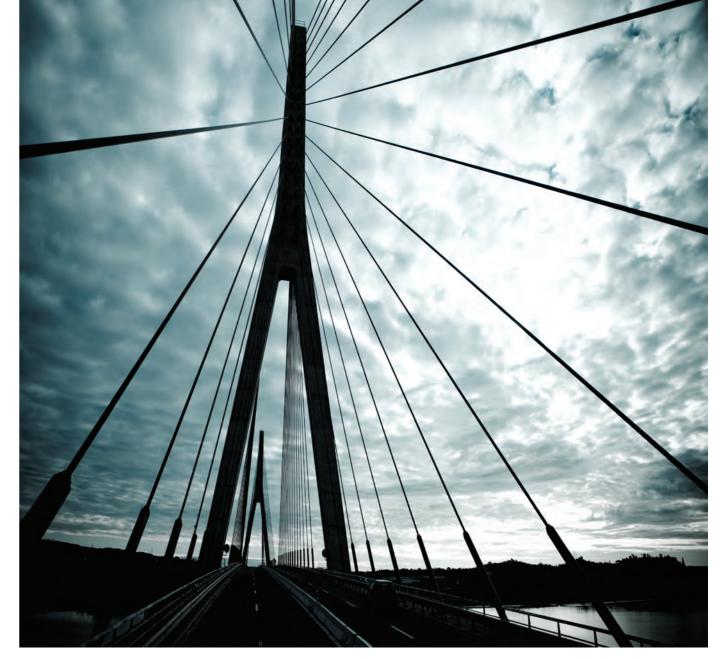
Construction: EUR 25'000'000

Rehabilitation: EUR 13'000'000

Services

Phases

- Preliminary studies
- Preliminary design
- Construction design







Bridge over the Douro River in Entre-os-Rios

V3 Viaduct, A4 Marão

Country Portugal



Domain

Bridges & other Structures

Client

Construtora do Tâmega, aka, Tâmega Engineering Final Client: ICOR (Instituto para a Construção Rodoviária)

Time frame

2003

Construction cost

EUR 36'000'000

Services

Design

Phases

- Preliminary studies
- Preliminary design
- Construction design

Country Portugal



Domain

Bridges & other Structures

Client

IP - Infraestruturas de Portugal

Time frame

2013

Construction cost

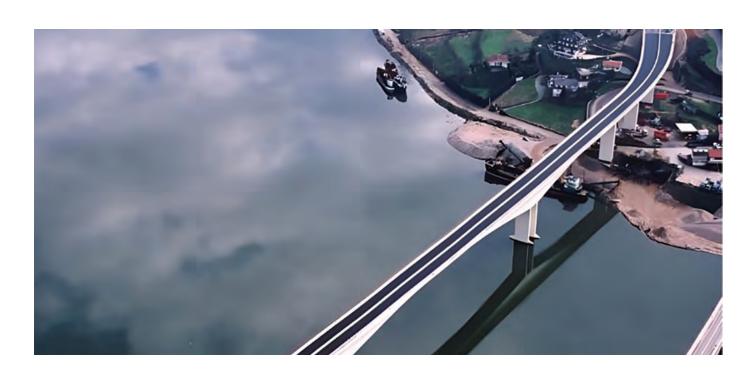
EUR 40'000'000

Services

• Design

Phases

- Preliminary studies
- Preliminary design
- Construction design





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Metro Lisbon Extension of the Red Line

This project connected the S. Sebastião station to the Alcântara station and went on to extend the line through a double track tunnel approximately 4 km long. 3 new underground stations were also added: Campolide/Amoreiras, Campo de Ourique, and Infante Santo.

Country Portugal



Domain S

Metros

Client

Metropolitano de Lisboa E.P.E; Coba Group

Time frame

2021-2026

Construction cost

EUR 322'000'000

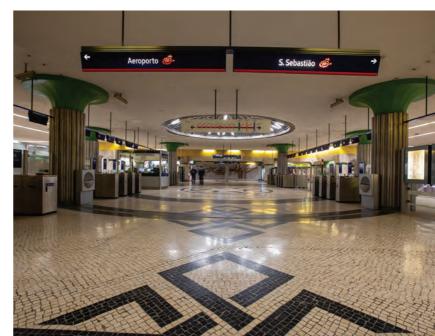
Services*

- Design
- BIM
- High level supervision

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction







^{*} Services in JV with partners

Terminal XXI Sines

The expansion of Terminal XXI at Sines Port, the largest deep-water port in the Iberian Peninsula, increased its presence in global shipping. Leading in national cargo volume, it accommodates an extensive range of shipping vessels and goods. With modern terminals, excellent maritime access, and a pivotal role in energy supply, Sines is poised to be a global standard in shipping.

Country Portugal



Domain

Ports / Maritime Works

Client

CPTP - Companhia Portuguesa de Trabalhos Portuários e Construções, S.A.

Time frame

2011

Construction cost

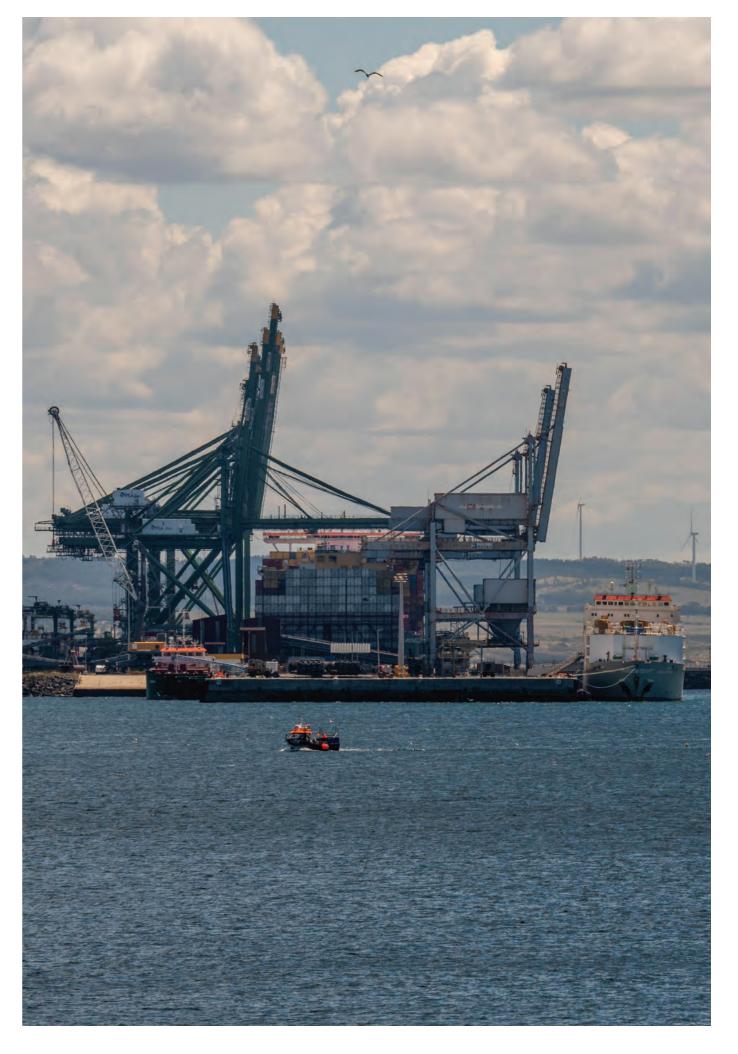
EUR 300'000'000

Services

• Design

Phases

- Preliminary studies
- Preliminary design
- Construction design





No community is an island

This spectacular suspension bridge brings life on the island of Sotra closer to the city of Bergen. Located in the Norwegian county of Vestland, the Sotra Link project is a sophisticated system of bridges, tunnels, cycling paths, pedestrian underpasses, and connections to secondary roads. It implements a "macro-micro" approach to ensure sustainable mobility and unite local, regional, and national interests.

It's scheduled to open in June 2027. Once operational, it will reduce travel time by 20 minutes, eliminating traffic bottlenecks and improving access to the island of Sotra.











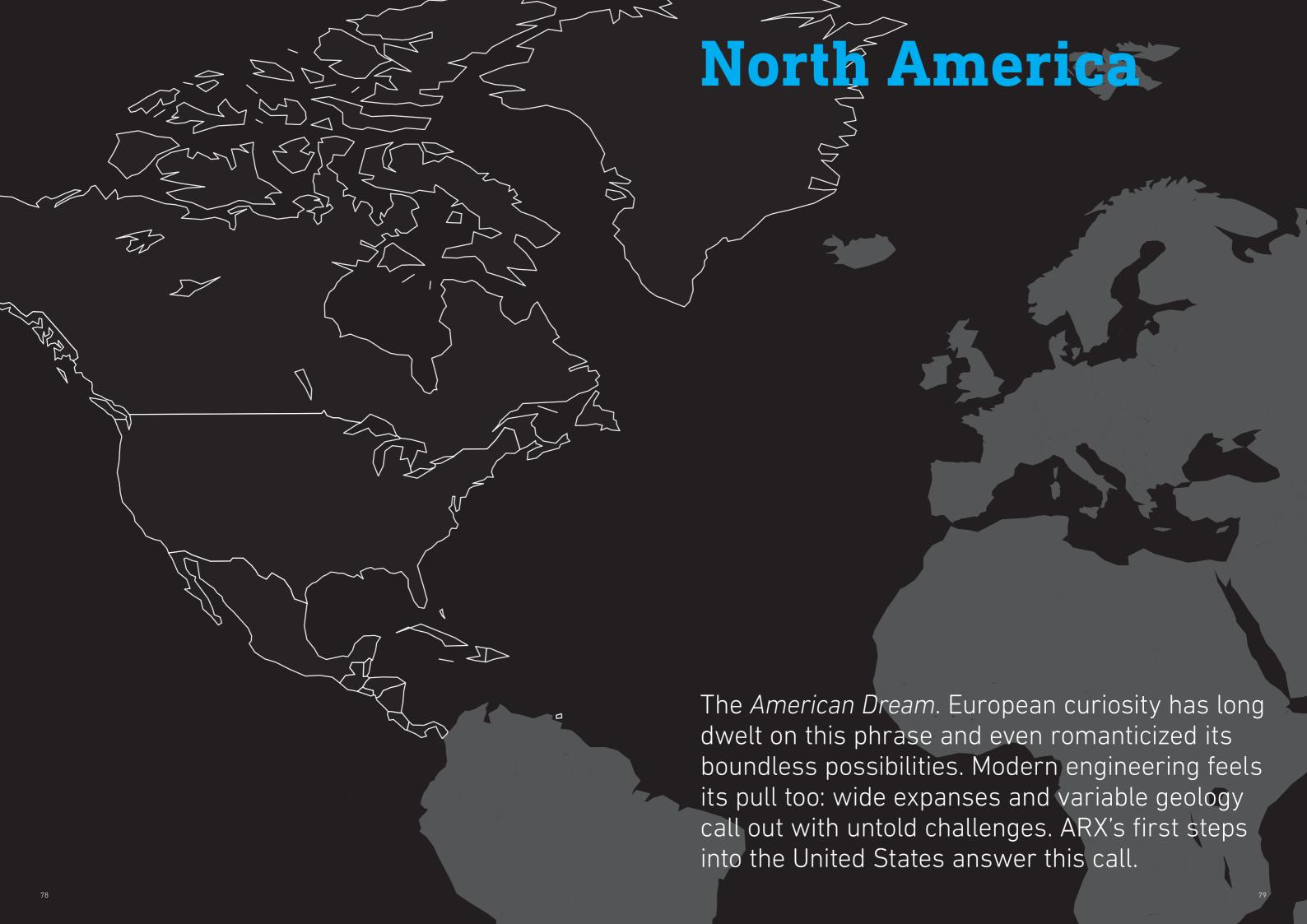


The Norwegian Public Road Authority's high environmental standards have led us to creative design solutions and the innovative use of materials. Our goal is to reduce the new infrastructure's carbon footprint throughout its life cycle

It's been an important professional challenge in my carrier and proves the success of ARX's "glocal" approach. We've organized a multicultural and multidisciplinary design team that combines colleagues from 9 different countries around the world, providing the best from each discipline for this project. Not only that, we've provided both timely design services and continuous onsite technical support.

Guido Barbieri

Country Manager Norway





32 Lower Olentangy Tunnel (LOT) Project

Digging Deep for Columbus

The Lower Olentangy Tunnel is a key component of the City of Columbus's Wet Weather Management Plan, designed to reduce combined sewer overflows, protect neighborhoods, and safeguard local waterways. The project consists of a 12-foot (3.65 m) internal diameter tunnel extending more than 22,000 feet (6,705 m), constructed in two drives using an Earth Pressure Balance (EPB) Tunnel Boring Machine. The alignment passes directly beneath densely urbanized sections of downtown Columbus, including residential, commercial, and recreational zones, which required careful monitoring and stringent settlement control to minimize impacts on existing buildings and utilities.

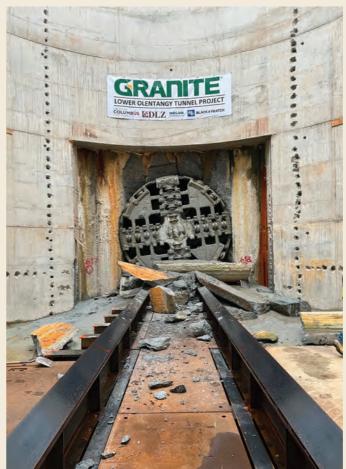
Geotechnical challenges included highly variable soil and rock conditions, permeable soil units with hydraulic conductivity up to 1 cm/s, and water inflows that posed significant risks during excavation. One of the most complex sections involved tunneling beneath the Olentangy River with as little as 22.5 feet (6.86 m) of cover, where low overburden demanded precise face pressure control and tailored soil conditioning strategies to prevent instability and surface settlement.

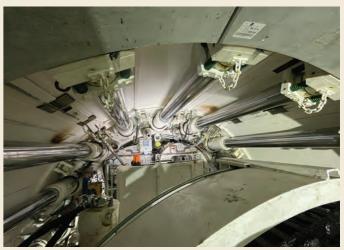
In addition, the proximity to critical infrastructure—including utilities, transportation corridors, and sensitive urban structures—necessitated detailed instrumentation and monitoring programs, as well as real-time adjustments to TBM operations, to ensure that construction proceeded safely and without disruption to city life.













What makes the Lower Olentangy Tunnel so special for us at ARX is not just the technical complexity, but the journey we've shared alongside the contractor from the very beginning.

Being engaged since the tender stage and remaining present all the way through to the completion of the drives gave us the opportunity to provide consistent technical support while building genuine human relationships.

This continuity creates a different level of commitment — one where challenges are not just problems to be solved, but shared experiences that strengthen the team. Walking with our partners 'to the end of the tunnel' is a reminder that major infrastructure is built not only with engineering and machines, but with trust, resilience, and collaboration.

Elisa Comis

Managing Director USA

Potomac River Tunnel

Three Rivers Protection and Overflow Reduction Tunnel (3RPORT)

Country

USA



Domain

Tunnel & Underground; Water / Wastewter treatement

Client

DC Water and Sewer Authority

Time frame

2023-2030

Construction cost

.....

USD 819'500'000

Services

- Client's representative
- Design
- Consulting / Expertise

Phases

- Tender design
- Construction

Country USA



Domain

Tunnel & Underground; Water / Wastewater treatement

Client

Salini Impregilo/Healy Joint Venture Final Client: Fort Wayne City Utilities

Time frame

2017-2021

Construction cost

USD 188'000'000

Services

- Consulting / Expertise
- Design

Phases

- Construction design
- Construction





Gordie Howe International Bridge Detroit - Windsor

The Gordie Howe International Bridge is a six-lane cable-stayed crossing spanning 1.5 miles (2,4 km), with a record 0.53-mile (0.85 km) clear span—the longest in North America. It connects the US and Canada via approach bridges linking the Ports of Entry, ensuring smooth traffic flow.

Designed for sustainability and accessibility, it includes a multi-use path for pedestrians and cyclists. Once completed, it will be the longest composite span in the world.

Country USA-Canada



Domain Bridge

Client AECOM

Final client: WDBA (Windsor Detroit Bridge Authority)

Time frame 2016-2025

Construction cost USD 5'500'000'000

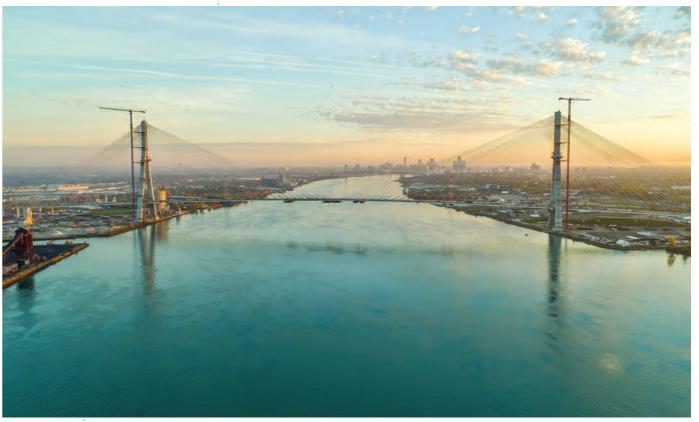
Services*

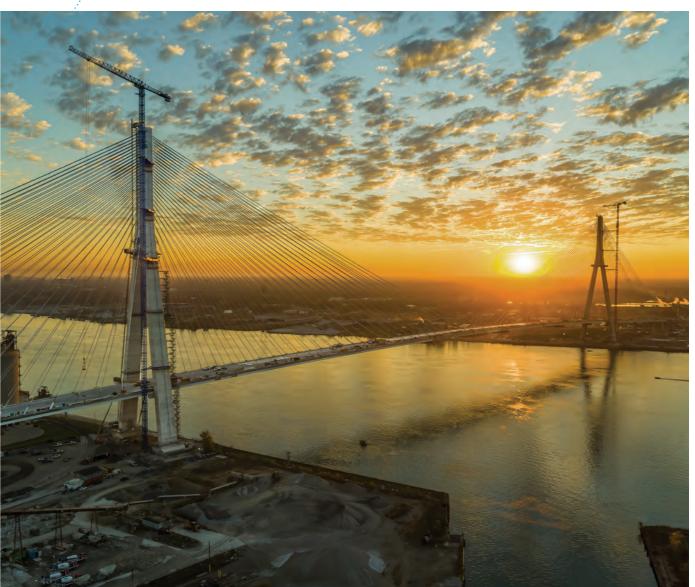
- Design
- Technical site supervision QA/QC

Phases

- Tender design
- Construction design
- Construction

* Services with partners





Divisadero Chihuahua

This aerial tramway runs from Divisadero across the picturesque copper gorge "Baranca del Cobre" to a hill on the opposite side. It spans an entire valley, pillarless from station to station. With a cabin size of 60 passengers, this classic panoramic tramway offers staggering views along all 2'720 meters of cable.

Country Mexico



Domain

Cableways

Client

Doppelmayr Garaventa Group Final Client: Gobierno del Estade de Chihuahua,

Direccion de Tourismo

Time frame

2010

Construction cost

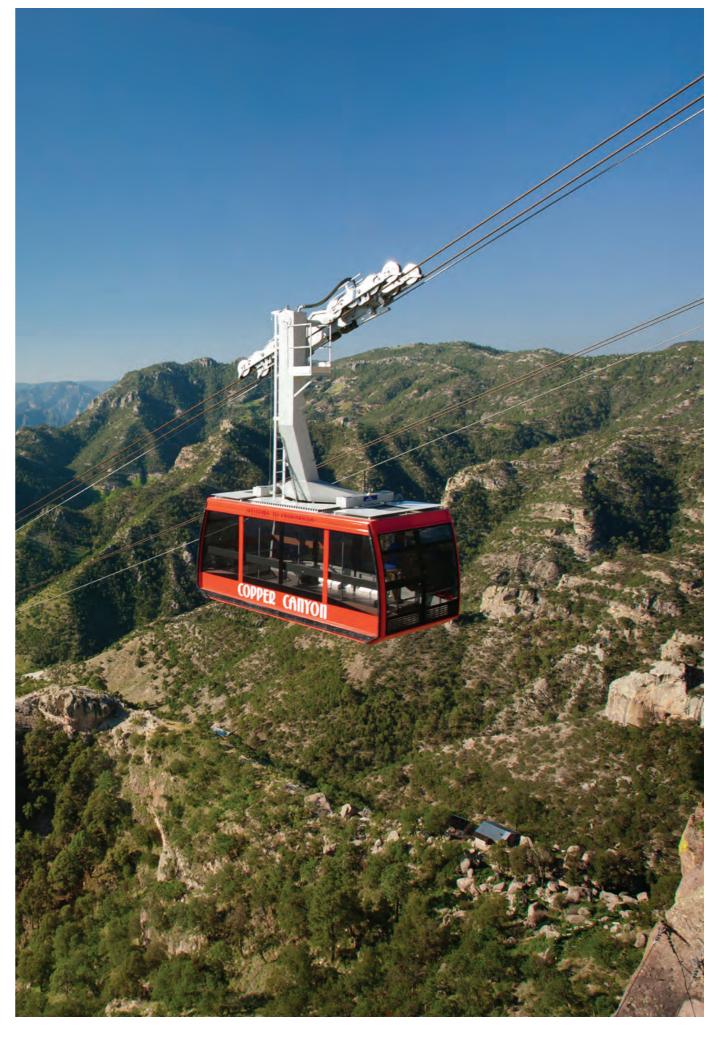
USD 13'400'000

Services

• Design

Phases

Construction design





South America has always pulsed to the rhythm of its many distinctive dances. Inspired by its vivacious culture, ARX is channeling this energy to further its engineering projects on the continent. South America offers countless opportunities for those willing to roll up their sleeves. Embracing the unique infrastructure, energy, and land management challenges, ARX is doing just that.



Delsitanisagua Hydroelectric Power Plant

Coca Codo Hydroelectric Project

Country Ecuador



Domain

Hydropower

Client

Empresa Pública Estrategica Corporación Eléctrica Del Ecuador "CELEC EP"

Time frame

2013-2019

Construction cost

USD 258'000'000

Services*

- Client's representative
- Independent Checking Engineer (ICE)
- High level supervision
- Project owner support

Phases

- Final design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners

Country Ecuador



Domain

Hydropower

Client

Sinohydro Corporation Ltd Final Client: Hidroeléctrica Coca Codo Sinclair EP

Time frame

2009-2016

Construction cost USD 1'980'000'000

Services*

- Design
- Construction management

Phases

- Preliminary design
- Final design
- Construction design
- Construction

* Services in JV with partners













From the Andes to the ocean waves

The economy of a region, in the era of globalization, depends on its efficiency in receiving the products it needs and exporting those it makes. This is why port facilities play a strategic role, especially if one lives in a country that is largely bordered by territories with little infrastructure, such as the Andes and the Amazon, and instead has the Pacific as its gateway to the world. The modernization of the port of Paita, the second largest in Peru in terms of container movement, has made the economy of the entire region more dynamic.

The modernization works, including the new container pier, were inaugurated in October 2014, and made it possible to triple the terminal's performance, reaching up to 70 containers per hour/ship. As a result, Paita has become one of the top 50 ports in the American sub-continent.









Ports are gateways that facilitate the exchange of goods between nations and play a vital role in the global economy

The second port in Peru in terms of container movement, Paita mobilizes import and export containers and general cargo.

The challenge of designing all 3 extension phases was addressed by a simple honesty which goes straight to the essence of the physical characteristics of the materials under consideration of acting forces such as gravity, temperature, earthquake, mooring and berthing loads.

Luís Câncio Martins

Country Manager Portugal

Extremly Large Telescope (ELT)

Alto Maipo Hydroelectric Project

41

Country

Chile



Domain

Buildings – civil engineering

Client

European Southern Observatory (ESO)

Time frame 2017-2028

2017-2020

Construction cost USD 3'100'000'000

Services*

Design

Phases

- Preliminary design
- Construction design

* Services in JV with partners





Domain

Hydropower; Tunnel & Underground

Client

Strabag SpA, Constructora Nuevo Maipo S.A. (Hotchief – CMC JV) Final Client: AES Gener S.A.

Time frame

2013-2021

Construction cost USD 3'000'000'000

Services*

- Design
- Construction management

Phases

- Final design
- Construction design
- Construction
- * Services in JV with partners

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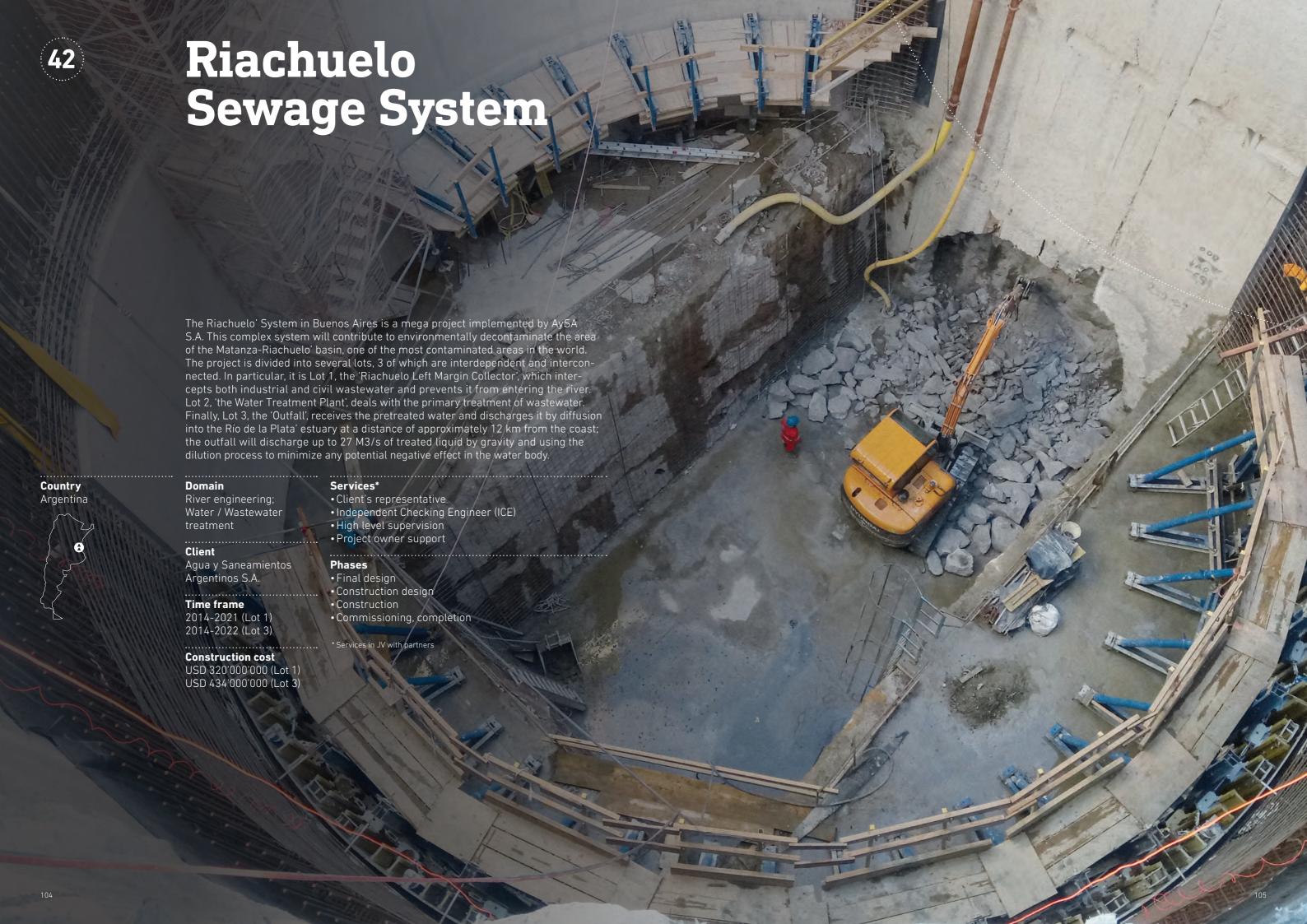








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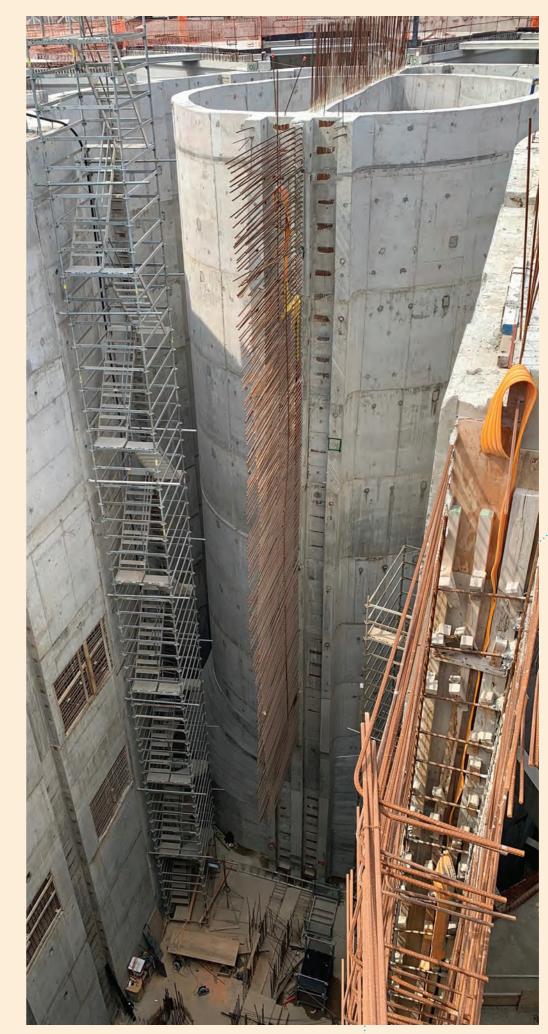
The silver river shines again

In South America, the Rio de la Plata (the Silver River) is the great estuary flowing between Buenos Aires and Montevideo. Some of its tributaries, such as the Riachuelo, are considered among the most polluted basins on earth, with millions living on its banks of unfiltered industrial sewage.

Driven to put an end to this desperate situation, the local community has collaborated with the World Bank in this extensive restoration. The project is divided into several lots, 3 of which are interdependent and interconnected, presenting distinct engineering challenges. Lot 1, the 'Riachuelo Left Margin Collector', intercepts both industrial and civil wastewater, preventing it from entering the river. Lot 2, the 'Plant for Water Pretreatment', deals with the physical treatment of wastewater. And Lot 3, 'Outfall', receives the pre-treated water and discharges it by diffusion into the Río de la Plata 12 km from the coast.











Riachuelo binds land and water together, uniquely capturing the art of tunneling

As engineers, our daily work on this project was driven by passion, dedication, and innovation. My years of involvement in the design and execution of the underground works have been a once-in-a-lifetime opportunity.

I owe considerable professional and personal growth to this project, and it's been a privilege to have contributed its success.

Pierluigi Nionelli

Head of Business Line Hydropower

Bus Rapid Transportation Goiânia





Country

Brazil



Domain Roads

Client

Prefeitura do Município de Goiânia

Time frame 2016-2018

Construction cost USD 75'800'000

Services*

• High level supervision

Phases

Construction design

* Services in JV with partners

Country Brazil



Domain Metros

Client

Metrô – Companhia do Metropolitano de São Paulo

Line 17

Time frame

2010-2011

Construction cost USD 454'500'000

Services*

• Design

Phases

- Preliminary design
- Final design

* Services in JV with partners





Metro São Paulo Line 6



Guarulhos International Airport Terminal 2 Refurbishment

Country

Brazil



Domain Metros

Client

Metrô – Companhia do Metropolitano de São Paulo

Time frame 2016-2018

Construction cost USD 2'840'000'000

Services*

• High level supervision

Phases

Construction design

* Services in JV with partners

Country

Brazil



Domain

Airports

Client

Concessionária do Aeroporto Internacional de Guarulhos - GRU AIRPORT

Time frame

2014-2017

Construction cost USD 39'000'000

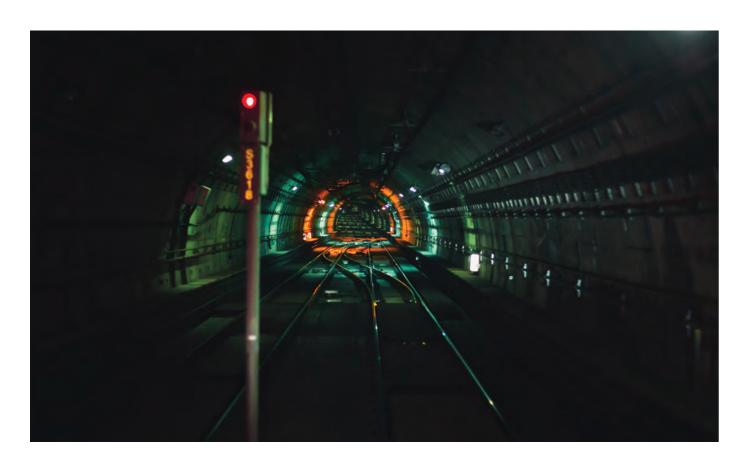
Services*

• Design

Phases

Construction Design

* Services in JV with partners







Oceania

Say Australia and you likely picture kangaroos and koalas. But Downunder is more than its unique wildlife. This continent-nation is betting heavily on its future with major investments in energy supply and mobility in urban centers. ARX has an important role in both, while helping design this country's future.





Energy from the ground for a sustainable future

The weakness of renewable energy is its dependence on uncontrollable factors: the presence of the sun for photovoltaics, and rainfall that fills reservoirs for hydroelectricity. In Australia, Snowy 2.0 is a cyclopean project, extending for tens of kilometers underground, based on a closed-loop hydroelectric production system. Using excess photovoltaic and wind energy to replenish the water used in storage reservoirs, there is always water available for energy production.

The project, owned by Snowy Hydro, connects two existing reservoirs belonging to the Snowy Mountain Scheme—Tantangara and Talbingo—through 27 km of tunnels and the construction of a new underground power station at a depth of about 800 metres. Snowy 2.0 is considered a vital project for Australia's economy and energy transmission. Its aim is to provide massive water storage for the hydroelectric generation needed to balance the growth of wind and solar energy. This will result in the retirement of thermal power stations.









Snowy 2.0 is a cornerstone project allowing Australia to progress toward a renewable future, poised to realize the government's ambitious net zero target by 2050

Its complexity is unparalleled, encompassing challenges in geology, scale, transient pressures, design longevity, and the intricate load cycles throughout its operational lifespan. Engaging with such a multifaceted endeavor has been amongst the highlights of my technical career journey, offering a profound opportunity for all involved to appreciate the marvels of modern engineering.

Moreover, it serves as a rich repository of lessons learned, invaluable for guiding the development of future plants in the country.

Sabrina Kost

Region Manager Oceania

Sydney Metro – WSA – Station Boxes & Tunnels, NSW

Northern Sydney Freight Corridor (NSFC), NSW

49

Country Australia



Domain

Metros

Client

CPB & Ghella JV Final client: Sydney Metro

Time frame 2021-2023

2021-2023

Construction cost AUD 1'800'000'000

Services

- Design
- Technical Site supervision

Phase:

- Tender design
- Construction design
- Construction

Country Australia



Domain Railways

Client

Transport for NSW (TfNSW)

Time frame

2014

Construction cost

AUD 1'600'000'000

Services

Consulting / Expertise

Phases

Preliminary design









Cross River Rail, QLD

Cross River Rail is a 10.2 km rail line in Brisbane, between Dutton Park and Bowen Hills, which includes a 5.9 km twin tunnel under the Brisbane River and Brisbane CBD. The project also includes construction of four new high-capacity underground stations at Boggo Road, Woolloongabba, Albert Street, Roma Street and redevelopment of the existing over Dutton Park Station. The project will integrate with proposed Brisbane Metro services.

Country



Domain

Railways; Tunneling & Underground

Client

CPB-Ghella-BAM-UGL (CBGU) JV Final client: Cross River Rail Authority

Time frame

2018-2022

Construction cost

AUD 2'700'000'000

Services

- Design
- Technical site supervision

Phases

- Tender design
- Construction design
- Construction









Forrestfield-Airport Link, WA

The Forrestfield-Airport Link is a train line that connects the outer Perth suburb of Forrestfield to the city. This vital project has opened up Perth's eastern suburbs to the rail network for the first time; a trip to the Perth Airport is now five minutes shorter by train than by car. The suburban 8.5 km rail link includes twin tunnels 7.1 km long and 6.17 m ID, bored by two variable density TBMs. It also provides 3 new rail stations—2 underground (Redcliffe Station and Airport Central Station), and 1 above ground (Forrestfield Station).

Country

Australia



Domain

Railways; Tunneling & Underground

Client

Webuild Final client: Public Transport Authority of Western Australia (PTA)

Time frame

2016-2020

Construction cost

AUD 1'860'000'000

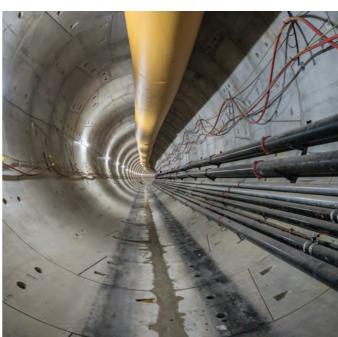
Services

- Design
- Technical site supervision

Phases

- Tender design
- Construction design
- Construction









Asia

Asia is a continent of records. It's the largest, at more than 43 million square kilometers, and the most densely populated, with more than 100 people for each of those square kilometers. That equates to more than 4 billion inhabitants! These numbers bring with them a multitude of issues to be faced over the next few centuries. ARX is up for the challenge. Tackling complex projects with innovative solutions, our eye is on Asia's future.

Friendship Bridge over the South China Sea

The Friendship Bridge has become one of Macau's many attraction it is the longest of the three bridges crossing the Bay of Praia C China Sea with a total length of 4'400 m. It's comprised of two with 112-meter spans and reaches a maximum height of 30 me to pass beneath. Most of the bridge uses viaducts with 35-meter pans and

Construction cost



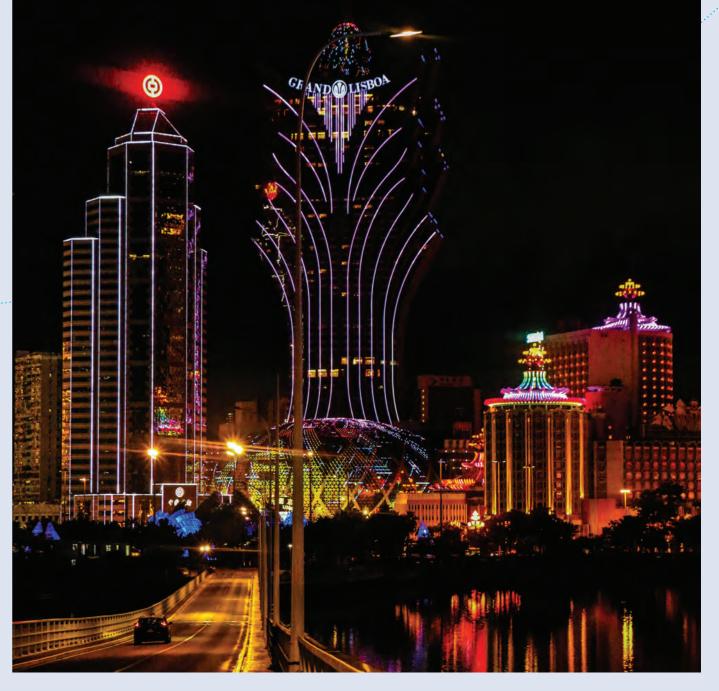
Friendship travels over the waves of the sea

Macau consists of a single peninsula and two islands. One of these, the island of Taipa, is connected to the peninsula by several bridges. At 3 km, the longest and most impressive of these is the 'Ponte da Amizade' (Friendship Bridge), which is crossed by the millions of visitors every year who land at the international airport and travel to Taipa. In Macau, Asian exotic charm meets Portuguese colonial architecture. The result is futuristic buildings such as the Macau Tower, more than 300 meters high, and the luxurious hotels and casinos in the 'Las Vegas of the Orient'.

The Friendship Bridge was prefabricated in nearby Chinese shipyards. A fourth bridge connecting the peninsula and Taipa is currently under construction as the island's transformation continues.







When built, the Friendship Bridge was important for improving the mobility in the territory of Macao but also, to no lesser extent, as a political symbol of the cooperation between Portugal and China

The immaterial dimension of the bridge as a link between the past and the future was counterbalanced by the harsh reality of a design-build tender.

The challenge of a functional, aesthetically pleasing and yet economic crossing that comprises a South Trestle, Inner Bridge over the access channels to the port, Outer Bridge over the two access channels to the Passenger Terminal and North Trestle was addressed by the extensive use of precasting at highly competitive production and transport costs.

The choice has proved to be the right one.

José Câncio Martins

Senior Engineer

Siddhababa road tunnel

The Siddhababa tunnel, situated on the Butwal-Palpa section of the Siddhartha Highway, extends 1.126 km. This specific segment presents significant risks due to frequent rockfalls and landslides, particularly during the monsoon season. The completion of the tunnel will improve the safety conditions of the road. Local residents also anticipate that the tunnel will play a key role in promoting the economic development of the region.

Country Nepal



Domain

Roads;

Tunnel & Underground

Client

Swiss Agency for Development and Cooperation (SDC)

Time frame

2022-2024

Construction cost

USD 56'600'000

Services

- Consulting / Expertise
- High level supervision
- Project owner support

Phases

- Construction design
- Construction









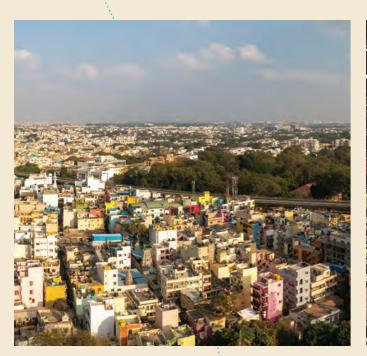




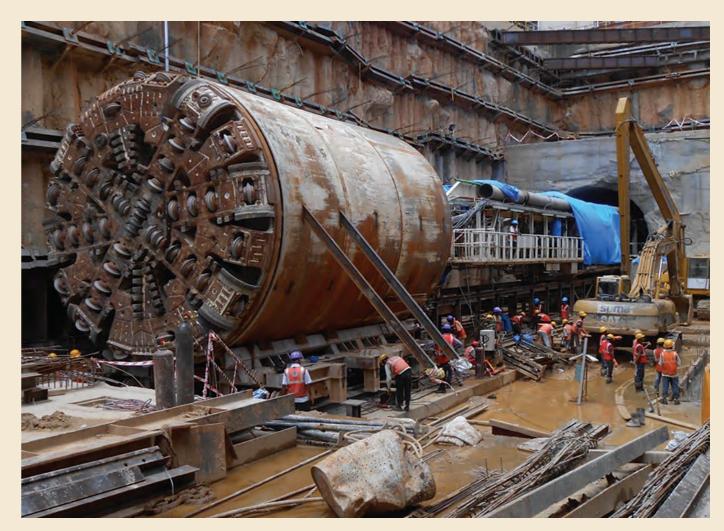
A metro marathon against traffic

Efficient transportation solutions are top priority in Asia's megacities, where traffic and pollution may undermine quality of life if left unchecked. Bangalore, a metropolitan area of 8 million people in the south-west of India, has taken on collective transportation as the solution. Two new metro lines now run through the commercial and residential center of the city, for a total of about 42 kilometers.

The contract concerns a 3.6 km section of the Bangalore Metro's north-south corridor. The tunnels, each 2'515 m long, have a double-drilling configuration for a single track with an internal diameter of 5.6 meters and were excavated using three EPB-TBMs. Conversely, the two tunnels on the north and south sides were bored using the cut-and-cover technique for a total length of 600 m. The project also includes two underground stations, City Market and Chickpete, each 225 m long and constructed in cut-and-cover with bottom-up structures, excavated below the water table. Two TBM shafts, a bypass near the Majestic station, and three safety cross passages complete the job. The tunnel travels under densely urbanized areas and passes through soft, water-saturated soils, including silty sand and clay silt, beneath granite rock.









Bangalore is the capital of Karnataka state, situated in the southern India. It's also known as the Silicon Valley of India, with a reputation for being a happening and vibrant city

It attracts a young and ambitious workforce eager to pursuing IT careers and explore entrepreneurial ventures.

In an attempt to decongest this ever-expanding city, authorities decided to implement a metro line. It was a great opportunity for us to design the underground part of the north-south corridor of the Bangalore Metro. Participating in the design and execution phases was an unforget-table experience, almost like fiction for us to see an underground line be built in India. When the project was commissioned, it was the first metro line in the southern part of India and considered an engineering marvel, on par with any modern metro in the world.

Lalit Chhabra

Region Manager South Asia

Delhi Metro, Phase III

Delhi Metro is one of the fastest growing networks in the World. Phase III is 120 km long (60% elevated and 40% underground), and it is divided into 7 sections. The 58.6 km-long Mukundpur-Shiv Vihar Corridor interconnecting north, west and east Delhi, is one section of the ambitious Phase-III. It includes the CC04 Contract for the northern end of Line 7.

Country India



Domain Metros

.01.00

Client

DMRC Delhi Metro Corporation Ltd / Continental Engineering Corporation Ltd.

Time frame 2012-2015

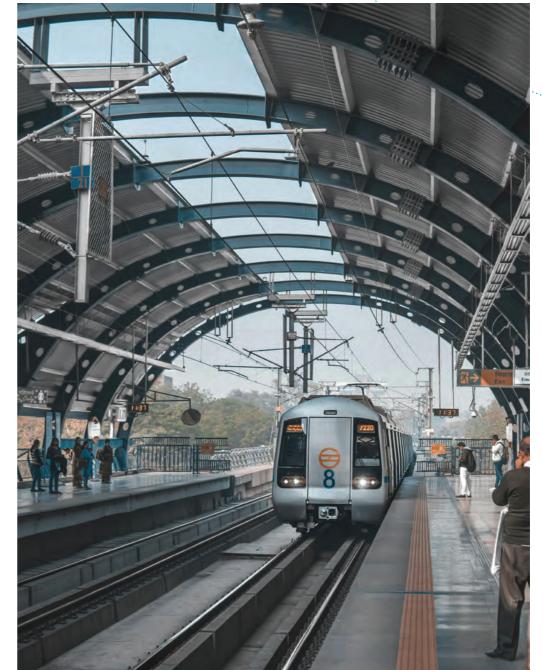
Construction cost USD 61'000'000

Services

- Design
- Technical site supervision QA/QC

Phases

- Preliminary design
- Final design
- Tender design
- Construction
- Commissioning, completion













The Mumbai-Pune Missing Link Project

The link from the Khopoli Exit to the Sinhgad Institute will complete the 3+3 lanes expressway currently in operation from Mumbai to Pune. The link will improve transportation throughout the region. This 13.3km-long link with a string of viaducts, tunnels, and bridges aims to bypass the Khandala Ghat's hairpin turns which are prone to landslides and traffic jams. Due to the straighter route, distance will be reduced by 6 km and travel time by 25 minutes.

Country India



Domain

Roads

Client

Maharashra State Road Development Corporation Ltd. (MSRDC)

Time frame 2017-2024

Construction cost

Package 1: USD 323'000'000 Package 2: USD 174'000'000

Services

Construction management

Phases

- Tender design
- Construction design
- Construction
- Commissioning, completion













Metro Rail Project at Bhopal and Indore

Rishikesh-Karnaprayag line - Tunnel Package 3

Country

India



Domain

Metros

Client

Madhya Pradesh Metro Rail Co Limited (MPMRCL)

Time frame 2018-2026

Construction cost USD 1'790'000'000

Services

Construction management

Phases

- Tender design
- Construction design
- Construction
- · Commissioning, completion

Country India



Domain

Railways; Tunnel & Underground; Bridges & other structures

Rail VIKAS NIGAM LIMITED

Time frame

2019-2026

Construction cost USD 284'000'000

Services

- Design
- Construction management

- Preliminary design
- Final design
- Tender
- Construction
- Commissioning, completion







Middle East

Next on our journey around the world, we arrive in the Middle East. Nestled between North Africa and West Asia, this region has its own unique charms and challenges. The rich culture and intense speed of change is unparalleled, providing opportunity for engineering at every turn. Where there was desert, now stand the world's tallest skyscrapers—evidence of where ingenuity will take in the Middle East.



Istanbul Metro

Gayrettepe - Istanbul Airport Metro Line connects the airport to the city center. Built entirely underground, it is a well-integrated 38-km double line that provides fast transport (120 km/h). Capacity is up to 75 passengers per hour per direction, from both the European and the Anatolian sides. The line has 8 stations in total, and 3 of them are inside the airport limits.

Country

Türkiye



Domain

Metros

Client

Kolin, Kalyon Cengiz (KKC) Construction JV + Republic of Türkiye, Ministry of Transportation, Maritime and Communications, Directorate General of the Infrastructure Investments

Time frame

2016-2024

Construction cost

USD 1'000'000'000

Services

- Design
- BIM
- Indipendent Checking Engineer
- Project owner support
- Support to contractor

Phases

- Final design
- Construction design











North-South Railway (NSR) Track Doubling

The NSR line is a 1'710-mile rail network in central and eastern Saudi Arabia, built and operated by Saudi Arabia Railway (SAR). To enhance freight capacity, the project focuses on optimizing infrastructure size and location along the corridor. Internal studies have identified key bottlenecks, prompting the construction of a second track parallel to the main line.

Alongside the new track, the project includes a state-of-the-art maintenance depot with a final capacity of 3'600 wagons, ensuring efficient operations and long-term sustainability.

Country Saudi Arabia



Domain

Rail network

Client

Ministry of Transport and Logistics Services Supervised by: Saudi Arabia Railways (SAR)

Time frame

2024-2026

Construction cost

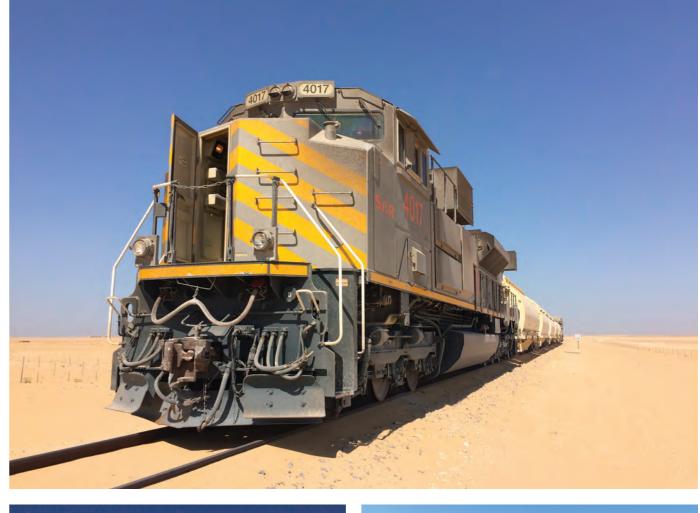
USD 1'800'000'000

Services

• Design

Phases

- Preliminary studies
- Preliminary design
- Tender design
- Construction design







Lake Perimeter

Webuild, commissioned by NEOM, will construct three dams and related works, forming a freshwater lake in the mountain destination Trojena, Saudi Arabia. Over 10'000 people will participate in this futuristic infrastructure project in the desert mountains. The main dam will be made of roller-compacted concrete (RCC) and will be 145 meters high, 475 meters long, with a volume of approximately 2.7 million m³. The second dam will also be in RCC, while the third one will be in rock, with a volume of 4.3 million m³. The artificial lake will cover an area of 1.5 km² and have an island reserved for botanical dives and walks.

Country Saudi Arabia



Domain

Roads; Tunnel & Underground; Geology; Geotechnics & Special foundations;

Client

Webuild

Final client: NEOM

Time frame 2024-2026

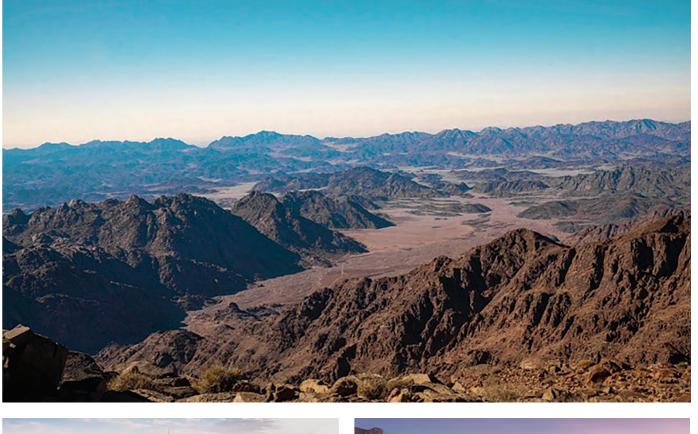
Construction cost USD 4'700'000'000

Services

- BIM
- Design

Phases

Detailed design









RPP2 Cooling Water Intake Structure

The 2'800 MW Rabigh Power Plant No. 2 features a cooling water intake pumping station and valve pit, along with a bridge over the intake basin. The 200 m-long intake structures, 60 m wide and 14.50 m high, are designed for full unit emptying during maintenance. Key design considerations include uplift, watertightness, and soil-structure interaction. Additional structural elements encompass the header pit, on-ground slabs, and a 193 m-long bridge.

Country Saudi Arabia



Domain

Ports / Maritime Works

Client

Huta Marine Works Ltd.

Time frame

Construction cost

USD 77'000'000

Services

• Design

Phases

- Preliminary studies
- Preliminary design
- Construction design



King Abdul Aziz Road (KAAR) Infrastructure Project

Old Makkah Road Bridge



Country



Domain

Bridges & other Structures; Roads;

Tunnel & Underground

Client

Nesma & Partners Contracting Company Limited

Time frame

2016-2018

Construction cost

USD 1'750'000'000

Services

Consulting/Expertise

Phases

Preliminary studies

Country Saudi Arabia



Domain

Bridges & other Structures

Clien

Huta Marine Works Ltd.

Time frame

2006

Construction cost

USD 12'000'000

Services

Design

Phases

- Preliminary studies
- Preliminary design
- Construction design









Africa is a land of variety. Transected by the equator and the tropics of Cancer and Capricorn, it provides a wide scope of climates and environments. Similarly, project opportunities range widely from economic ventures to humanitarian endeavors. ARX's presence here speaks to both, capturing opportunity and transcending it to modernize facilities and infrastructure where needed most.



Cairo Metro Line 3 Phase 3

Line 3 of the metro crosses Cairo from east to west, connecting districts west of the Nile to the airport, over a distance of nearly 40 km. The Phase 3 of this project is divided in 3 parts: common trunk from Attaba to exist shaft after Sudan Station (identified as Phase 3A), then north branch to Imbaba (Phase 3B) and the south branch to Mohandisine (Phase 3C), 17.7 km and 15 stations.

Country Egypt



Domain

Metros

Client

Egyptian French Joint leaded by Vinci Final client: NAT (National Authority of Tunnels)

Time frame

2018-2023

Construction cost

USD 1'100'000'000

Services

• Design

Phases

- Final design





- Construction design













New Assiut Barrage

The New Asyut Barrage is one of the largest water infrastructure projects recently built on the Nile River. The dam replaces the ancient barrage, built in 1909. Its purpose is to secure the water needs of present and future generations, while enhancing and regulating irrigation in Middle Egypt. Additionally, the dam will improve navigation on the Nile through an advanced control system. The project also includes the construction of a clean hydroelectric power plant, notable for its long lifespan and low operational and maintenance costs.

Country

Egypt



Domain

Bridges & Other structures; River engineering

Client

Egyptian French JV (Leader Vinci Construction)

Time frame

2013-2015

Construction cost

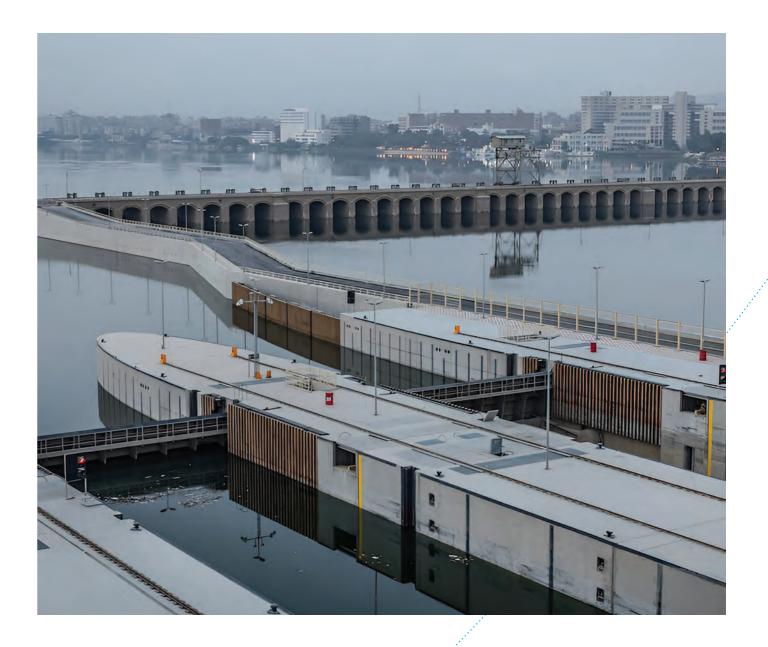
USD 370'000'000

Services

Design

Phases

- Final design
- Construction design



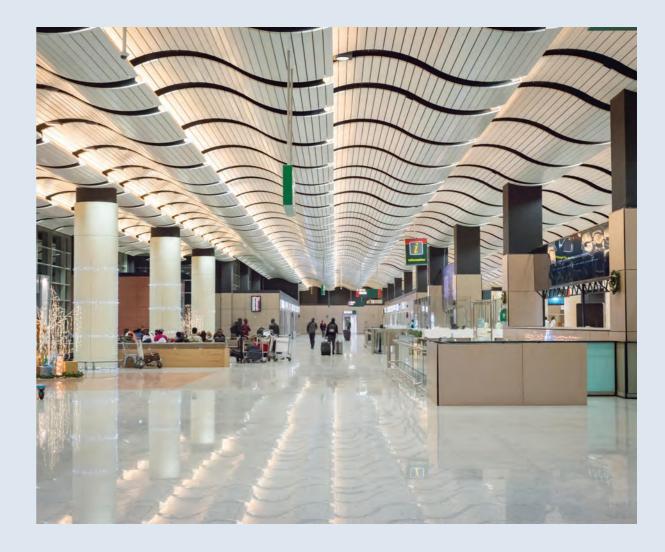




Where planes and the economy take off

The Blaise Diagne International Airport is Dakar's gateway to the world. Those traveling to other major African cities, Europe, the Middle East, and America take off from its 3'500-meter runway; those investing in Senegal use it to enter the country. In recent years, the growth of the Senegalese economy has necessitated greater international connection. Together with the Côte d'Ivoire, Senegal is one of the most dynamic of the French-speaking countries in the sub-Saharan area, and its development depends on the quality of its infrastructure.

The airport is located 43 kilometers east of the city center and is named after the first West African citizen elected to the French parliament in 1914. The airport has been in operation since 2017, when it replaced the historic Léopold Sédar Senghor airport.











The development of the MRO hangar's infrastructures at Dakar Airport is a cornerstone project for me, symbolizing a major step forward in enhancing the aviation infrastructure in West Africa

It represents our commitment to boosting regional economic growth, improving safety, and fostering aviation within the community.

This initiative not only sets Dakar on the map as a key aviation hub but also underscores the vital role of aviation in connecting cultures and supporting economic development. I am proud to contribute to a project that promises to elevate the industry and benefit the region as a whole.

Rafael Capel

Head of Business Line Airports

Back to Europe

Geographically, our journey ends where it began. But just as Phileas Fogg returned from his trip around the world a changed man, we too see the future differently. Borrowing Jules Verne's visionary mindset, we conclude this last chapter with a look into the metaverse. Enjoy projects that take us beyond imagination, with new territories and adventures that will stay with you long after you put this book down.



Glasblokkene Haukeland **Children Hospital** with Womens Clinic

Copenhagen Metro



Country



Domain

Buildings – architecture

Client

Health Bergen HF

Time frame

2006 - 2022

Construction cost

EUR 51'000'000

Services*

- Consulting / Expertise
- Inspections & Assessment
- Technical site supervision QA/QC
- Strategic planning
- Preliminary studies
- Preliminary design
- Final design
- Tender design
- Completion

- Design

• BIM

- General Planner

- Permit-obtaining procedure

Country

Denmark



Domain

Metros

Client

Ørestadsselskabet I/S (now Metroselskabet)

Time frame

1995 - 2003

Construction cost

EUR 69'000'000

Services*

- BIM
- Consulting / Expertise
- Design
- General Planner
- Inspections & Assessment
- Technical site supervision QA/QC

Phases

- Strategic planning
- Preliminary studies
- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Completion









^{*} Services in JV with partners

^{*} Services in JV with partners

BBT – Brenner Base Tunnel

The Brenner Base Tunnel (BBT) is the high-speed rail link between Italy and Austria. It will cross the Alps along the new European rail corridor called Scandinavia-Mediterranean and will be a paramount corridor for the European economy and mobility. With a length of more than 55 km (64 km including the existing Innsbruck railway bypass), this is one of the longest tunnels in the world. The BBT project comprises two twin single-track tunnels and an exploratory tunnel located 12 metres below the main tunnels. The latter will be connected by cross-passages every 333 metres. The system is completed by 3 underground emergency stops 20 km apart and 4 access tunnels. In total, the project comprises more than 220 km of tunnels, and crosses various alpine geological units with very heterogeneous conditions and high overburden till 1700 m, which posed particular technical and design challenges. 50% of the total excavation will be done by TBM and 50% by conventional methods. At the south portal the tunnel undercrosses the Isarco River using the ground freezing technique. ARX is playing a major role in the project, participating of the main construction lots both in Austria and Italy.

Country Austria-Italy



Domain

Railways; Tunnel & Underground

Client

BBT SE

Time frame

2014-2023 (Lot H71 Isarco River Underpass - Italy) 2013-2025 (Lot H61 Mules 2-3 - Italy) 2023-2028 (Lot H53 Pfons-Brenner - Austria) 2022-2023 (Lot H52 Hochstegen - Austria) 2022-2028 (Lot H41 Sill Gorge-Pfons - Austria) 2014-2022 (Lot H33 Tulfes-Pfons - Austria)

Construction cost

EUR 320'000'000 (Lot H71 Isarco River Underpass - Italy)
EUR 1'067'000'000 (Lot H61 Mules 2-3 - Italy)
EUR 959'000'000 (Lot H53 Pfons-Brenner - Austria)
EUR 102'000'000 (Lot H52 Hochstegen - Austria)
EUR 651'000'000 (Lot H41 Sill Gorge-Pfons - Austria)
EUR 490'000'000 (Lot H33 Tulfes-Pfons - Austria)

Services*

- Design (Lot H61)
- Technical site supervision (Lot H61)
- Construction management (Lot H33, Lot H41, Lot H) Lot H53, Lot H71)

Phases

- Tender design (Lot H61)
- Construction design (Lot H61)
- Construction management (Lot H33, Lot H41, Lot H5 Lot H53, Lot H41, Lot H71)

* Services in JV with partner

Tunneling a mountain to connect two cultures

Different languages, different mindsets, different documentation, different customs. Italy and Austria overcame these challenges and more to create the Brenner Base Tunnel. In 2012—before teleconferences—the success of this project relied heavily on creating teams motivated to unite, identifying the best local skills, and relying on trusted long-standing partners.

As an important part of the Scandinavian-Mediterranean Corridor between Helsinki and Valletta, this tunnel probes between the Alpine and African tectonic plates, presenting complex technical issues. Using expertise gained during the planning of the Monte Ceneri Base Tunnel, ARX used all technical solutions to ensure trains run safely and quickly. The results have made the difficulties worth tackling. Excavating under a river through freezing the ground was rewarded with a tunnel that will continue to unite people, cultures, and economies for centuries. The skill, passion, and solidarity of the multi-cultural teams on this project ensured its success.

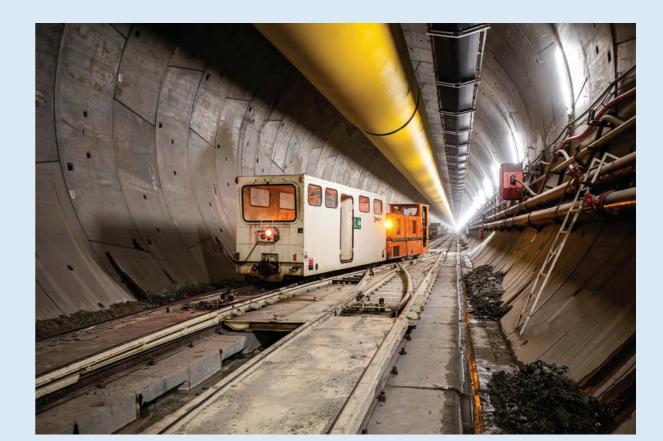














Working on the Brenner Base Tunnel project gave me the opportunity to play an active role in an important transnational infrastructure project

The special geological challenges, the application of modern engineering techniques, and the complexity of the interfaces not only provided professional development opportunities, but also enabled enriching interpersonal encounters and the exchange of expertise on an international Team.

Julia OberhuberClaim Manager

Kühtai Pumped Storage Power Plant

The expansion of the existing Sellrain-Silz power plant group involves the construction of a dam (Kühtai reservoir) and a penstock to the existing Finstertal reservoir. Works include a power plant cavern and a diversion tunnel with 6 intakes in the Ötztal and Hinteres Stubaital. The result is an important contribution to the energy transition in Austria's Tirol region.

Country Austria



Domain

Hydropower

Client

TIWAG-Tiroler Wasserkraft AG

Time frame 2021-2026

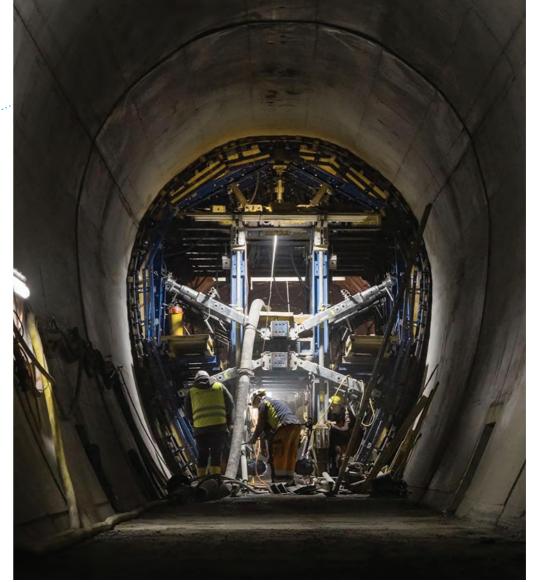
Construction cost EUR 500'000'000

Services*

Construction management

Phases

- Construction
- * Services in JV with partners















© TIWAG



PoLuMe N2 Enhancement Lugano Sud Mendrisio

The PoLuMe project involves expanding the N2 highway section between Lugano and Mendrisio by constructing a dynamic third lane, active only during peak hours. The total length of 19.8 km is divided into: embankment 14.9 km, structures 1.85 km, tunnel 3.05 km. This project significantly improves mobility in the southern part of the Canton of Ticino and strengthens the broader connection between Switzerland and Italy.

Country Switzerland



Domain

Bridges & Other structures; Equipments; Geotechnics & Special foundations;

Roads; Tunnel & Underground

Client

Federal Roads Office (FEDRO)

Time frame

2018-2025

Construction cost

CHF 1'900'000'000

Services*

Design

Phases

- Strategic planning
- Preliminary design
- Permit-obtaining procedure

* Services in JV with partners







© FEDRO

Cargo Sous Terrain initial section

The central component of this system is a nationwide tunnel network in Switzerland, connected to the surface through vertical conveyance shafts with logistics hubs. Freight transportation occurs fully automated using self-driving tunnel vehicles. CST plans to build and operate an initial section from Härkingen to Zurich North by 2031 (approximately 70 km of tunnels, ex-pected to connect around 10 hubs).

Country Switzerland



Domain

Tunnel & Underground

Client

Cargo sous terrain AG

Time frame 2020-2026

Construction cost CHF 3'600'000'000

Services*

• Design

Phases

- Preliminary study
- Preliminary design
- Permit-obtaining procedure

* Services in JV with partners









© CST

N2 Second Tube San Gottardo, south section

This new 17 km tunnel will be situated 40 meters east of the existing one and primarily ex-cavated using a TBM with a diameter of 12,4 m. The project includes the construction of a 5 km South Access Tunnel with a shielded TBM of 7,4 m diameter, and the excavation of lo-gistic works using explosives for a 300 m section with a cross-section of 180 M2. Additionally, 7,5 million t of excavated material will be repurposed for concrete aggregates, Airolo roofing, and the renaturation of the Reuss delta in Canton Uri.

Country Switzerland



Domain

Roads; Tunnel & Underground

Client

Federal Roads Office (FEDRO)

Time frame

2020-2030

Construction cost

CHF 2'053'000'000

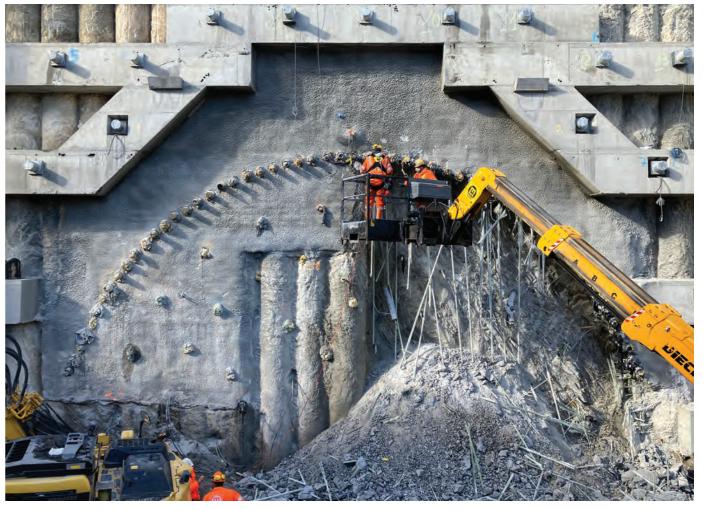
Services*

Construction management

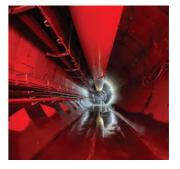
Phases

- Tender design
- Construction
- Commissioning, completion

* Services in JV with partners













See-Infra events frozen lake St. Moritz

St. Moritz is a well-known tourist destination in the heart of the Swiss Alps. Every winter, several international events take place on the frozen lakes. Various preparatory works and ice layer monitoring services are necessary to ensure the safety of these events. Assessment of the ice begins as soon as Lake St. Moritz freezes over – initial visual tests are followed by a series of measurements using different methods. Quantitative monitoring commences when the ice reaches a thickness of 6 centimeters, at measurement points spread out across the lake.

Country Switzerland



Domain

Environment

Client

See-Infra Ltd

Time frame

2013-ongoing

Construction cost

Services

- Design
- Construction management
- Consulting / expertise
- Inspections & assessment

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion







© See-Infra I td

Hotel Grace St Moritz

N9 Tunnel Susten



Country Switzerland



Domain

Buildings – civil engineering

Client

La Margna Holdings GmbH

Time frame

2015-2022

Construction cost

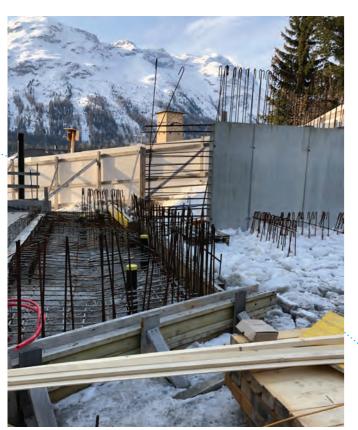
CHF 60'000'000

Services

- Design
- Construction management

Phases

- Preliminary design
- Final design
- Tender design
- Construction design
- Construction







Country

Switzerland



Domain Roads;

Tunnel & Underground

Client

Canton Valais

Time frame

2021-2033

Construction cost

CHF 340'000'000

Services*

- Design
- Geology
- Technical site supervision

Phases

- Preliminary design revision
- Final design
- Tender design
- Construction design
- Construction
- Commissioning, completion

^{*} Services in JV with partners





••••••



EP17 – Multiservice area and heavy vehicle control center

EuroAirport Runway Underpass

79

Country Switzerland



Domain

Roads;

Buildings – civil engineering

Client

Federal Roads Office (FEDRO)

Time frame

2015-2023

Construction cost

CHF 130'000'000

Services*

• Design

Phases

- Preliminary design
- Final design
- Permit-obtaining procedure
- Tender design
- Construction design
- Construction
- Commissioning, completion

* Services in JV with partners

Country

France-Switzerland



Domain

Airports; Bridges & Other Structures

Client

EuroAirport Basel-Mulhouse

Time frame

2022-2024

Construction cost

€ 9'000'000

Services*

- Design
- High level supervision
- Construction management

Phases

- Preliminary design
- Final design
- Tender design
- Construction
- Commissioning, completion

* Services in JV with partners

© Provocaazione















19'

Metaverse Art Gallery

The "Helmallery" in Decentraland integrates virtual and physical architecture, tackling technical challenges with innovation. This multi-story virtual environment has cultural, artistic, and corporate value. Leveraging blockchain technology for secure digital asset management and interactivity, it allows users to engage with the metaverse. Serving as a pivotal case study for ARX, the Helmallery project offers valuable insights into designing immersive virtual spaces that connect us to modern technology.

Country

Metaverse - Decentraland

Domain

Digital & Innovation

Client

ARX Client: Helm High-End labs for the Metaverse Final client: Silvano Repetto and Chiara Capobianco

Time frame

2022

Construction cost

Partnership

Services

Design (Metaverse Real Estate)

Phases

- Preliminary design
- Final design







Consider this simple artistic truth: creativity inspires creativity

And just as the engineering feats of Jules Vernes' day—the American transcontinental railroad, the Suez Canal, the linking of the Indian railways—undoubtedly spurred the fictional circumnavigation growing in Vernes' mind, modern engineering is poised to crack open the globe. Can we even guess what fantastic ideas will emerge? Perhaps they're waiting on the other

Pernaps they're waiting on the other side of that bridge. Perhaps they're glowing at the end of that tunnel.

Our work

Areas of expertise

Infrastructure City Energy Industry

Domains

Airports

Bridges

& other Structures

Buildings - architecture

Buildings - civil engineering

Cableways

Digital & Innovation

Environment

Equipments

Geology

Geotechnics & Special foundations

Hydropower

Metros

Nuclear plants

Oil & Gas

Pipelines & Networks

Ports / Maritime works

Railways

River engineering

Roads

Traffic & Mobility

Tunnel & Underground

Water / Wastewater treatment

Main services

BIM

Client's representative

Construction management

Consulting / Expertise

Design

General planner

Independent Checking Engineer

(ICF)

Inspections & Assessment

Measurement & Surveying

High level supervision

Project owner support

Public Private Partnership (PPP)

Support to contractor

Technical site supervision QA/QC

Project phases

Strategic planning
Preliminary studies

Preliminary design Final design

Permit-obtaining procedure

Tender design

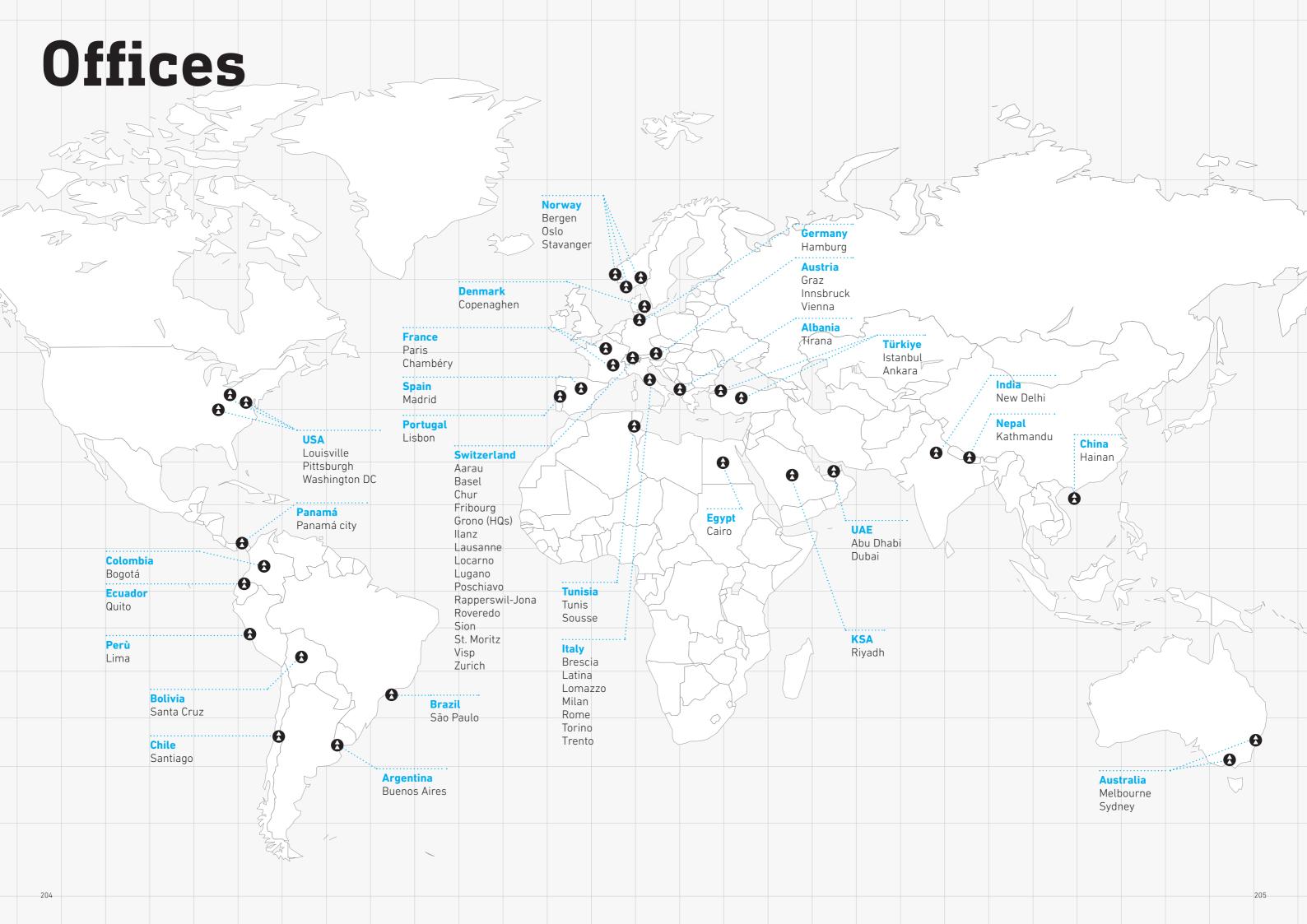
Construction design

Camatawatian

Construction

Commissioning, completion

Operation, Control, Maintenance



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ARX is not just a name. ARX is an adventure.

In these pages, we take you around the world with 80 of our most iconic and representative projects. Circumnavigating the globe, travelling from project to project, you will see the talent, value, and potential ARX holds. Tunnels, bridges, ports, airports, hydroelectric power plants, and even the metaverse can be found in our portfolio. No matter the location or the challenge, we are poised to carry out projects of any size or complexity.

And for this, we thank our global network of smart minds.

Andrea Galli

Group CEO

