

SYSTRA Korea Corporate Presentation

APR 2022



CONFIDENCE MOVES THE WORLD

SYSTRA



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SYSTRA Group

01

Corporate History

OVER 60 YEARS OF PUBLIC TRANSPORTATION EXPERIENCE

Formed by two major French Transit Operators, SYSTRA benefits from a **collection of unique and worldly experience.**

1957

SOFRERAIL was created by SNCF

1961

SOFRETU was created by RATP

1995

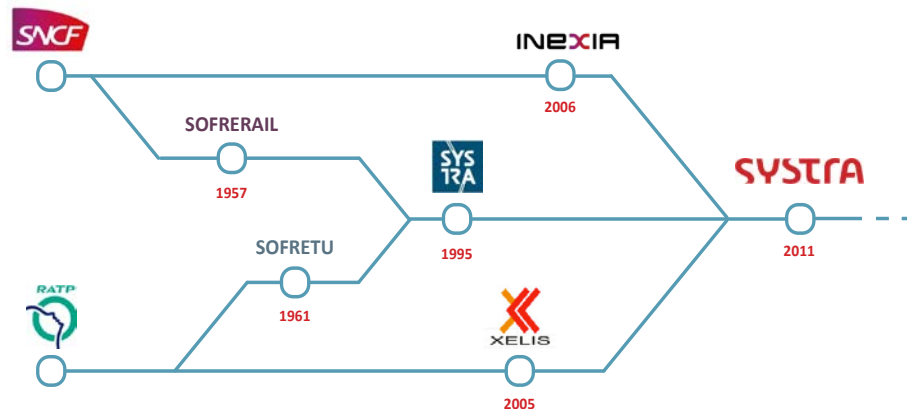
SYSTRA was formed when both companies merged

2005-2006

INEXIA and XELIS joined SYSTRA to build up the group

2017

SYSTRA acquired International Bridges Technologies

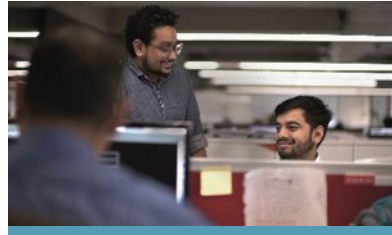


SYSTRA's Signature Team

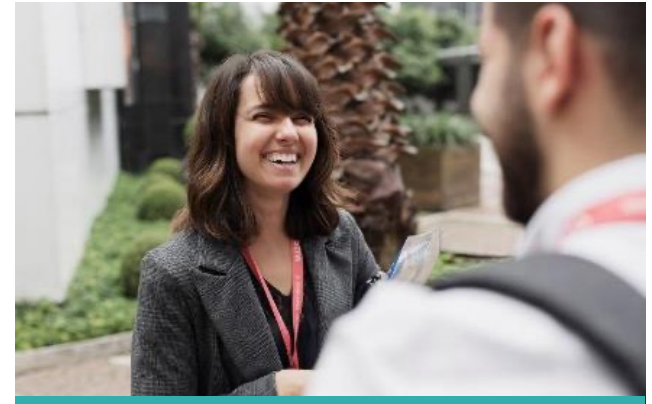
WE ARE

Engineers
Consultants
Experts
Architects
Designers
Project managers
...

7,540
employees
worldwide



+40%
increase in
personnel
in 5 years



A Global Leader for Transportation Solutions

SYSTRA is one of the world's leading engineering and consulting groups specialised in public transport and mobility solutions



**60 +
YEARS**

expertise in transportation



A turnover of
€668m



70% of turnover
achieved abroad



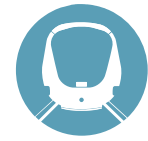
Orders of
€726m



An operational
presence in
80 countries



SYSTRA has designed
50% of the world's
high speed rail lines



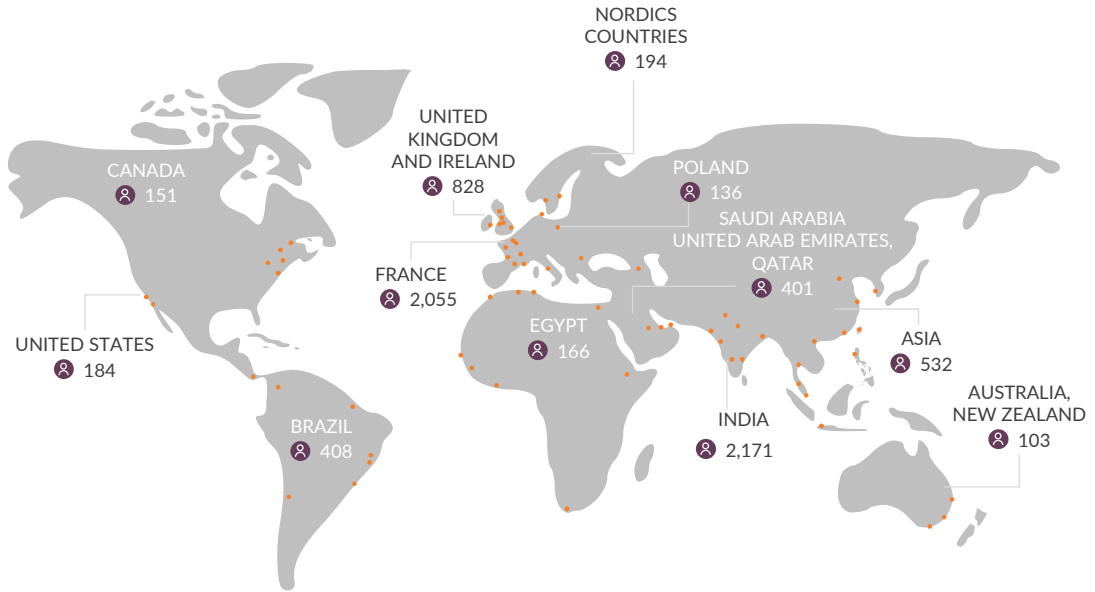
SYSTRA has designed
1 Metro out of **2**
In the world

Figures as at end of 2020

CONNECT TEAMS ALL AROUND THE WORLD



A broad network of professionals, working in synergy, matching local with global to better understand and anticipate the needs of our clients



Main SYSTRA locations and main centres of excellence Named countries: top 11 countries of SYSTRA workforce

The maps shown in this public document aim only to illustrate the organisation of operational activities specific to SYSTRA. They do not reflect any intention to express an opinion concerning geopolitical issues. SYSTRA, its subsidiaries and affiliates can in no case be held responsible for any interpretations that may arise.

Key figures

OVER 60 YEARS OF PUBLIC TRANSPORTATION EXPERIENCE

SYSTRA GROUP

116
subsidiaries &
branches

OPEN FOR BUSINESS

10 ACQUISITIONS IN 5 YEARS

DALCO SWEDEN
IBT USA
SCOTT LISTER AUSTRALIA
VETEC BRAZIL
TECTRAN INDIA
SIASTRANSIT PLANNERS UK
JMP UK
SAI INDIA
TSP UK
CS CONSEIL FRANCE



46% ENGINEERING
22% CONSTRUCTION MANAGEMENT
18% PROJECT MANAGEMENT
14% CONSULTING

*2019

RATP GROUP
43.4%



43.4%

Banks
11.4%

- 4.4% Crédit Agricole
- 3.3% BNP Paribas
- 2% Société Générale
- 1.7% Natixis

Treasury shares
1.4%

Employees
0.4%

Key figures

OVER 60 YEARS OF PUBLIC TRANSPORTATION EXPERIENCE

ENR Rankings 2020 — SYSTRA

#4 Mass Transit and Rail

#8 Bridges

#10 Transportation

#33 International Design Firms

BASED ON 2019 INTERNATIONAL TURNOVER

**RANKED 8TH
FOR BRIDGES BY ENR**



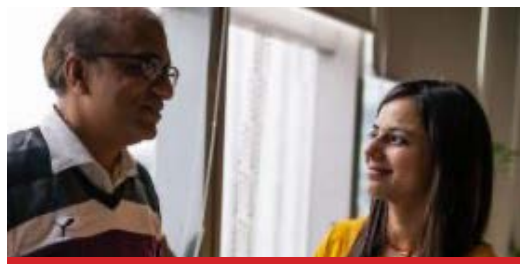
The 2020 edition of the Engineering News-Record (ENR) Global Sourcebook, published in December 2020, ranks SYSTRA in the top 10 for Bridges. This result, which takes into account the acquisition of International Bridge Technologies in 2017, positions SYSTRA as an engineering reference in bridges and heavy construction.

A COMMITTED & RESPONSIBLE POLICY



Health, safety, security

SYSTRA is synonymous with operational excellence, and there is no operational excellence without the mobilisation of our employees, partners and clients to ensure the health, safety and security of all our stakeholders.



Ethics

SYSTRA's approach to ethics and compliance goes far beyond notions of risk assessment and control. Our role within projects is to set the tone.



Sustainability

SYSTRA's specificity is to link the technical identity of projects to a sustainable design approach.



Aligned with
the **world's top**
standards

Quality



Health Safety



Anti-corruption



Environment

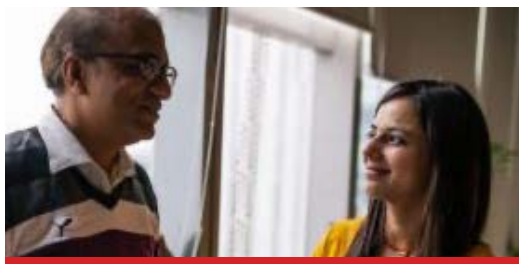


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Health Safety



Anti-corruption



Environment





Our Values



Excellence

Rooted in our engineering culture, excellence is at once an objective and a way of doing things. Our clients are ambitious and demanding. Our commitment to design the best solutions under the best conditions is a promise of trust, performance and sustainability.



Connected Teams

We connect our experts throughout the entire Group and coordinate them in order to respond to the most complex issues. By going beyond cultural and technical particularities, we create teams united around the same objective, in which the talent of each individual contributes to the success of all.



Bold Leadership

The projects we accompany profoundly transform mobility. Via our capacity for innovation and our project management know-how, we bring fresh answers to our clients and the bold leadership necessary for change. Our task is to consider, design, and imagine today the mobility solutions of tomorrow.

Benchmarks

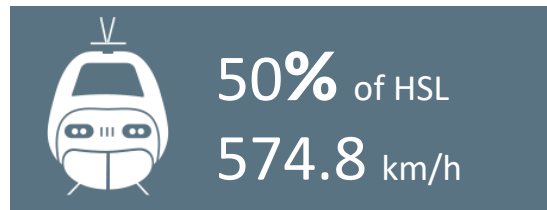
A PARTNER IN EXCELLENCE FOR ALL MASS TRANSIT MODES

in High Speed Rail :

- Contributed to **every French High Speed Rail line** (over 2,000 km - 1,243 mi)
- **Number 1 high speed rail engineering services provider** in the world, having contributed to 50 % of the international High Speed Rail lines
- **High Speed Rail record** (574.8 km/h - 357.2 mph)

in Metro / Subway :

- SYSTRA has been involved in nearly **one in two** metro lines in the world
- Designed and upgraded the **longest automatic metro line** in the world (Dubai), as well as the **line with the highest ridership in the world** (Mecca, 72,000 passengers/h)



Inaugurations 2019

RAILWAY LINES

First test run of the Dakar TER

SENEGAL 14/01/19

**Bhadan-Khurja section
of Eastern Freight Corridor No.1**

INDIA 15/08/19

**Rail network of the Port
of Dunkirk**

FRANCE 11/10/19

**Zhengzhou-Xiangyang
high speed line**

CHINA 01/12/19

**Léman Express line from
Annemasse to Geneva**

FRANCE AND SWITZERLAND 15/12/19

BRIDGES

**Sheikh Jaber Al-Ahmad Al-Sabah Causeway
(Kuwait City-Subiyah)**

KUWAIT 01/05/19

**Samuel de Champlain Bridge
(Montreal-Brossard)**

CANADA 28/06/19

**Atlantic Bridge
(ex-Third Panama Crossing)**

PANAMA 02/08/19

LIGHT RAIL TRANSIT

Line 2 of the Casablanca LRT

MOROCCO 24/01/19

**Extension of line C of the
Bordeaux LRT**

FRANCE 20/02/19

Metro Express LRT

MAURITIUS 03/10/19

Extension of line T1 in Asnières

FRANCE 12/10/19

Line T6 of the Lyon LRT

FRANCE 22/11/19

**Extension of LRT line T4
in Montfermeil**

FRANCE 14/12/19

Line D of the Bordeaux LRT

FRANCE 14/12/19

ROADS

**Widening of the A406
motorway (Mâcon)**

FRANCE 14/11/19

METROS

Line 3 of the Santiago metro

CHILE 28/01/19

Aqua Line of the Noida metro

INDIA 07/03/19

**North-South Corridor
of the Lucknow metro**

INDIA 08/03/19

Red Line of the Delhi metro

INDIA 29/03/19

**First line of the Ahmedabad
MEGA metro**

INDIA 18/04/19

First line of the Nagpur metro

INDIA 29/04/19

Northwest line of the Sydney metro

AUSTRALIA 26/05/19

Phase 1 of the Doha metro (Red line)

QATAR 28/05/19

Phase 4 of line 3 of the Cairo metro

EGYPT 15/06/19

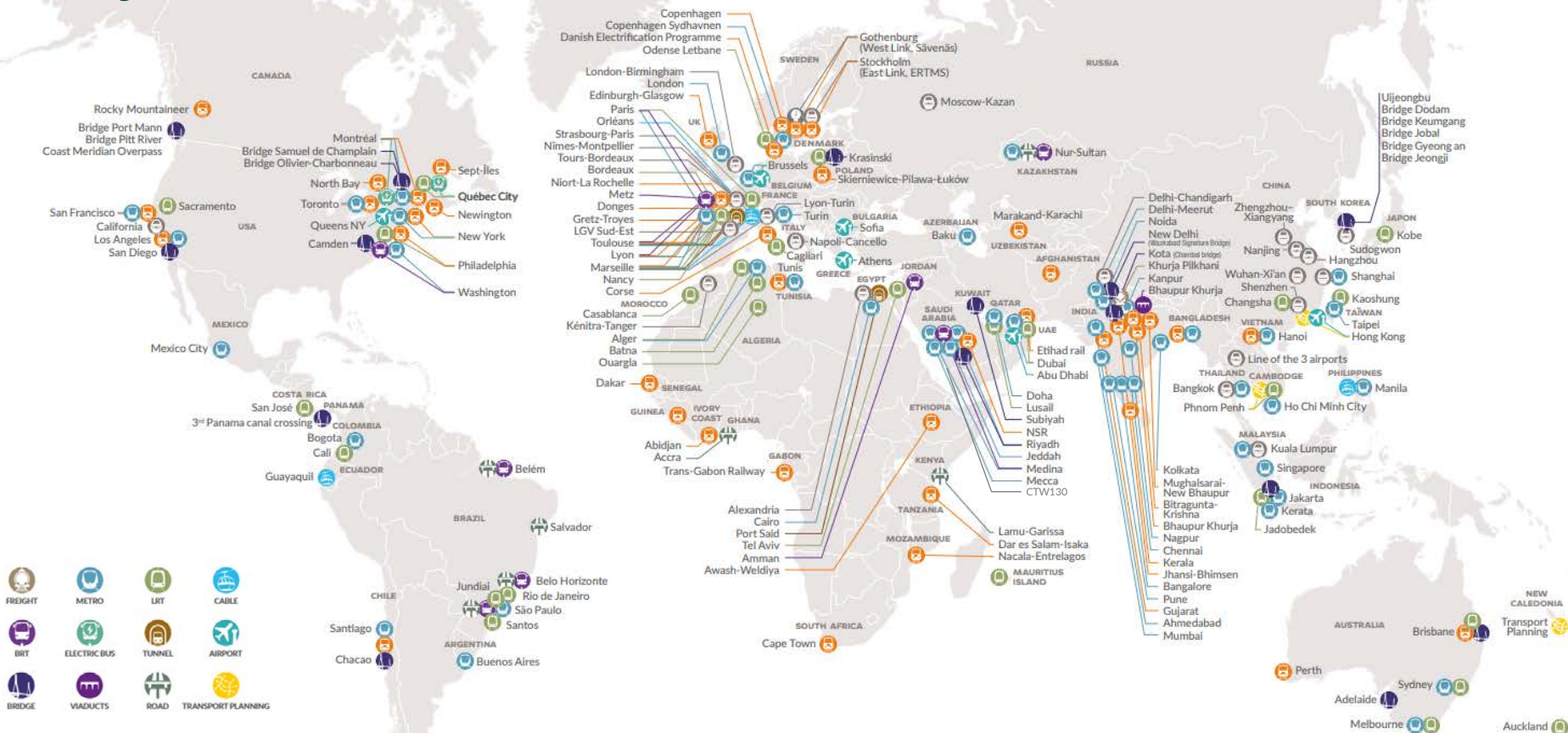
**Cityringen line
of the Copenhagen metro**

DENMARK 29/09/19

**Phase 2 of the Doha metro
(Green, Gold and Red lines)**

QATAR 10/12/19

Projects around the world



Key awarded contractS

URBAN MOBILITIES



USA

Bay Area Rapid Transit (BART),
CBTC project in California

DENMARK

Full automation of Copenhagen
S-TOG suburban train network

INDIA

Major CBTC project and visual
identity of the Mumbai Metro's
new lines

RAIL



UNITED ARAB EMIRATES

Second design studies package for Etihad
Rail, the largest rail project currently
underway in the Middle East

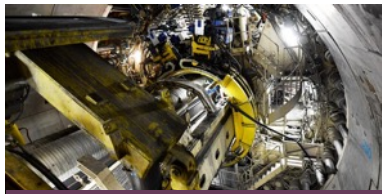
FRANCE

New rail assignment for a line
between Marseille and Nice

THAILAND

High speed line project linking
3 airports

TUNNEL



ITALY

New project for the
Tunnel Euralpin Lyon-Turin

CONSULTANCY



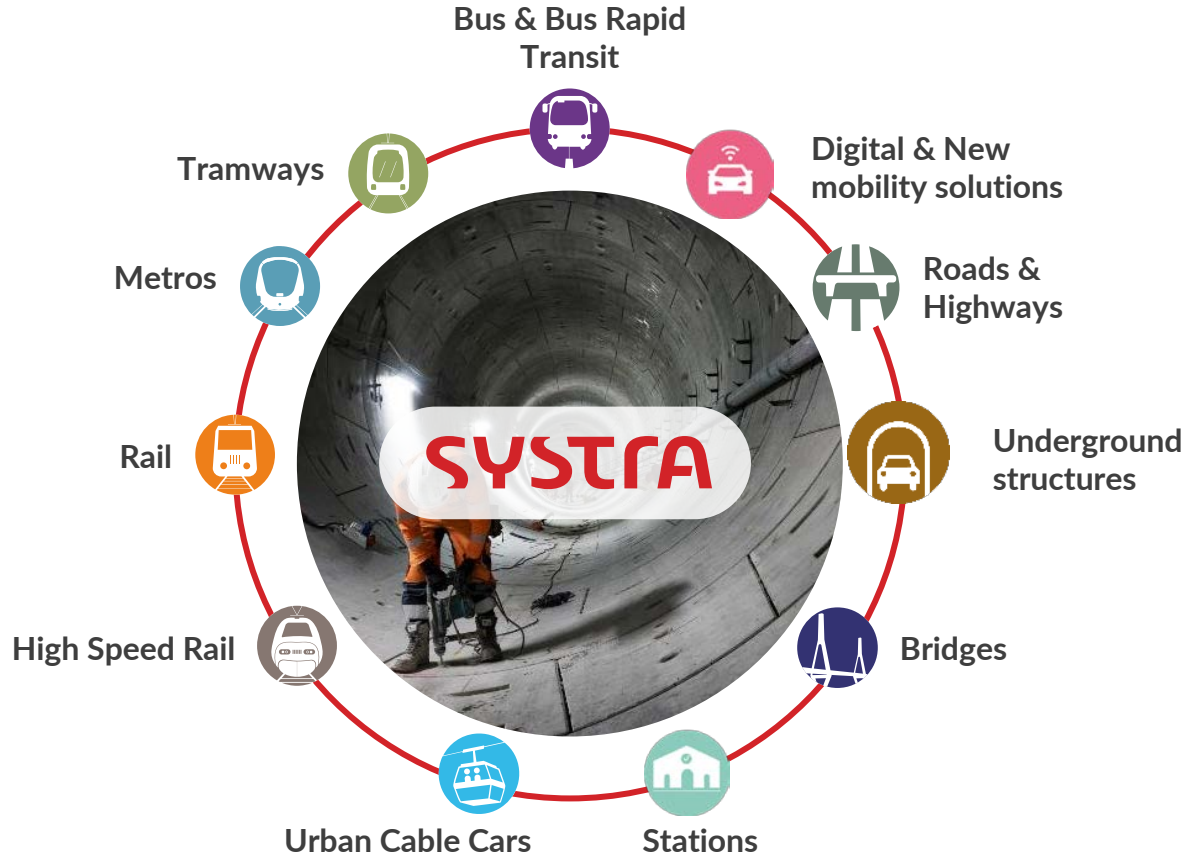
BRAZIL

Biggest ever consultancy project for
the granting of public passenger rail
services to private operators

Project Lifecycle



transportation solutions





OUR CLIENTS

Clients

PRIVATE



Civil contractors
Railway manufacturers
Developers
Operators
Other Consultants



ALL TYPE OF STUDIES

From **technical** assistance for preparation of **tenders, detailed design, shop drawings**, until testing and commissioning

Clients

PUBLIC



Ministries and related authorities
Municipalities
Network infrastructure owners



ASSISTANCE TO OWNER

Design studies & project management consultant, consulting for operation & maintenance
Asset Management



INTEGRATED SOLUTIONS FOR URBAN & RAIL PROJECTS

Civil Works

- **Structural** and **civil** design
- Track **alignment** and **trackworks**
- Tunnel engineering (inc.safety)
- Station structural design
- Architecture (functional & finishes)
- Building services (inc.CSD)
- **Specific** studies: aerodynamic, comfort

Railway System

- Operation and maintenance engineering
- Power supply and traction power
- Low voltage : Signalling & Communication
- E&M (inc. air treatment and ventilation)
- Operation Control Center
- Workshop design
- System integration assurance

► Civil-System Interfaces Management ◀



- 1** Provide Integrated design solutions for all transport projects
- 2** Optimize the cost of the civil works considering operational requirements
- 3** Secure the delivery of an complex integrated system

TOP IN BRIDGES EXPERTISE & CAPABILITIES

650+
Structural Experts

9 centers of excellence
Paris, San Diego, Montreal,
Dubai, Delhi, Sao Paulo,
Warsaw, Malmö and Seoul
350+ special bridges experts

Cable Stayed
Archs
Extradossed
Suspensions

Exposures and references
In project types

450km
Built U girder

Innovation
Metro lines in 13 cities

WORLDWIDE RECORDS FOR OUR BRIDGES AND VIADUCTS



The longest span for a railway stayed bridge : Tianxingzhou, China
The longest span for a HSR prestressed box girder bridge : Medway, Great Britain
The longest span for a HSR arch bridge : Moam, South Korea
The longest sea bridge spanning 36km : Subiyah, Kuwait
The longest suspension two span bridge at 2.75km : Chacao, Chile
The longest span for a HSR prestressed box girder bridge : Medway, Great Britain
The longest span for a HSR arch bridge : Moam, South Korea
The fastest studies and works supervision on any metro project : Mekkah metro, Saudi Arabia



SYSTRA Korea

02

23

Foundation of SYSTRA Korea Branch

Foundation of BnTech

Engineering License Registration

Acquisition of BnTech

Changing name to SYSTRA KOREA

Opening of SYSTRA KOREA New Office

Certified as a « Regional Technical Center » (CTR)

ISO 9001 certified



HISTORICAL PRESENCE OF SYSTRA BRANCH IN KOREA

- Established in April 1994
- Activities:** Commercial representation, Assistance to the tender preparation, Contract management, & Logistical assistance
- Completed Projects:**



KTX Project

1ST Stage (Seoul- Daegu) : 1994~2004
2nd Stage(Daegu-Busan) : 2002~2010
Total contracts value : around 60 M€

CW Design, Track Design, Design & Construction supervision of CW / Track / Catenary / Signaling
SE, Maintenance Plan & manuals, O&M supervision

Incheon Airport Rail Link Project (2001~2010)

SE, Test & commissioning supervision, O&M Preparation

Busan-Gimhae LRT Project (2002~2012)

Total contracts value : around 18 M€

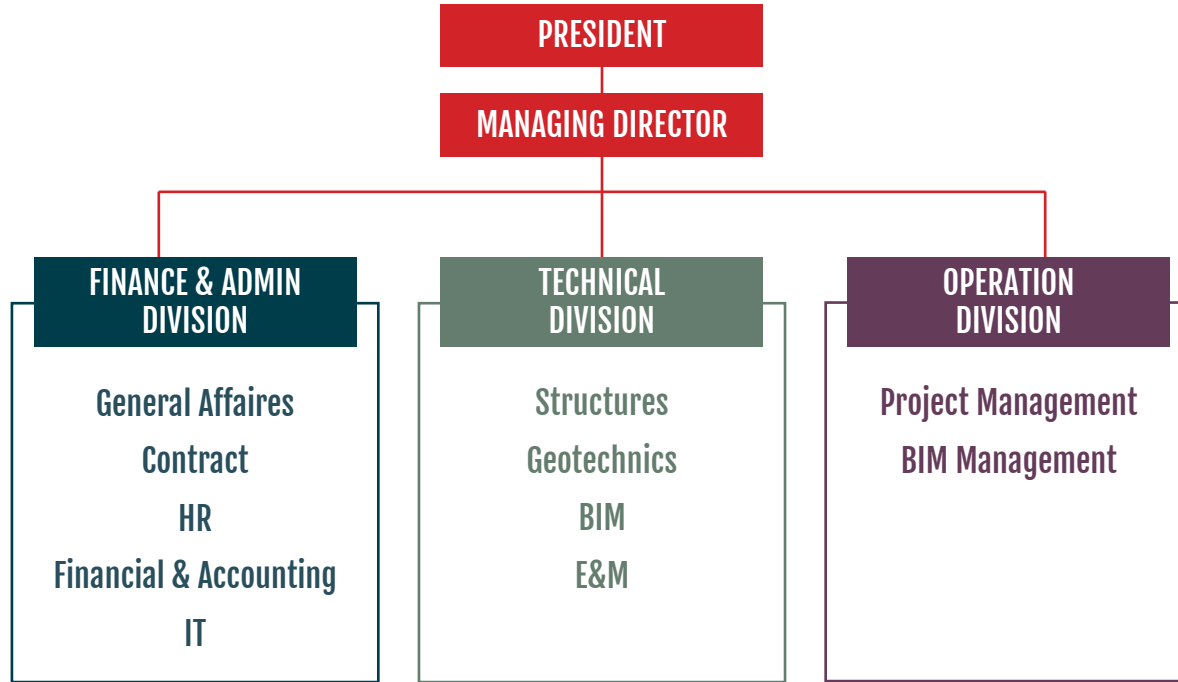
PM, Interface Management, SE, CW Design, T&C Assistance, O&M Preparation

Uijeonbu LRT Project (2006~2013)

Total contracts value : around 15 M€

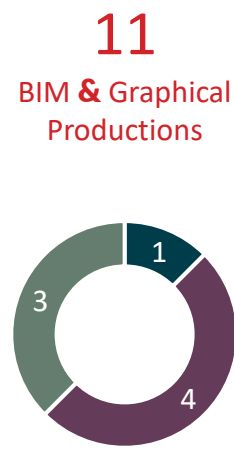
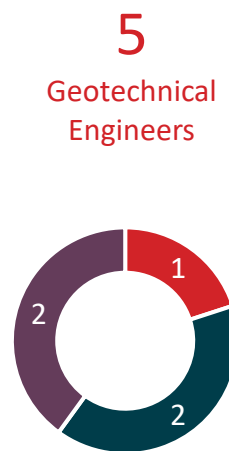
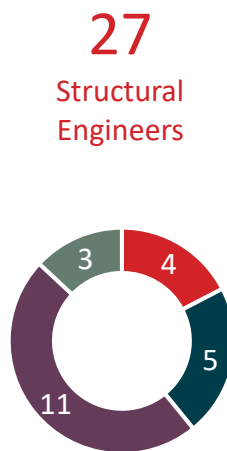
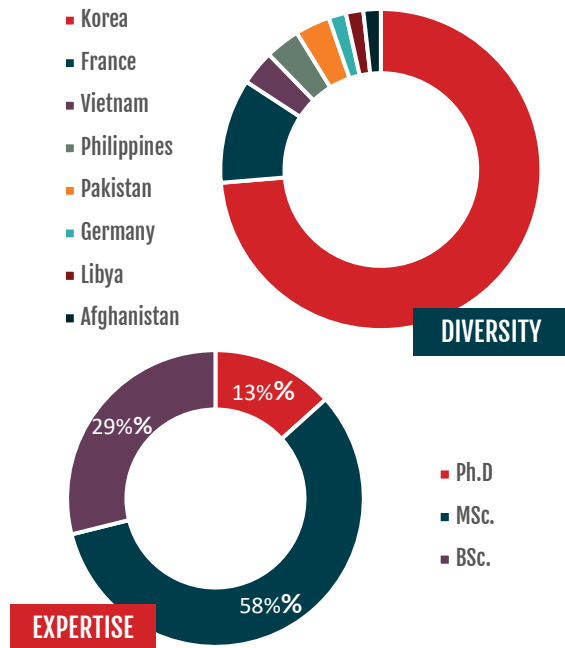
CW Design(U-shape Viaduct), PM, Interface Management, Construction Supervision, O&M Preparation

Organisation Chart



Total employees : 57

Diversity & Expertise of the team





SYSTRA Korea Production Capacity

03

FIELDS OF COMPETENCIES)

- CW Design for HSR/Railway/Metro & Highway :
 - HSR/Railway/Metro/Highway bridge
 - Complex bridge : suspension, cable stayed, extradossed, long span prestressed box girder
 - Composite bridge
 - Steel bridge : arch, truss
 - Elevated station structures
 - Underground structure : cut & cover tunnel
 - Foundations
 - Earthworks and embankment



Range of services: INFRASTRUCTURES)

■ MAIN MARKET : TYPICAL AND COMPLEX BRIDGES – RAIL AND ROAD

- Cable stayed, extradosed, arch bridges
- Precast segmental, full span cast in place
- Steel and composite bridges

■ RANGE OF SERVICES :

- Feasibility study
- Concept design
- Tender design
- Detailed design
- Independent checking services
- Technical consulting
- Construction supervision
- Construction engineering
- Maintenance/repair



Strength & Expertise

- Excellence center for bridge design among SYSTRA Group (certified CTR since 2013)
- Familiarity with overseas projects and international design standards
- Extensive experience working with private Contractors

SYSTRA Korea's experience is the root of the D&B culture among the Group



- **Construction knowledge** (many of our engineers come from major Korean construction companies)
- Capability to design **any type of bridge** (from typical to **complex/iconic** structures) carrying **all type of transportation system** (HSR, railway, metro, highway)

Strength & Expertise

■ KNOWLEDGE OF A WIDE RANGE OF INTERNATIONAL STANDARDS

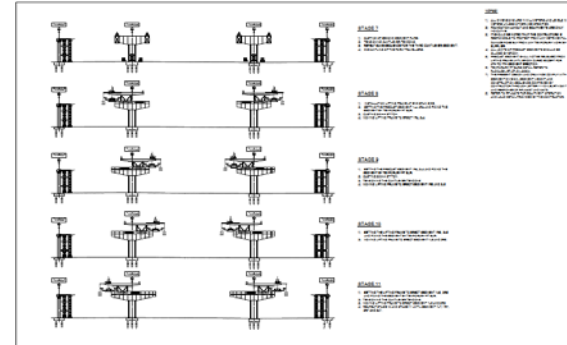
- American: AASHTO, AREMA, ACI,
- British: BS,
- Eurocodes
- Indian: IRC, IS, IRS,
- Japanese standards, Korean standards, Philippines standards, Norwegian standards

■ EXPERTISE IN GEOTECHNICAL & STRUCTURAL MODELING SOFTWARE

- MIDAS, SOFISTIK, BENTLEY, AUTODESK, LARSA, TEKLA
- ALP, Group, etc

■ VALUE ENGINEERING & ALTERNATIVE DESIGN PROPOSALS

- Specialized expertise
- Durability studies
- Rail Structure Interaction
- ISO 9000 IATCA/IRCA Senior Auditor
- Construction engineering/construction supervision



BIM Competencies

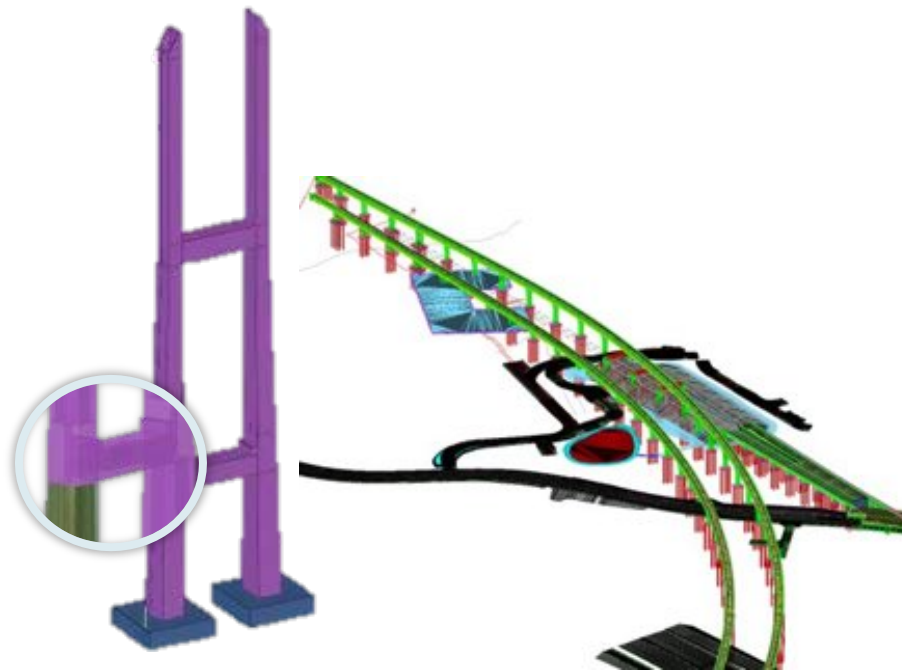
- Started deploying BIM since 2013 with professional BIM collaborators and BIM maturity to lead BIM level 2 projects.
- A member of Building Smart International & Korea Institute of BIM.
- **BIM Software :**
 - **AutoDesk**
 - Revit
 - Naviswork
 - AutoCAD / Civil 3D
 - **Bentley**
 - OpenBuilding Designer
 - OpenRoad Designer
 - Microstation
 - AECOSIM
 - **Trimble Solutions**
 - TeklaStructures Rebar Detailing
 - **Other**
 - ArmaCAD
 - Rhinoceros



BIM Competencies

■ BIM uses in PROJECTS :

- **UK HS2 Concept & Detail Design : Ongoing** since 2017
 - BIM level 2 project with strict requirements
 - Multi-disciplinary collaboration
 - Team viaduct working in a collaborative mode
- **THAI HSR Concept Design (2020)**
 - Modelling of High-speed railway viaduct in congested area
 - BOQ take-off for various type of structure
 - Visualization for interface with existing infrastructure
- **Norway New Grenland Bridge Detail Design : On-going**
 - Modelling of Cable-stayed Bridge requires BIM Level 3
 - Rebar Detail Modelling
- **Other BIM Projects**
 - Indonesia Batam-Bintan Cable-stayed Bridge Feasibility study
 - KSA Land Bridge Concept design
 - Korea GTX-C BIM Management

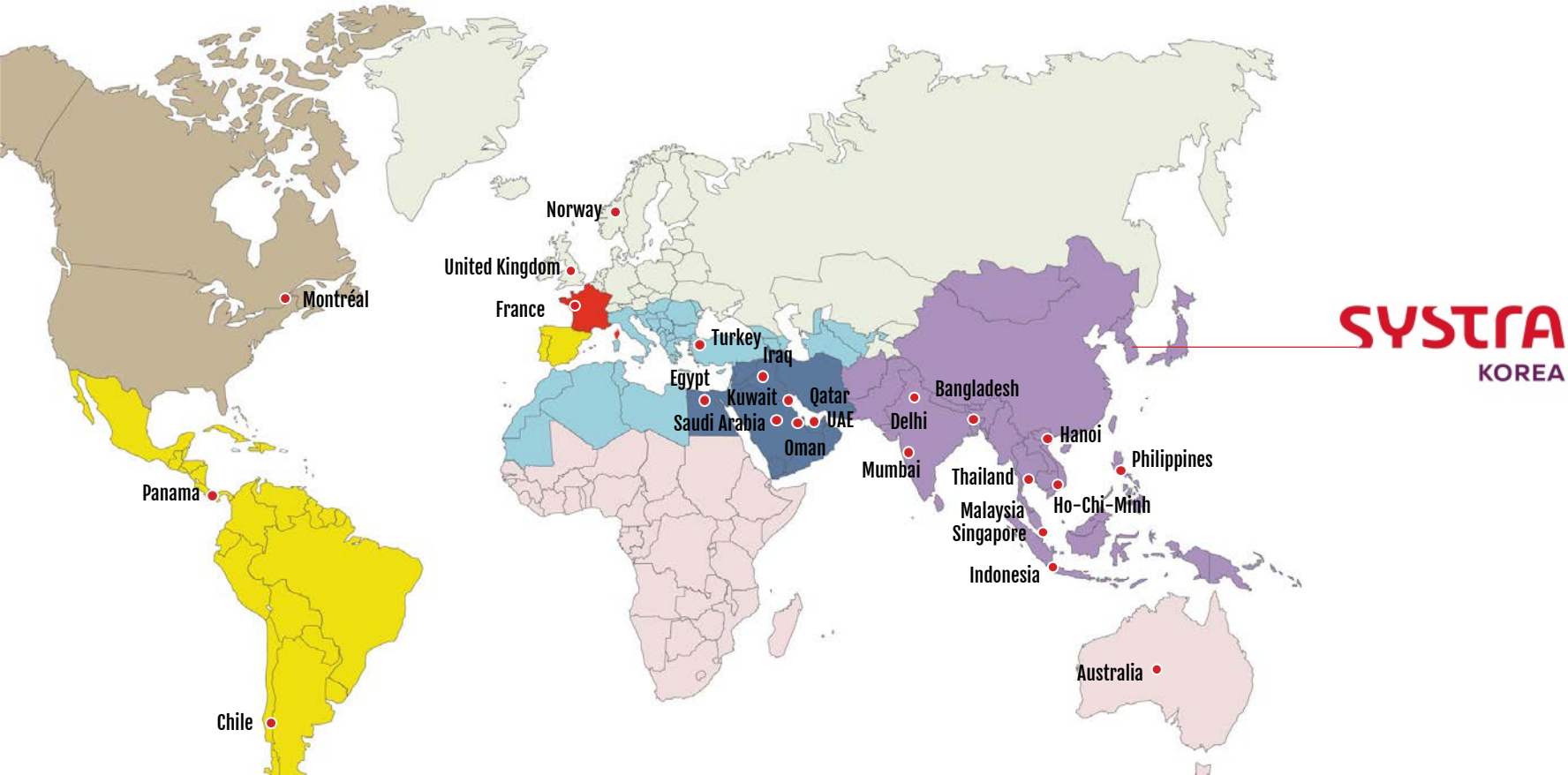


PM/SE/CS Competencies

- PROJECT MANAGEMENT AND SYSTEM ENGINEERING TARGET GOA 3,4 (DRIVERLESS) / GOA 2 (DRIVER) ACTIVITIES
 - System Integration & System Engineering
 - Interface Management
 - Performance Management
 - RAM and Safety Management
 - Test & Commissioning

- CONSULTING SERVICES
 - Tram Project (FS ~ O&M)
 - System revamping (Replacement/Reinforcement)
 - Operation concepts (Driverless operation / Tram)
 - Case Studies (Overseas)

Involvement in the world





SYSTRA Korea's Infrastructure reference

04

SYSTRA KOREA'S **ON-GOING** experiences



Panama Metro Line 3, Panama

- Services: Third Party Verifier (3PV) / Camber Control Engineering
- Elevated Double-track Monorail
- Total length: Appx.26km, 14 stations, 1 depot
- Client: Consorcio HPH Joint Venture

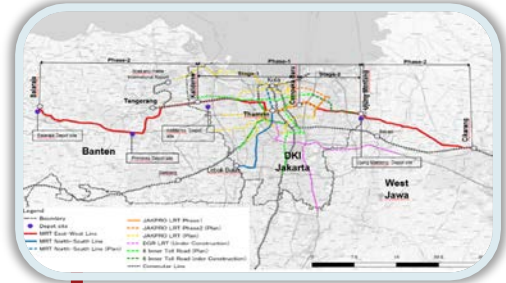


Batam-Bintan Bridge Construction Project, Indonesia

- Services: Feasibility Study
- Total length: 12.7km (7.1km Marine Bridge)
- Client: Soosung Eng. / Dohwa Eng.

New Grenland Bridge, Norway

- Services: Detailed Design
- Double lane road bridge
- Total length of the bridge: 604m / Guyed span: 330m / 1 single pylon of 166m
- Client: Eiffage Génie Civil



Jakarta MRT East-West Line Phase I, (Indonesia))

- Services: Basic Design for Tender (Stage I: ±20.1km from Kalideres to Cempaka Baru)
- Total Length: ±31.7km for Phase I
- Client: Directorate General of Railway, Ministry of Transport, Indonesia



SYSTRA KOREA'S **ON-GOING** PROJECTS



PSC Railway Bridge Optimization Study, Korea

- Services: Railway Standard Section Study
- Client: Korea National Railway



Thai High-Speed Rail Linking 3 International Airports, Thailand

- Services: Concept Design and PMC
- Total length: 220km comprising 3 main sections
- Client: EHSR



Philippines South Commuter Railway Project - Pkg. CP-S06

- Services: BOQ Take-Off
- Total length of the SCRCP: Appx.57km, 19 stations (CP-S06: 10.22km)
- Girder type: 8,806m PSM, 700m BCM, 325m FSM, 120 Steel Arch
- Client: Samsung C&T
- Built Only

SYSTRA KOREA'S ON-GOING PROJECTS



HS2 Phase 1 & 2 – Pk. MWCC N1 +N2, UK

- Services : Level 4 Scheme Design
- Length: 38km (N1) + 50km (N2)
- 15 Viaducts (Box Structure, Inverted T-Beam, U-Beam)
- Client : SYSTRA SA
- Final Client : Vinci & Balfour Beatty



ETIHAD RAIL NETWORK Project- Stage 2 Pkg. D

- Services: Detailed Design
- Total length of Network: 1,200km (Ghuweifat-Fujairah)
- Pkg.D (Jebel Ali Port-Fujairah Port): 133km, 15 tunnels, 35 bridges, 32 underground passages
- Client: CRCC-NPC Consortium
- Final Client: Etihad Rail



Manila LRT1 Cavite Extension Project L1CEP, Philippines

- Services: Detailed Design
- Total length: 12km metro (10km elev + 2km a/g) with 8 elevated stations & 2 depots
- Pi-section: Full span with pretension
- Client: BOUYGUES & ALSTOM JV

SYSTRA KOREA'S ON-GOING PROJECTS



Delhi-Meerut Regional Rapid Transit System RRTS, India

- Services: Detailed Design Support
- Semi-HSL: Max. 180km/h
- Total length: 82km, 22 stations, 32km viaduct
- Client: SYSTRA
- Final Client: NCRTC



Jurong Region Line (Pkg.1) – J1013B, Singapore

- Services: Accredited Checking Services
- Client: SYSTRA MVA Singapore
- Final Client: LTA



Bridge over Marikina River ("Mango Bridge", Philippines)

- Services: Detailed Design Support
- 110m multi-span, asymmetric arch bridge (Asymmetric diagonal arch, 3 spans – 22.5m+65m+22.5m)
- 2 piers in Marikina River / Steel box girder
- One traffic lane in each direction
- Client: Ali Eton

SYSTRA KOREA'S ON-GOING PROJECTS



Mumbai Ahmedabad High Speed Rail Project - Pkg. C-4, India

- Services : Tender Design Support
- Client : SYSTRA MVA India



CTW130 Railway, KSA

- Services: Detailed Design
- Total length : 38km incl. 29 structures
- Heavy Freight industrial Railway
- Client : YAPI MERKEZI



Mumbai South Coastal Road, India

- Services: Tender & Detailed Design
- 10km+504m of 8-lane roadway (Main line + 3 Interchanges)
- PSC box-girder bridge
- Client : HCC & HDC.JV

SYSTRA KOREA'S experiences



Greater Jakarta LRT, Indonesia

- Services: Detailed Design
- Total length : 80km of elevated metro
- Typical Ugirder + 17 Long Spans bridges (Ubox)
- Client : SYSTRA SA
- Final Client : Adhi Karya



Chacao Grand Bridge, Chile

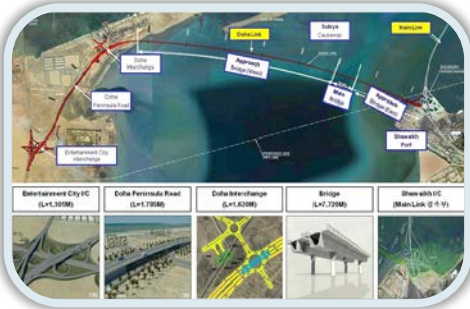
- Services: Detailed Design
- Total length : 2.63km
- Suspension bridge(main span : 2@1.1km)
- Client : JV HDEC & OAS



Sheikh Jaber Al-Ahmad Al-Sabah Causeway, Kuwait

- Services: Baci & Detailed Design Support
- Total length : 36.14km
- Typical PSC box-girder/Φ2.5 & 3.0 monopile
- Client : JV HDEC & CGCC

SYSTRA KOREA'S experiences



Doha Link ICE, Kuwait

- Services : Independent Checking Engineering
- Total length : 12.42km
- Typical PSC box-girder bridge(L=40m)
- Client : GS E&C



Lusail Expressway, Qatar

- Services: Independent Checking Engineering
- Artscape structures including visitor center
- Client : HDEC



JURONG Region Line (JRL - J102 & J103)

- Services: Tender design
- Total length : 12.5km
- Viaduct with typical/long/special span
- Client : SAMSUNG C&T

SYSTRA KOREA'S experiences



Dodam-Youngcheon, Korea

- Services : Basic and Detail design
- Total length : 480m
- Arch+truss bridge (Main span=120m, double line)
- Client : HDEC



Versova Bandra Sea Link, India

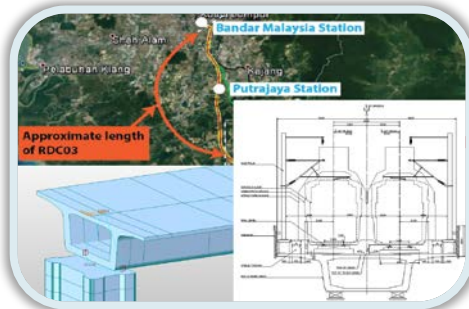
- Services: Tender design
- Total length : 750 m of 8-lane roadway
- PSC box-girder bridge (70+110+70= 250m, 3 nos.)
- Client : JV L&T & Samsung C&T



Hwayang-Jeoggeum Roadway, KOREA

- Services: Alternative Detail design
- Total length : 990m
- Main bridge : 200m+170m=370m(cable stayed)
- Client : HDC

SYSTRA KOREA'S experiences



Kuala Lumpur HSR, RDC01 03,(Malaysia)

- Services : Concept and Tender design
- Total operating distance of approximately 335km with 7 HSR stations
- PSC Box Girder & Balanced Cantilever & Arch Br.
- Client : SYSTRA SA
- Final Client : MyHSR



Ho Chi Minh MRT LINE 1, Vietnam)

- Services: Detail design
- Total length : 17km and 11 elevated stations
- Client : GS E&C



Laguna Lakeshore Expressway/Dike,(Philippines)

- Services: Tender design
- Total length : 47km of toll expressway to be built on top of a dike/bridges, including buildings
- Client : JV HDEC/Samsung C&T

SYSTRA KOREA'S experiences



Padma Multi-Purpose Bridge, Bangladesh))

- Services : Tender design
- Total length : 6.15km
- Warren truss (typical span=150m)
- Client : Samsung C&T



Etihad Rail Project,(UAE)

- Services: Tender design
- Total length : package C : 186km, package F : 33km including depot
- Client : HDEC & POSCO



BAGHDAD Elevated Metro Project, Iraq)

- Services: Tender design
- Total length : 20km including 14 elevated stations
- Typical small U-girder (L=27m)
- Client : SYSTRA SA
- Final Client : ALSTOM

SYSTRA KOREA'S experiences



Doha Metro Gold and Green Line, Qatar)))

- Services : Tender design
- Total length : green line :4.5km, gold line 11.7km
- Typical U-girder (L=25m, double line)
- Client : HDEC JV



Oman Railway, Oman)

- Services: Tender design
- Total length : 207km including elevated stations
- Typical PSC box-girder (L=30m, double line)
- Client : HDEC JV



MRT 7 Project,(Philippines)

- Services: Tender design
- Total length: 23km including 14 elevated stations
- Typical I-girder (L=25m)
- Client : HDEC JV

SYSTRA KOREA'S experiences



Hanoi Metro Line 3, Vietnam)

- Services : PMC
- 8 nos. elevated stations
- Client : SYSTRA SA



Lusail CP04, Qatar)

- Services: Tender support
- 4 nos. interchanges and 6 nos. of grade junctions
- Multispan twin box overbridge at Marina I.C.
- Client : GS E&C



Lusail CP03, Qatar)

- Services: Tender support
- 6 bridges including typical PSC box girder
- Client : GS E&C

SYSTRA KOREA'S experiences



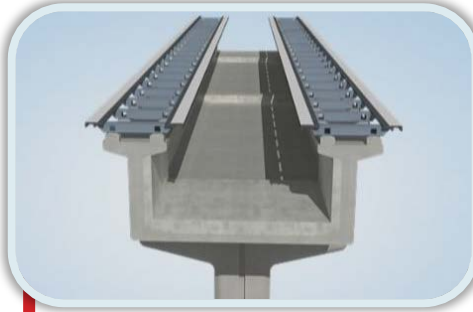
Bujeon-Masan BTL Project, Korea))

- Services : Basic design
- Total length : 35.1km including 5 stations
- Extradosed bridge(L=180m)
- Client : HDC



Honam High Speed Railway Lot2-3, Korea)

- Services: Basic and Detail design
- Total length : 7.3km including elevated station
- Typical PSC box-girder(L=3.5m)
- Client : HDEC



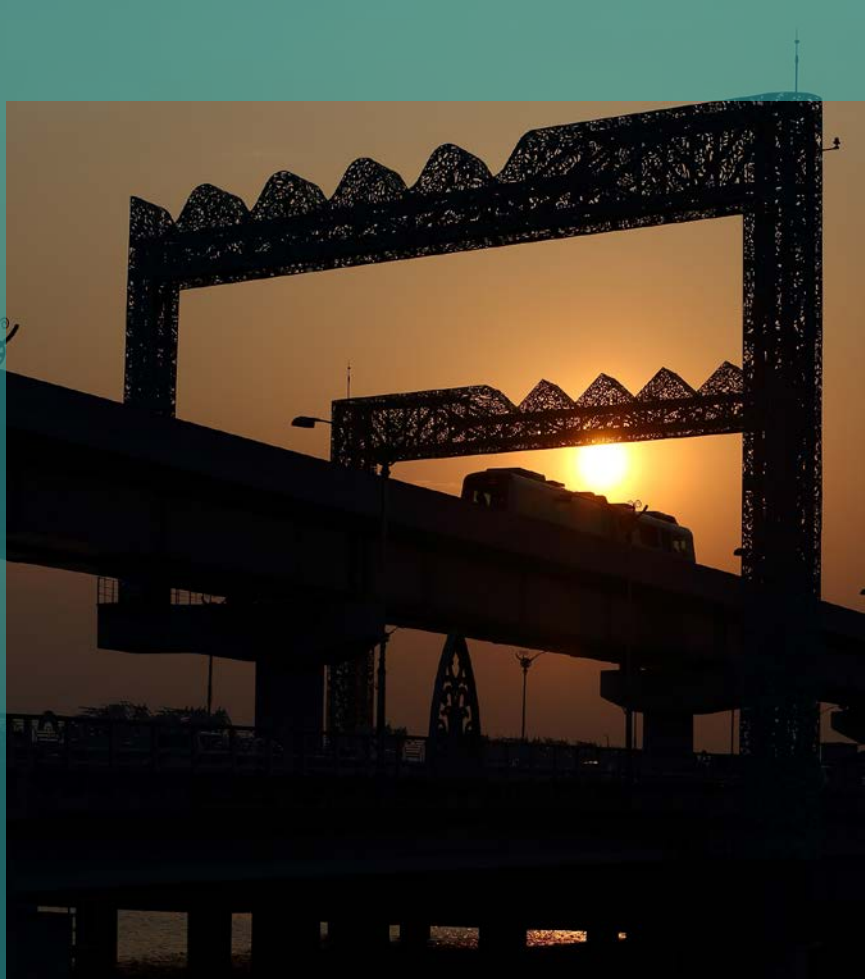
Jin-Jeop Line Lot 3,(Korea)

- Services : Basic design
- Total length : 3.2km including elevated station
- Extradosed bridge : L=545m
- Client : HDEC



Incheon Urban Maglev Pilot Project, Korea)

- Services: Technical support
- Total length : 6.1km including 6 elevated stations
- Typical span : 25m
- Client : HDEC



SYSTRA Korea's SYSTEM reference

05

SYSTRA KOREA'S experiences

E&M Systems

SYSTEM Engineering service

- New Ansan line
- Kuala Lumpur-Singapore High Speed Rail Project (AssetsCo)

Consulting (Tram and Metro) for KRRI

- Case study of tramway turn-back system in France
- Research for upgrading of Urban Railway Operating System to improve Operation Safety and Efficiency

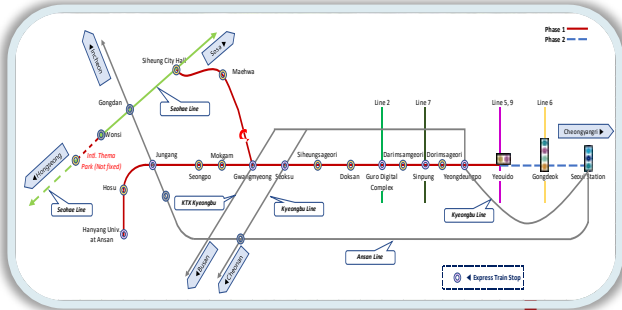
Training (HSR)

- HSR Maintenance trainings for signaling
- HSR Maintenance trainings for catenary
- HSR Maintenance training for telecommunication

Test & Commissioning for HSR Signaling

- Honam KTX line
- Gyeongbu KTX phase 2-4
- Sudokwon KTX line

SYSTRA KOREA'S experiences



New Ansan Line, Korea))

- Services : System Engineering
- Total length : 43.6 km of underground metro
- 15 station, 1 depot
- Client : CHEIL ENG
- Final Client : POSCO E&C



Sudokwon HSR – T&C (Korea)

- Services: Test & Commissioning for Signaling installation
- Total length : 61.1km including 3 stations
- Client : ASTS



Kuala Lumpur-Singapore High Speed Rail Project, AssetsCo, Korea)

- Services : Tender design
- Category : System Engineering
- Client : KR, Hyundai Rotem

SYSTRA

More information:

www.systrakorea.com / www.systra.com



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