Countries, cities and transport operators rely on Thales’ ground transportation solutions to adapt to rapid urbanisation and meet new mobility demands – locally, between cities and across national frontiers.

Our expertise in signalling, communications, fare collection and cybersecurity gives people and goods the connected journey they need to move safely and efficiently.

And no matter how challenging the project, we stay by your side, committed to helping you creating the digital railways of the future – whatever it takes.

**BY YOUR SIDE...**

... SUPPORTING YOUR BIG AMBITIONS

A WORLDWIDE PRESENCE

in rail technology  
since 1950

more than 100 customers

in more than 50 countries
AREAS OF EXPERTISE

- Signalling
- Communications & Supervision
- Fare Collection
- Services
- Digitalisation
- Cybersecurity

SALES GROWTH

- €1.4bn in 2014
- €1.5bn in 2015
- €1.6bn in 2016
- €1.7bn in 2017
- €2bn in 2018
- €1.91bn in 2019

More than 8,000 employees worldwide.
PARTNERING WITH YOU

OUR CUSTOMERS

- Transport authorities
- Transport operators
- Rail infrastructure owners
- EPCs
- Consultants

THE MARKETS WE SERVE

- Main Line Rail
- Metro
- Tramway and Light Rail Transit
- Bus
- Road

CLOSE TO YOU

DEDICATED TEAMS IN 52 COUNTRIES

25 TRANSPORT R&D AND INTEGRATION CENTRES WORLDWIDE
WHY CHOOSE THALES?

1. **TOTAL FLEXIBILITY**: Thales equips trains from any rolling stock manufacturer.

2. **BROWNFIELD TO GREENFIELD**: from network modernisation to the development of new lines.

3. **AN END-TO-END SUPPLIER**: from stand-alone equipment to integrated turnkey projects.

4. **A GLOBAL PARTNER**: with teams worldwide, help is always close at hand.

5. **DIGITAL BY NATURE**: from IoT to autonomy, we enable the transition to a more sustainable world.

6. **DEDICATED TO DELIVERY**: no matter how complex the project, Thales gets the job done.

7. **LONG TERM**: pioneers in railways systems for 50 years and for years to come.
OUR SOLUTIONS

SIGNALLING SYSTEMS
- Train control systems: ETCS L1, L2, L3
- Train control systems (attended or driverless): CBTC
- Route control systems: electronic interlocking
- Field equipment: Lite4ce™ actor digital axle counters, point machines and signals
- LRT & Tramway management control systems
- Traffic management systems
- Driver advisory systems

COMMUNICATIONS AND SUPERVISION SYSTEMS
- Integrated Operation Control Centres
- Telecom solutions: network backbone and radio
- Passenger information and connectivity
- Security and video surveillance
- SCADA for fixed assets and traction power
- Digital Services

REVENUE COLLECTION SYSTEMS
- Open multimodal fare collection systems
- Ticketing inspection and validation equipment
- Innovative ticket validation with contactless bank cards or smartphones
- From field equipment to cloud-native back-office solutions
- All-inclusive ticketing with road tolls and car park payments
SUPPORTING YOUR DIGITAL TRANSITION

Thales couples expertise in digital technology with a deep understanding of rail operations – a combination that makes us unique in the transport marketplace. Here are some examples:

INTERNET OF THINGS

Our cloud-based predictive maintenance service detects signs of trouble in assets and prescribes corrective action – before anything goes wrong.

ARTIFICIAL INTELLIGENCE

Our research into artificial intelligence in control centres and trains paves the way for rail autonomy.

BIG DATA

We’re helping to boost passenger satisfaction with big data tools such as passenger journey analytics to monitor and manage overcrowding.

CYBERSECURITY

Your infrastructure is critical infrastructure. That’s why our solutions are cybersecured by design, from signalling to fare collection systems.
As part of the Thales Group, we have access to innovative technologies from across five key industrial sectors: transport, aeronautics, space, digital identity and security, and defence.

We draw on these capabilities to ensure the safety, efficiency and best performance of your transport networks.

When you choose Thales, you are choosing a partner with extensive expertise in managing complex projects across different domains worldwide – and the dedication to make sure you succeed.
Global presence in 68 countries

Environmentally responsible and ethically driven
METRO AND URBAN SOLUTIONS

TRAIN CONTROL (CBTC AND TRAMWAY)

- Brazil: Santos
- Canada: Edmonton, Ottawa, Toronto, Vancouver
- Chile: Santiago
- China: Beijing, Guangzhou, Hefei, Nanchang, Nanjing, Shanghai, Shenzhen, Shijiazhuang, Songjiang, Wuhan
- France: Paris
- Hong Kong
- India: Hyderabad
- Italy: Cosenza, Palermo
- Malaysia: Kuala Lumpur
- Norway: Bergen
- Qatar: Doha
- Saudi Arabia: Mecca
- Singapore
- South Korea: Busan, Incheon, Seoul
- Taiwan: Ankeng, Danhai, Kaohsiung
- Turkey: Istanbul
- UAE: Dubai
- UK: London, Manchester
- USA: Detroit, Jacksonville, Las Vegas, Morgantown, Newark, New York, Orlando, San Francisco, Tampa, Washington

COMMUNICATIONS & SUPERVISION

- Australia: Sydney
- Azerbaijan: Baku
- Belgium: Brussels
- Brazil: Santos, São Paulo
- Canada: Edmonton, Montreal, Ottawa
- Chile: Santiago
- China: Beijing, Chongqing, Guangzhou, Ningbo, Shenzhen, Songjiang, Tianjin
- Denmark: Copenhagen
- Dominican Republic: Santo Domingo
- Egypt: Cairo
- France: Lyon, Marseille, Nantes, Paris
- Germany: Munich
- Greece: Athens, Thessaloniki
- Hong Kong
- India: Bangalore, Delhi, Hyderabad, Jaipur, Mumbai
- Ireland: Dublin
- Italy: Brescia, Cosenza, Florence, Palermo
- Japan: Tokyo
- Malaysia: Kuala Lumpur
- Mexico: Mexico City, Toluca
- Netherlands: Amsterdam
- Norway: Bergen
- Panama: Panama City
- Portugal: Lisbon
- Qatar: Doha, Lusail
- Saudi Arabia: Mecca, Riyadh
- Singapore
- Spain: Alicante, Bilbao, Madrid
- Switzerland: Lausanne
- Taiwan: Ankeng, Danhai
- Turkey: Istanbul
- UAE: Dubai
- UK: Croydon, London, Manchester
- USA: Morgantown, West Virginia
- Venezuela: Caracas
- Vietnam: Hanoi
FARE COLLECTION

- Algeria: Algiers
- Canada: Toronto
- China: Beijing, Nanjing, Shenzhen
- Dominican Republic: Santo Domingo
- Egypt: Cairo
- France: Bordeaux, Strasbourg
- India: Delhi
- Italy: Naples, Turin
- Mexico: Mexico City
- New Zealand: Auckland
- Norway: Oslo
- Portugal: Lisbon
- Qatar: Doha
- Spain: Gran Canaria
- Taiwan: Taipei
- Thailand: Bangkok
- UAE: Dubai
- USA: Morgantown
- Venezuela: Caracas

SERVICES

- Algeria: Algiers
- Australia: Sydney
- Belgium: Brussels
- Canada: Ottawa, Toronto, Vancouver
- Chile: Santiago
- Dominican Republic: Santo Domingo
- Italy: Brescia
- Hong Kong
- Malaysia: Kuala Lumpur
- New Zealand: Auckland
- Norway: Oslo
- Panama: Panama City
- Portugal: Lisbon
- Qatar: Doha
- Saudi Arabia: Mecca
- Singapore
- Taiwan: Ankeng
- UK: London, Manchester
- USA: Detroit, Jacksonville, Newark, New York, San Francisco, Tampa

DID YOU KNOW THAT 86 METRO LINES IN MORE THAN 40 MAJOR CITIES depend on Thales SelTrac™ CBTC systems
ETCS
- Algeria
- Austria
- Bulgaria
- Czech Republic
- Denmark
- Egypt
- Finland
- Germany
- Greece
- Hungary
- Luxembourg
- Malaysia
- Mexico
- Morocco
- Netherlands
- Nigeria
- Poland
- Romania
- Saudi Arabia
- Slovakia
- Slovenia
- South Korea
- Spain
- Switzerland
- Thailand
- Turkey

ROUTE & TRAIN CONTROL
- Algeria
- Austria
- Bosnia-Herzegovina
- Bulgaria
- Croatia
- Denmark
- Egypt
- Finland
- France
- Germany
- Greece
- Hungary
- Iran
- Israel
- Latvia
- Luxembourg
- Mexico
- Morocco
- Nigeria
- Norway
- Poland
- Portugal
- Romania
- Saudi Arabia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Thailand
- Tunisia
- Turkey
- UK

COMMUNICATIONS & SUPERVISION
- Algeria
- Austria
- Bulgaria
- Denmark
- Egypt
- France
- Greece
- Hungary
- Italy
- Mexico
- Morocco
- Poland
- Portugal
- Romania
- Saudi Arabia
- Senegal
- South Africa
- Spain
- Turkey
FARE COLLECTION
Denmark
Netherlands
Saudi Arabia
Taiwan
UK

TRAFFIC MANAGEMENT & DRIVER ADVISORY SYSTEM

Austria
Bulgaria
Croatia
Denmark
Finland
Germany
Hamburg
Hungary
Israël
Latvia
Luxembourg
Norway
Portugal
Saudi Arabia
Slovenia
South Africa
Sweden
UK

SERVICES

Austria
Denmark
Egypt
Finland
France
Germany
Mexico
Morocco
Netherlands
Nigeria
Norway
Portugal
Spain
Switzerland
Turkey
UK

DID YOU KNOW THAT
THALES TRAFFIC MANAGEMENT SYSTEM CURRENTLY CONTROLS
72,000 KMS ROUTE AND
52,000 TRAINS PER DAY
IN 16 COUNTRIES.
SUPPORTING YOUR BIG AMBITIONS

SIGNALLING UNDER THE ALPS

SWITZERLAND

Switzerland is committed to shifting freight from road to rail. The Gotthard Base Tunnel is tangible evidence of that commitment: stretching for 57km beneath the Alps, it is the longest rail tunnel in the world and it plays a vital role in reducing the impact of road traffic in the fragile Alpine environment.

Thales’ ETCS Level 2 signalling ensures this landmark asset is used to its full potential. The system uses continuous track-to-train radio communications to link trains to the signalling system, making it possible to run trains at up to 250km/h and shaving an hour off the previous best Zurich-Milan journey time. The new tunnel opened in December 2016, a year ahead of schedule.

Thales also equipped the Lötschberg tunnel (35km) and is now equipping the Ceneri tunnel (15km) with ETCS Level 2 train control technology as part of the Swiss project aimed at moving traffic from road to rail.
UPGRADING EGYPT’S BUSIEST RAILWAY

EGYPT

Speed increased from

140 to 160 KM/H

Egyptian National Railways is embarking on an ambitious programme to modernise its rail network. Signalling upgrades are a key part of this programme: high-performance signalling makes it possible to improve safety, capacity and reliability at the same time.

Modernisation of the 208km Cairo-Alexandria corridor – Egypt’s busiest line – highlights what can be achieved. Thales’ signalling upgrade has made it possible to increase train speeds by 20km/h to 160km/h and has reduced the time interval between trains from 10 minutes to 5, boosting the frequency of services. The solution includes electronic interlocking, wayside equipment, telecommunications and a Centralised Traffic Control system.

SIGNALLING IN THE SAUDI DESERT

SAUDI ARABIA

LONGEST WORLDWIDE RAILWAY TO ADOPT ETCS L2

North South Railway project is the world’s largest railway construction and the longest route to adopt the European Train Control System (ETCS L2) to date. TMS is deployed in order to control the operation.

It is a 2,400km passenger and freight rail line originating in the capital city Riyadh, in the northwest of the country, to Al Haditha, near the border with Jordan.

North South Railway line is going through 6 of the 13 Saudi provinces, where half of Saudi population lives. The project is of strategic importance in contributing to the national economy, as it is expected to help Saudi Arabia become the second largest exporter of minerals in the world.
The new digital railway signalling system is sustaining the growing needs of the 2030 railway traffic with a highly scalable architecture to easily include further extension, speed increase, double tracks and electrification. In implementing the new ETCS together with ARAMISTM TMS, Denmark is once again a pioneer country. The nationwide rail network renewal project follows the implementation of the Travel Card electronic ticketing system delivered by Thales.

The project is delivered to Banedanmark by a consortium of Thales and Strukton under the lead of Thales. The scope of the consortium is a full technical delivery and integration and includes design, development, engineering, installation, testing, training, migration and commissioning.

More than 25 years ago, Spain started the development of its high speed railway network, being nowadays the longest in Europe and the second worldwide.

Thales has been a key player in this development since the beginning, providing different systems and solutions, from interlocking, ETCS, train control, communications and security systems to services.

Between Barcelona and Madrid, the time of travel in a very mountainous area has been reduced from more than 6 hours to less than 2 and a half.

18
PRASA (Passenger Rail Agency for South Africa) launched in 2010 a program of 350 Billion ZAR (35 Billion Euro) to reinstate the commuter lines in 3 main regions of South Africa.

The Program covers supply of new rolling stock (650 new train sets) and reinstatement of the old signalling systems. WCRP (Western Cape Re-signalling Project) is the 2nd largest project, and was awarded in May 2013.

The project is delivered under the lead of Thales by TMC (Thales Maziya Consortium) as a full technical delivery and integration.

It includes design, development, engineering, installation, testing, training, migration and commissioning for TMS, signalling, telecoms, Tech & CTC buildings, power supply, over head traction and rail road upgrade.
MODERNISING THE LONDON UNDERGROUND

LONDON

To help transport operator TfL (Transport for London) cater for rising demand, Thales is implementing SelTrac™ CBTC signalling across the District, Circle, Hammersmith & City and Metropolitan lines – four of London’s busiest routes. The upgrade will mean faster and more frequent journeys for millions of passengers, with capacity up by a third. The main benefits will be delivered by 2022, when the frequency of trains at peak periods will increase to 32 trains per hour in central London.

IN OPERATION SINCE 1863

Jubilee and Northern lines already in service

One of the world’s busiest metros

SUPPORTING CHINA’S METRO EXPANSION

CHINA

China is the world’s biggest urban rail market. It’s also one of the fastest growing, with 8,500km of new lines planned in 40 cities. Thales is supporting this expansion through Thales SAIC Transport (TST) – a joint venture with Shanghai Electric dedicated to urban rail signalling. Since its foundation in 2010, TST has put more than 1,000km of lines into service with SelTrac™ CBTC. A further six lines went into operation in 2018.

SelTrac™ CBTC +1000km of lines in service

6 LINES into operation in 2018
WINNING HEARTS AND MINDS IN DUBAI

The Dubai Metro in the United Arab Emirates is the centrepiece of a successful programme to combat congestion and boost productivity in one of the world’s fastest-growing cities. Thales implemented a complete technology package to deliver a world-class passenger experience: the solution includes SelTrac™ CBTC for reliable driverless operations, easy multimodal ticketing and passenger information. Wi-Fi is provided on trains, so passengers can make the most of their journeys. In 2016, and for the same scope, the Dubai Metro has trusted Thales to expand further its network in order to welcome the Universal Exposition in 2020.

BREAKING NEW GROUND IN TAIWAN

TAIWAN

TAIWAN’S 1ST TRAMWAY

Kaohsiung is Taiwan’s second largest city and its LRT (Light Rail Transit) system provides an attractive and reliable alternative to journeys by road. Work on extending the LRT to better serve Kaohsiung’s nearly 2.8 million citizens is now underway. Thales is providing the customer, China Steel Corporation, with a signalling solution that includes the supply of interlocking systems, Traffic Light Priority systems and Automatic Vehicle Localisation Systems (AVLS).
UPGRADING METRO PERFORMANCE
SINGAPORE

Every day, the North South Line and East West Line (NSEW) carry two thirds of the Singaporean commuters (Total population of 5.6 Million) on more than 100 km of lines and 58 stations.

NSEW is a complete turn-key project for signaling and rolling stock retrofit to transform existing trains from conventional to Driverless Operation. The contract was awarded in February 2012, Thales managed to bring in commercial operations on the North South and East West lines (including the Tuas West extension) in less than 6.5 years.

Thales was able to migrate an innovative CBTC system over an operating railway which has been running well over 30 years with a legacy signaling system without any major service disruptions. It is also the first major introduction of a new distributed train supervision architecture that monitors and manages the operations on both lines and also to transfer trains from one line to another seamlessly.

Commuters traveling on NSEW benefit from a more reliable signalling system and a much shorter waiting time.
Doha Metro Phase 1 is under construction, designed to serve both the capital and the suburbs with all major locations (37 stations) along 3 lines (Red, Gold and Green), totalising 86 km, on which 75 trains will operate automatically. Capable of reaching 100km/h, the Doha Metro will be one of the fastest driverless trains in the world.

Part of MMHKT (Mitsubishi Corporation, MHI, Hitachi, Kinky Sharyo and Thales) Consortium, Thales is implementing the heart of the infrastructure, integrating its full range of signalling, telecommunication, supervision, security and ticketing systems, including a fully driverless CBTC system.

All 3 lines are scheduled to open in 2019.
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