



OTN Systems Introduction

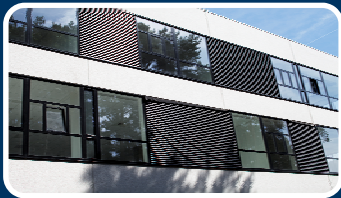




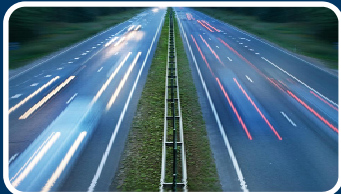
Company

→ **OTN Systems**

OTN Systems in a nutshell



- ▶ OTN Systems HQ is based in Olen, Belgium
- ▶ World-wide footprint through sales offices in US, China, Malaysia, Brasil, Germany, Netherlands, UAE and Algeria complemented with local partners



- ▶ Healthy 20+ million Euro revenue company
- ▶ Over 100 enthusiastic employees of which 45 in R&D
- ▶ The company is going after growth, both organically and through M&A



- ▶ OTN develops and markets its own telecommunication product range for dedicated and industrial networks on a world-wide basis
- ▶ OTN has tailored its products towards specific verticals market segments



Strong roots and a proven track record

SIEMENS

- 1st OTN version OTN-36
- Belgium and expanding beyond

SIEMENS

- 1994: OTN-150 - OTN-600
- New: video transport & switching capabilities
- Important partner: Siemens Transportation & Automation
- 2003: Birth of OTN-X3M-2500
- Annual sales growth: 15%



- Center of competence for industrial networks
- Main focus NSN: operators / CSP



- Management Buy-Out supported by Gimv resulting in spin-out of OTN Systems
- Birth of OTN-X3M-10G
- New XTran product line

1990 -1994
The start of OTN

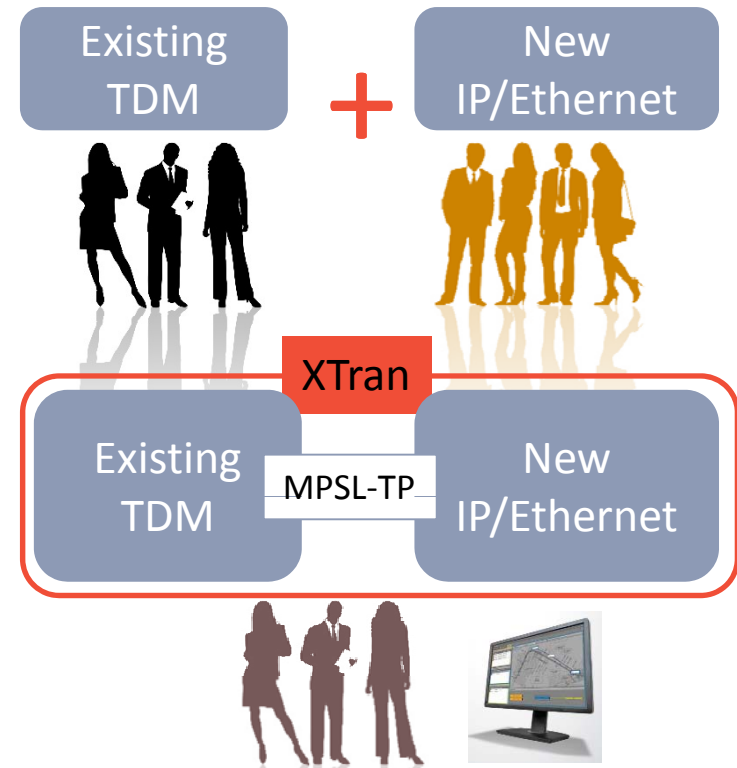
1994 -2007
Growing the Business

2007 – June '08
OTN as part of NSN

1 July '08 – today
OTN as stand alone

➔ Product portfolio

- The OTN-X3M product family is SDH/TDM based and is in use at about 85 transport authorities worldwide.
- The XTRAN product family is currently under development and is based on the new MPLS-TP standard for packet networks.



Portfolio network products

**OTN Classic
X3M**

XTran

Network technology & layout

SDH/SONET, Ring (coupled), TDM

MPLS-TP, Meshed, Packet

Speeds Today Future

155Mbps – 10G
40G/100G

64kbps – 1Gbps
10G

Typical interfaces

Ethernet, RSx, video, E1, voice, ...

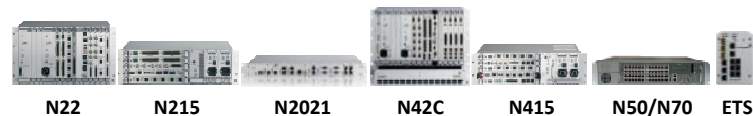
Ethernet, E1, voice

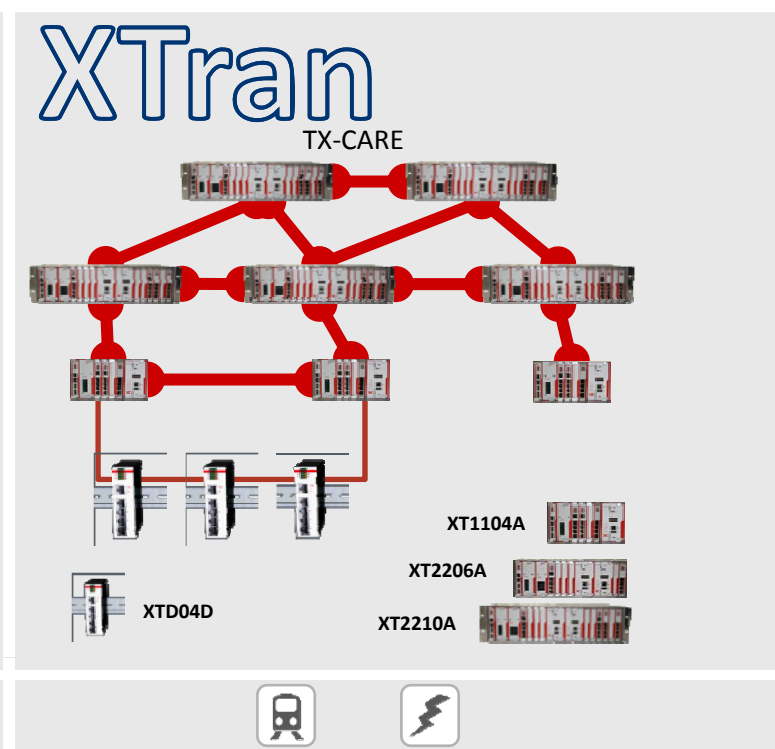
Typical applications & location

Passenger info, CCTV, Public address,
stations

Signaling, GSM-R, operational
communications, trackside

Network Nodes





Open Transport Network

Open

Multiservice platform that supports Voice, Audio, Serial Data, Ethernet, Video and Specific communication protocols

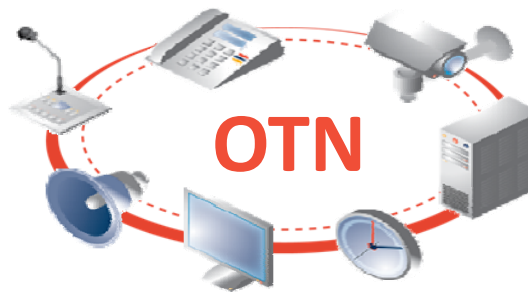
Transport

of information in a digital, transparent & secure way

Network

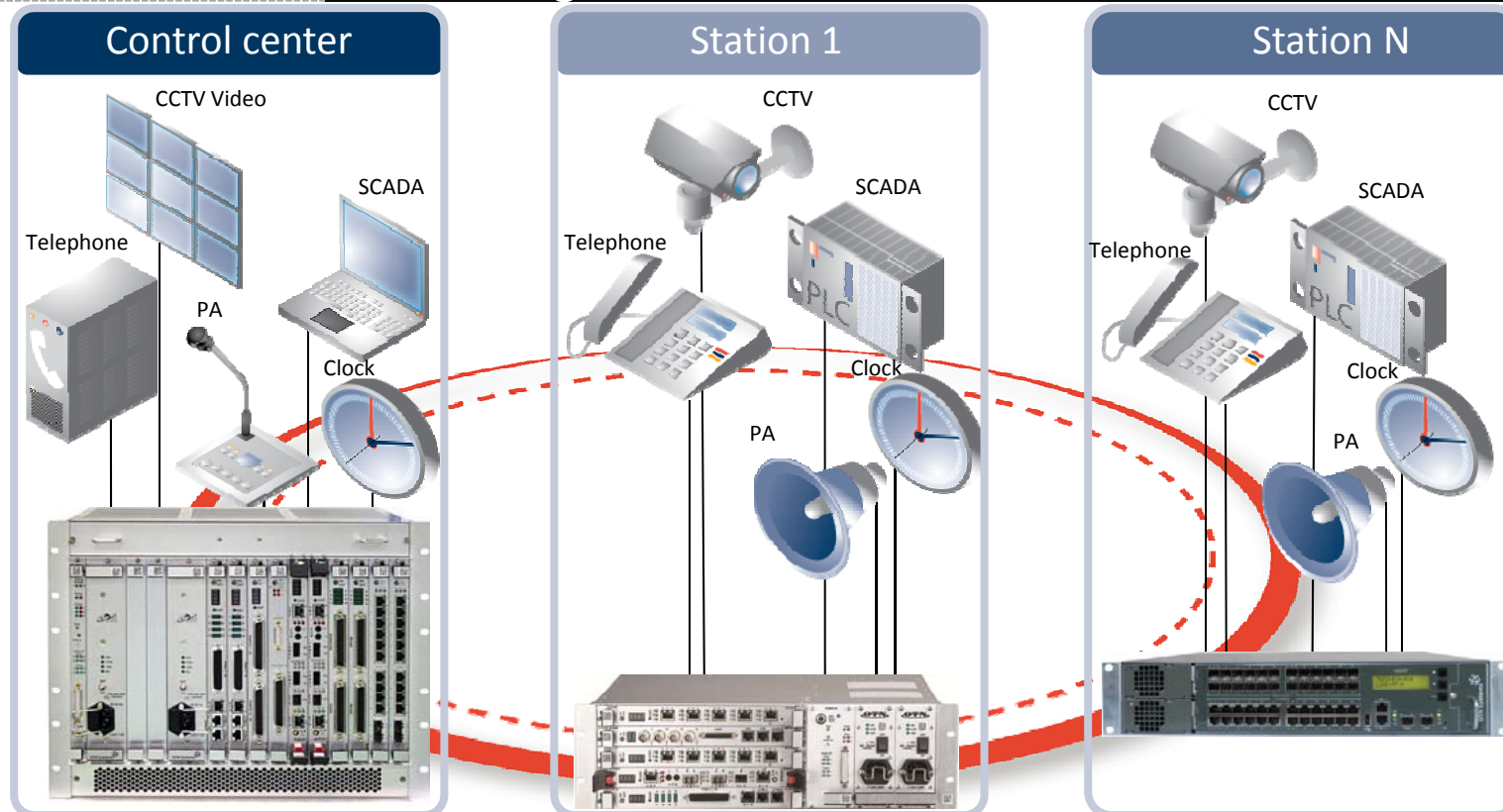
using redundant fiber optic cable as the physical link

Put your entire world on
a fiber!





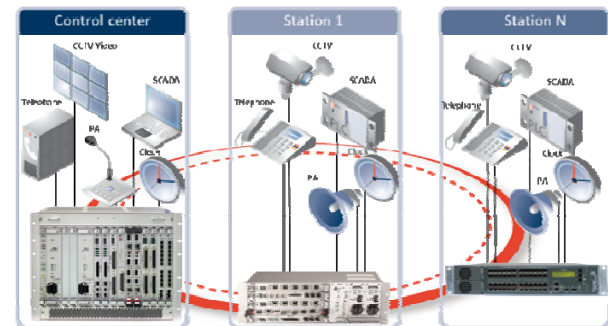
The integrated OTN Network



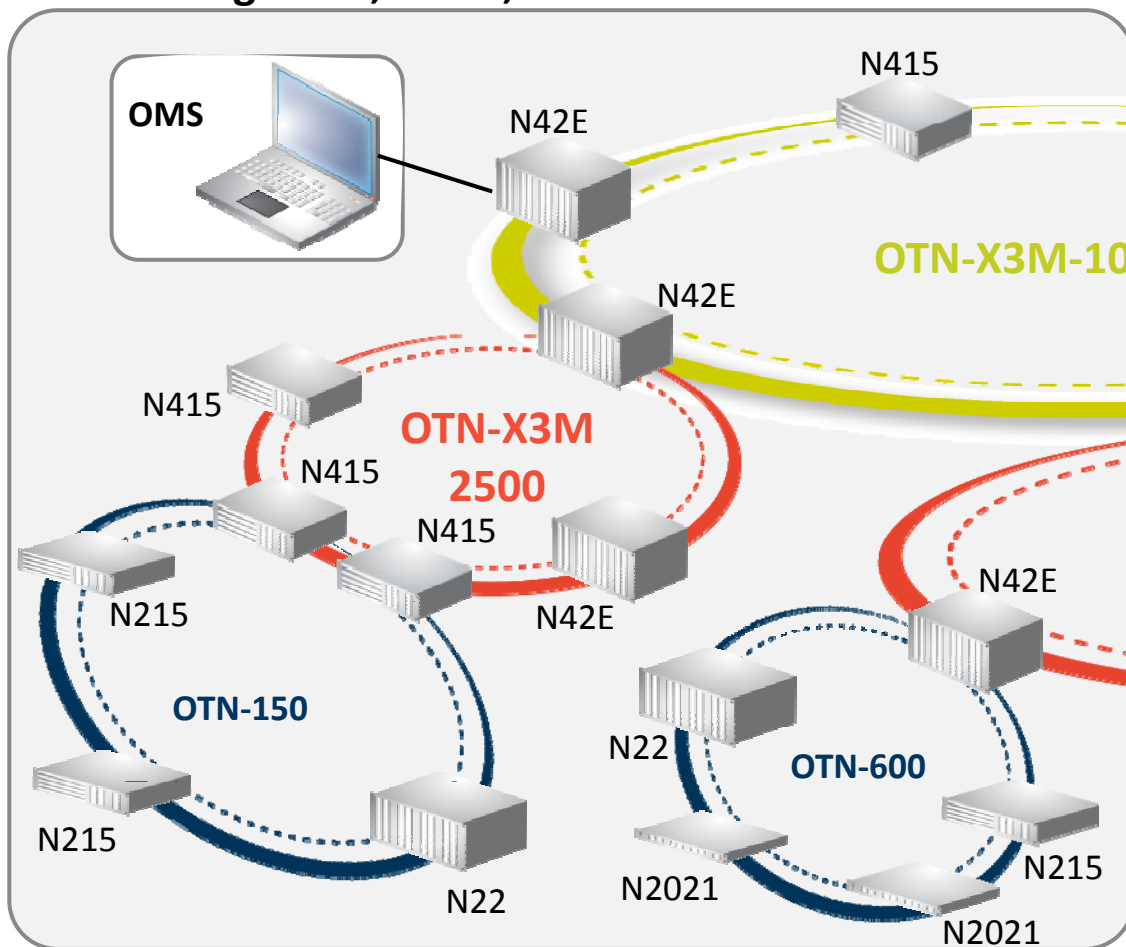


- ETS-3GC7F:
 - 3 GbE Combo ports
 - 7 Fast Ethernet ports
- ETS-4GC24FP
 - 4 GbE Combo ports
 - 24 Fast Ethernet ports with PoE support
- L2 managed switch
- IGMP snooping

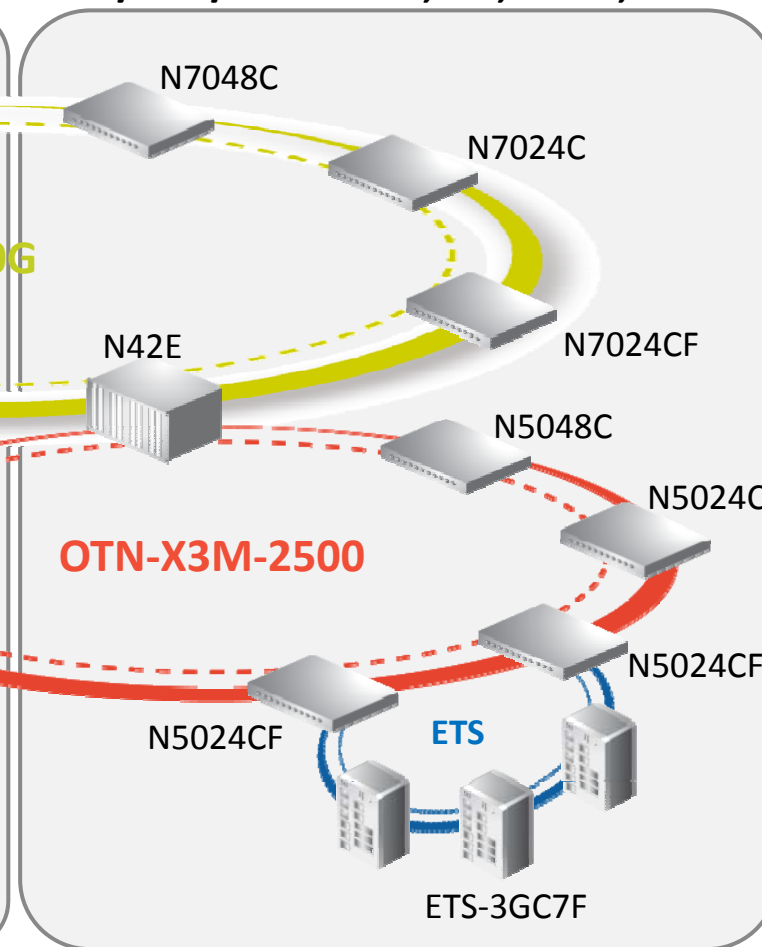
- Graphical User Interface
- Hardware Mgmt
- Connection Mgmt
- Alarm logging & forwarding
- User management
- Redundant System



**Mixed interface types:
analog voice, video, serial data & IP**



**Mix of Ethernet interfaces:
10/100/1000Base, Cu, Fiber, PoE**



XTRAN portfolio overview

Ruggedized nodes



Fanless
-20 to +65°C
19" or DIN Rail
EMC hardened

Power options



90-264VAC/18-300VDC

Central Switching



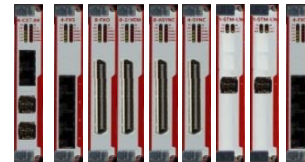
MPLS-TP compliant
Single /dual CSM
Protection <50ms
Quick replacement
Meshed topology
Hardware OAM

Ethernet interfaces

1G – 10G WAN
Layer 2/3
Cu or FO
Power over Ethernet



Legacy interfaces



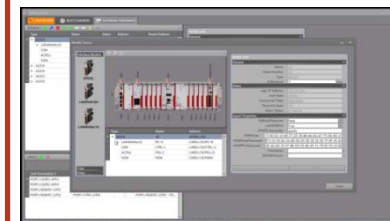
Sync interfaces: X.21 / V.35
Low speed: RS232, 422, 485
Voice: 2W/4WE&M, FXO, FXS
Teleprotection: C37.94
SDH interworking: STM1/4
SHDSL interfaces

SHDSL demarcation

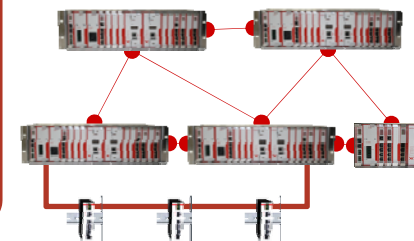


2xSHDSL
4x Fast Ethernet
Ethernet OAM
Fully managed

Management

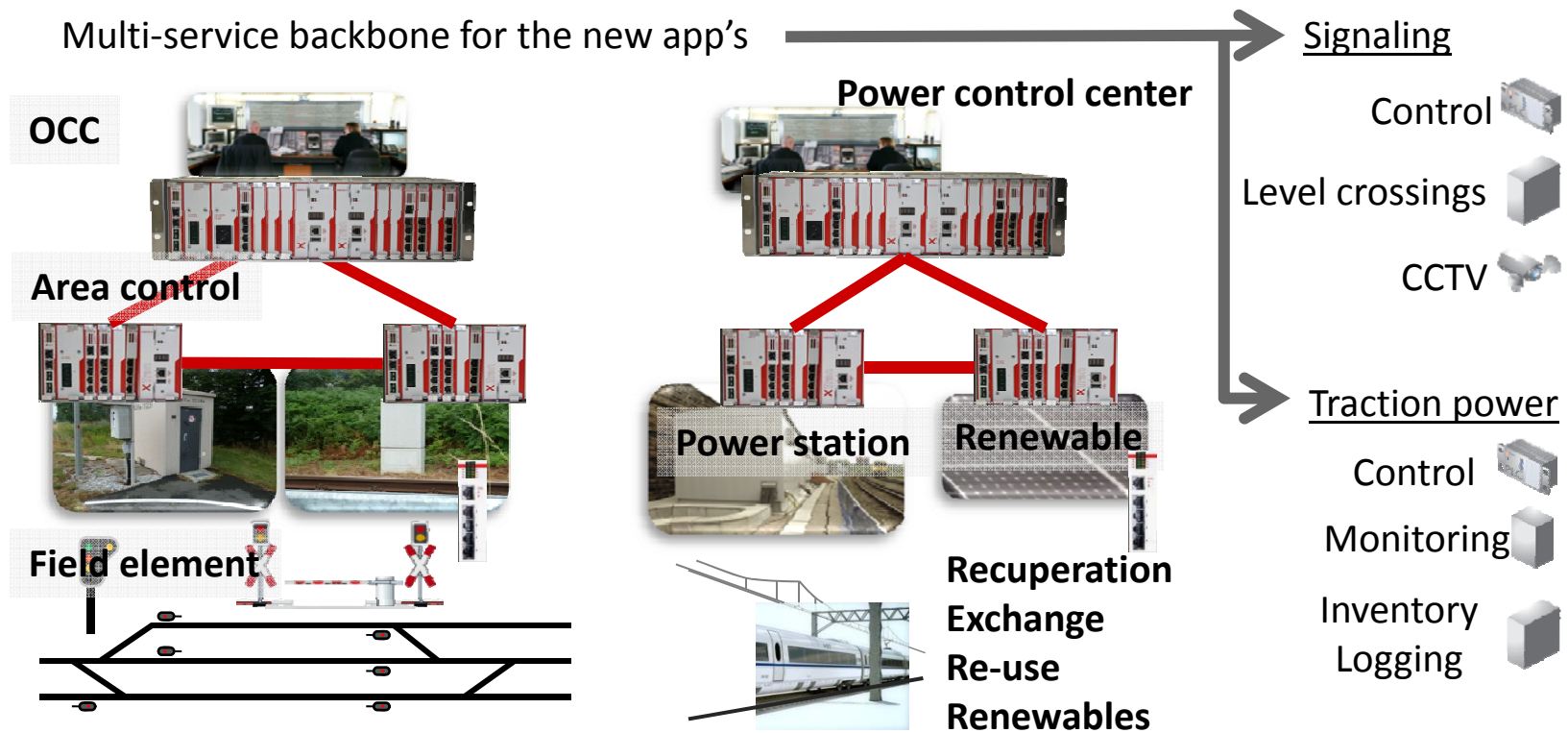


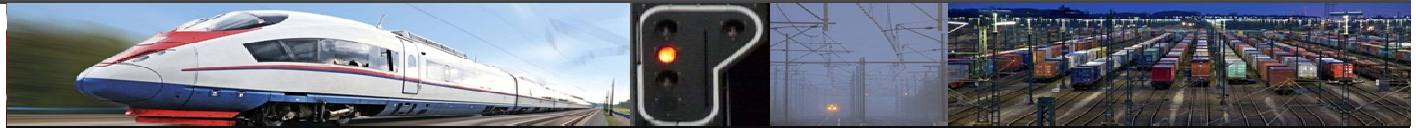
Graphical User Interface
Deployment
Provisioning
Assurance
Alarm handling
User management



XTRAN overview

Multi-service backbone for the new app's





References

→ References



OTN is in use in 85+ Transport Systems world wide...

USA

- SEPTA Philadelphia
- Amtrak
- San Diego Sprinter
- Las Vegas Monorail
- Baltimore LRT
- Pasadena LRT
- Hiawatha LRT
- ...

Canada

- Vancouver Sky Train
- Calgary

Mexico

- Guadalajara

Chile

- Metro de Chile

Argentina

- Ferrovias Metro

Brazil

- Belo Horizonte
- Sao Paulo

Peru

- Metro Lima

Germany

- Essen (EVAG)
- Bonn
- Dusseldorf
- Duisburg
- Köln

UK

- Heathrow Express
- Docklands Light Rail

France

- Montpellier
- Lyon
- Toulouse
- Lille

Italy

- Ferrovie Nord Milano

Greece

- Attiko Metro

Bulgaria

- Metro Sofia

Turkey

- Metro Bursa

The Netherlands

- Amsterdam (GVBA)
- Rotterdam(RET)
- HSL

Belgium

- De Lijn, MIVB

China

- Beijing Metro
- Guangzhou Metro Corporation
- Shanghai Metro Corporation
- Shanghai Transrapid Maglev
- Chong qing LRT
- Tian Jin LRT
- Shenzhen Metro
- Nanjing Metro
- KCRC Hong Kong

Malaysia

- Kuala Lumpur International Airport Link
- Monorail Kuala Lumpur

Thailand

- BTS Bangkok
- MRTA Bangkok

MEA

- Gautrain South Africa
- Saudi Rail
- Metro d'Alger
- King Abdullah Financial District Monorail

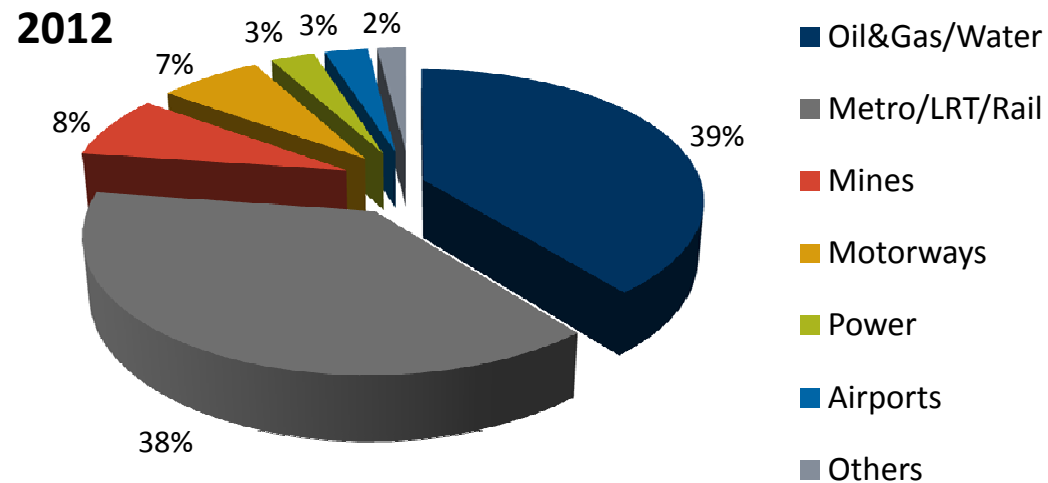
KOREA

- 포항 영일 신항만, 인천공항철도(외곽기지), 강원랜드
- 한강섬(새빛 둥둥섬), 송도57공구 기반시설

Sales by segment

→ Highlights

- Main segments are Oil&Gas and Transportation
- Strong relative position in Mining



➔ 제품 문의

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