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9th NSTDA Annual Conference 2013

Railway Development of ASEAN: Readiness for AEC in 2015

Topics of Today

1. สถานการณ์ปัจจุบันของระบบรางรวมถึงโครงการรถไฟความเร็วสูงในประเทศไทย และแผนการพัฒนาระบบรางของ AEC
2. วิวัฒนาการการจัดการระบบราง (Evolution of Railway) ในกลุ่มสหภาพยุโรปที่มีวัตถุประสงค์มุ่งเน้นการเชื่อมต่อระหว่างประเทศในสหภาพยุโรป (Trans-European Rail Network)
3. ระบบจัดการความสอดคล้องของระบบรางของสหภาพยุโรป (Harmonisation of European Railway) ในฐานะที่เป็นกลุ่มประชาคมที่ประสบความสำเร็จด้านการพัฒนาระบบรางร่วมกัน
4. ทิศทางและการพัฒนา (Suggestive Framework) ระบบรางภายในภูมิภาคอาเซียน
5. การพัฒนาระบบรางของประเทศเพื่อนบ้าน

I. Railway Focus in Thailand and AEC Railway Development

1. สถานการณ์ปัจจุบันของระบบรางรวมถึงโครงการรถไฟความเร็วสูงในประเทศไทยและแผนการพัฒนาระบบรางของAEC

Railway Focus in Thailand

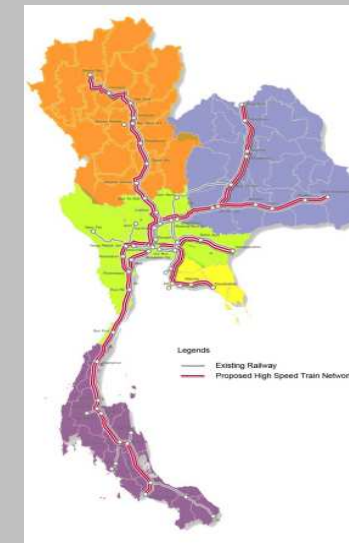
- **High-speed Train: 4 lines**
- **SRT Double Track Construction: 6 routes**
- **Bangkok Mass Transit: 10 metro lines**

Railway Focus in Thailand High-Speed Rail

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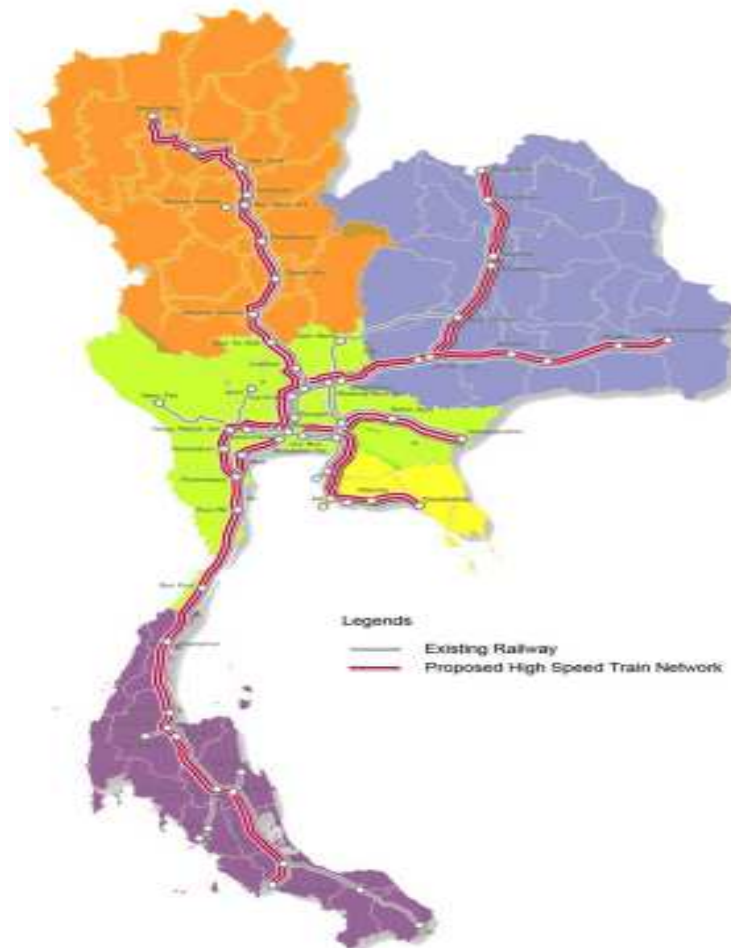
Planned HSR Network



- Planned HSR network consisting of 4 lines with total length 1,450 km

Railway Focus in Thailand High-Speed Rail

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Line

1. Bangkok – Chiang Mai
2. Bangkok – Nakhonratchasima – (Nongkhai in phase 2)
3. Bangkok – Rayong
4. Bangkok – Hua Hin – (Padang Besar in phase 2)

Proposed Technologies:

- Max speed is at least 250 km/h
- Standard Gauge 1.435 m
- UIC-60 standard gauge rail
- Freight and passenger services, alongside existing railway routes

Signaling:

- Full ATP
- ETCS level 1 at least

Electrification:

- 25kV OCS

Communication:

- Fibre Optics and Wireless Technology (at least STM16)

Civil:

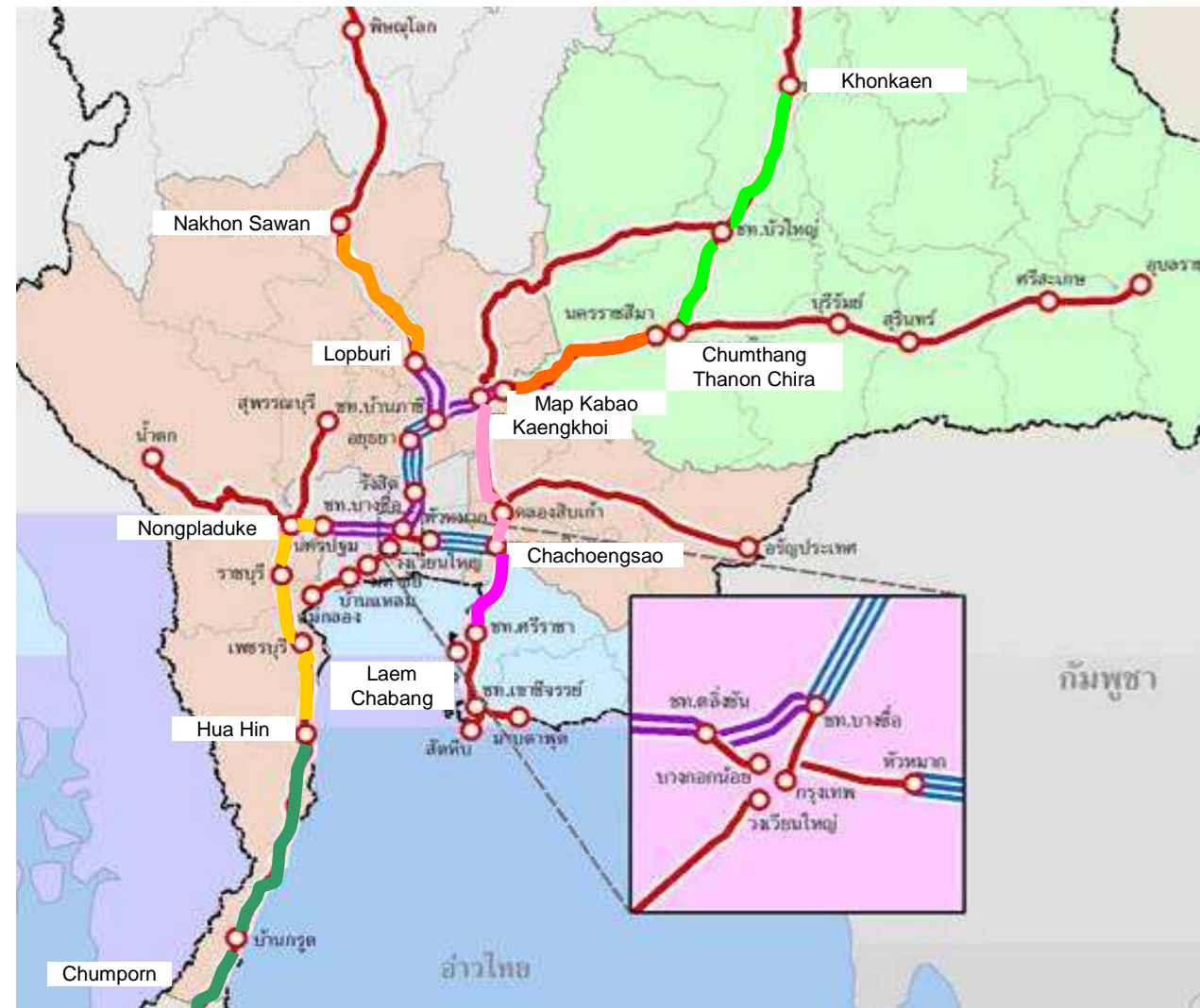
- Fully Fencing with Pedestrian Bridge or Tunnel
- No Level Crossing: Intersections are replaced by road overpass

Railway Focus in Thailand Double Track

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- Existing single track
- Existing double track
- Existing triple track
- Chachoengsao - Laem Chabang
- Chachoengsao – Kaengkhoi (TOR in Nov 2012)
- Next Double track route*
- Chumthang Thanon Chira, Nakhon Ratchasima – Khonkaen
- Hua Hin, Prajuabkirikun – Chumporn
- Lopburi – Paknampho, Nakhon Sawan
- Map Kabao – Chumthang Thanon Chira, Nakhon Ratchasima
- Nakornpathom – Nongpladuke – Hua Hin, Prajuabkirikun

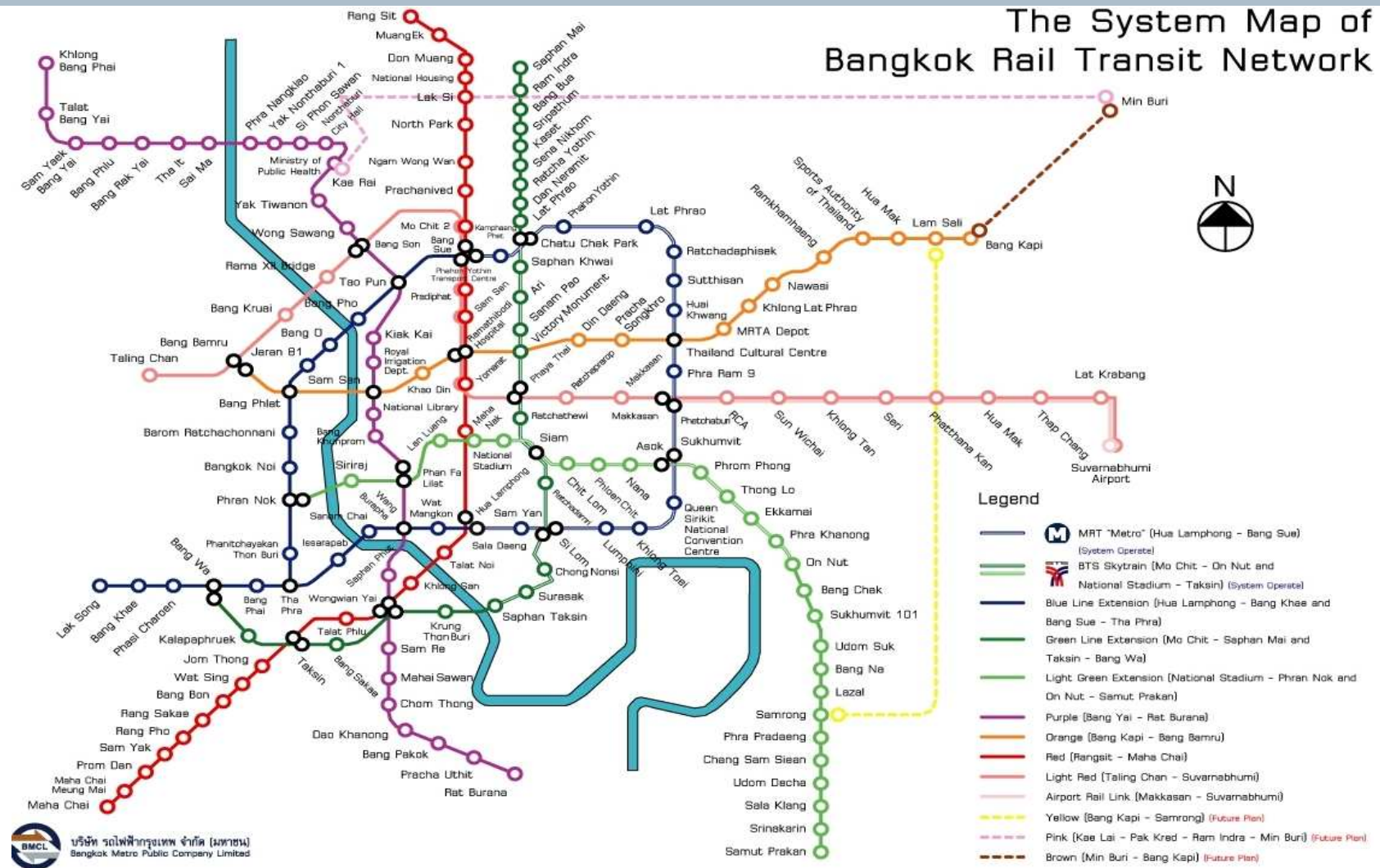
More lines are in planning.



Railway Focus in Thailand

Bangkok Mass Transit

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AEC Blueprint towards ASEAN Rail Transport

แนวทางการพัฒนาระบบรางในอาเซียน

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1. Single Market and Production Base การเป็นตลาดและฐานการผลิตเดียวกัน

Standard and Technical Harmonisation

2. Competitive Economic Region การเป็นภูมิภาคที่ความสามารถในการแข่งขันทางเศรษฐกิจ

Enhance transport facilitation as linkages and connectivity.

Source: AEC Blueprint Catalogue-in-Publication Data, 2008

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2013-04-03

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AEC Infrastructure Development

แผนการการพัฒนาโครงสร้างพื้นฐานในภูมิภาค

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Railways Concern

1. Land Transport

การขนส่งภาคพื้นดิน

For instance: complete the development of Singapore – Kunming Rail Link (SKRL).

Source: AEC Blueprint Catalogue-in-Publication Data, 2008

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2. Infrastructure

โครงสร้างพื้นฐาน

effort to make to facilitate interconnectivity and technical interoperability

by leveraging on existing national networks into a regional infrastructure

3. Develop High-speed Interconnection

การพัฒนาการเชื่อมต่อเส้นทางรถไฟความเร็วสูง

facilitate high-speed connection among all national infrastructure

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Similarity

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Unity in Diversity



**One Vision, One Identity
and One Community**

Source: Pictures from http://europa.eu/index_en.htm
and <http://www.asean.org/>

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II. Evolution of Railway in the European Union: Focus on How Come Trans-European Rail Network

2. วิวัฒนาการการจัดการระบบรางในกลุ่มสหภาพยุโรปที่มี วัตถุประสงค์มุ่งเน้นการเชื่อมต่อระหว่างประเทศในสหภาพยุโรป

Evolution of Railway Harmonisation in the European Union

วิวัฒนาการการจัดการความสอดคล้องของระบบรางรถไฟในสหภาพยุโรป

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Source: http://europa.eu/legislation_summaries/transport/rail_transport/l24458_en.htm

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2013-04-03

- 1958 ● The European Economic Community (EEC): people, goods and services to move freely across borders
- 1990s Europe without Frontier towards European Community and European railway harmonisation's policy
- 1990 ● Trans-European Networks was agreed by European Commission (EC).
- 1993 European Community
- 1996 Trans-European Rail Network by European Parliament and Council
- 1998 ● The European Rail Traffic Management System (ERTMS) as single Europe wide standard for train control and command systems
- 2004 European Railway Agency (ERA) setting standard of rail network in EU and support EC railway policy
- 2005 ● Deployment of the European Rail Signalling System ERTMS/ETCS devoted by EC
- 2007 The European Union's expansion of Member States became 27 states
- 2008 Railway Interoperability was announced towards Member States
- 2009 The European Train Control System (ETCS) as mandatory for all EU funded projects
- 2011 ● Railway Interoperability Directive 2008/57/EC was transposed into national law through the Railway (Interoperability) Regulations 2011

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Evolution of Railway Harmonisation in the European Union

European Rail Network

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Source: Picture from http://en.wikipedia.org/wiki/High-speed_rail_in_Europe

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III. Harmonisation of European Railway in Successful Deployment of European Rail System

3. ระบบจัดการความสอดคล้องของระบบรางในสหภาพยุโรปในฐานะที่เป็นกลุ่มประชาคมที่ประสบความสำเร็จด้านการพัฒนาระบบรางร่วมกัน

European Railway Harmonisation



Implementation of Railway Harmonisation in the EU

- **EU institutions and agencies** (สถาบันและหน่วยงานทางด้านพัฒนาระบบรางของสหภาพยุโรป)
- **Regulation, directives and acts** (กฎ ระเบียบข้อบังคับทางกฎหมาย และกฎหมาย)
- **European technical standards** (มาตรฐานทางเทคนิค)

Single Market towards Railway Harmonisation



Border-free Europe (Single Market) is one of the EU's greatest achievements.

Instead of being obstructed by national borders and barrier, people, good, services and money move around the EU as freely as they do within a single country.

Single market of goods and single market of services are two of the market frameworks of the EU focusing on rail as cross-border services.

Source: <http://europa.eu/pol/sing/>

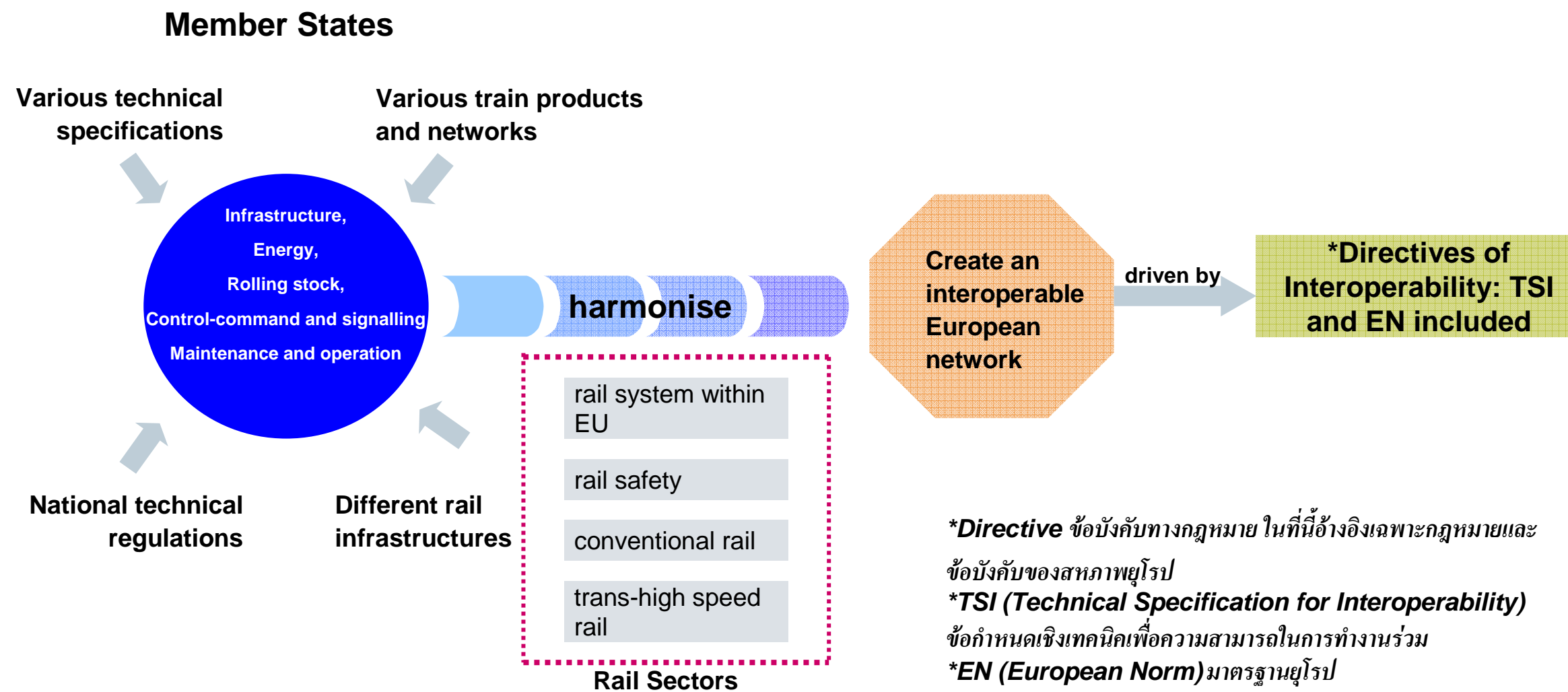
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What is Technical Harmonisation – European Railway?

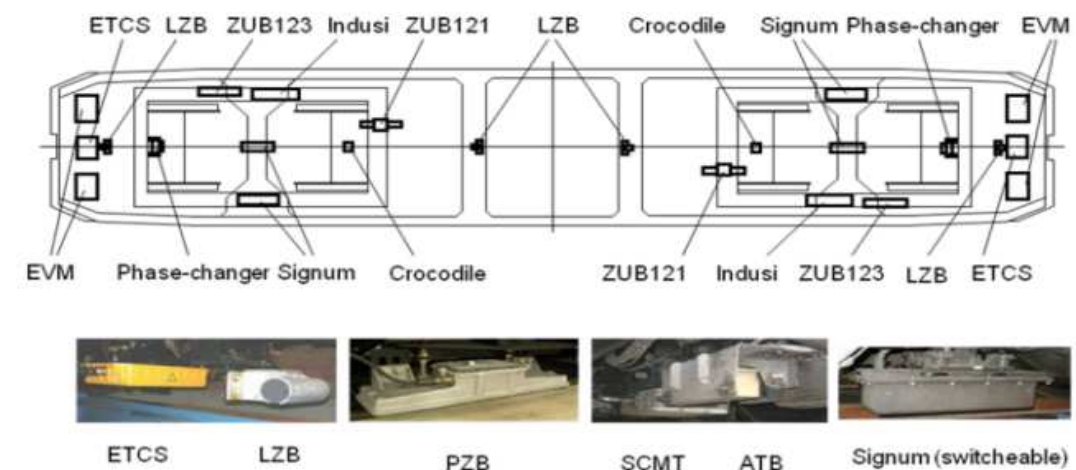


**Directive* ข้อบังคับทางกฎหมาย ในที่นี้อ้างอิงเฉพาะกฎหมายและข้อบังคับของสหภาพยุโรป

**TSI (Technical Specification for Interoperability)* ข้อกำหนดเชิงเทคนิคเพื่อความสามารถในการทำงานร่วม

**EN (European Norm)* มาตรฐานยุโรป

Example to Why We Need Harmonisation



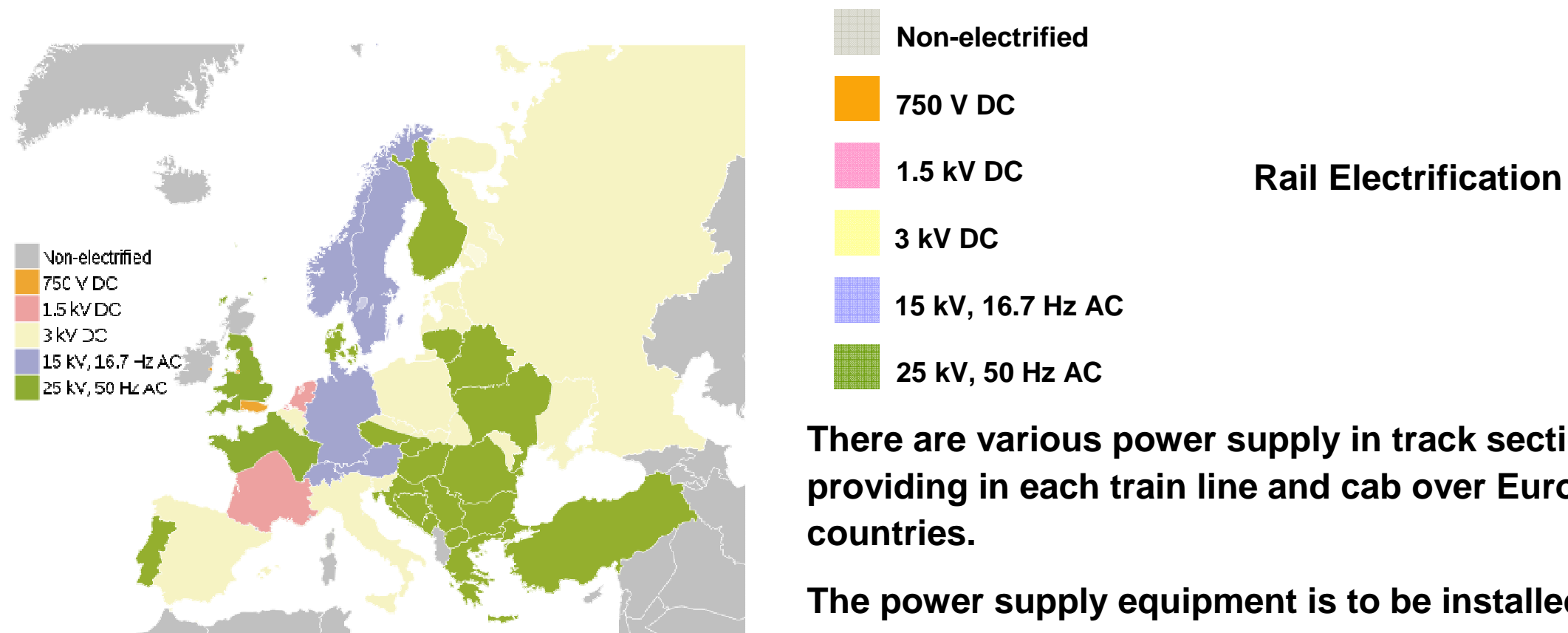
Source: Pictures of Prof. Dr. sc. techn Peter Winter from ETCS Abstract, 2012 CAETS/SATW Symposium, August 30th, 2012

Over twenty different signalling systems currently coexist on railway lines in Europe.

For instance, passengers using the high-speed Thalys train between Paris and Brussels are unaware of the fact that there are necessary seven signalling systems installed. Thereby generating additional costs and accentuating the risk of breakdowns are an issue.

Source: ERTMS 10 Questions, http://ec.europa.eu/transport/modes/rail/interoperability/ertms/doc/ertms_10_questions_en

Example to Why We Need Harmonisation



There are various power supply in track section providing in each train line and cab over European countries.

The power supply equipment is to be installed to adjust to fit for each frontier that trains run cross-borders.

Source: Picture from http://commons.wikimedia.org/wiki/File:Europe_rail_electrification_en.svg

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Technical Harmonisation Interoperability (ความสามารถในการทำงานร่วมกันของระบบรางรถไฟ)

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Interoperability of Railway System
(ความสามารถในการทำงานร่วมกันของระบบรางรถไฟ)
in Europe defines the ability of a rail system to allow the safe and uninterrupted movement of trains.

Aim: Integration and harmonisation of technical standards to rail systems

People and goods are able to move around and easily in European Community.

Unity in Diversity



INTEROPERABILITY



- Mixed Traffic
- Many Operators
- Many Suppliers
- ONE STANDARD**

Example: Railway Signalling Interoperability

Cause

Differences in technical standards of rail signalling hamper the development of rail transport:

More than 20 signalling coexisting in Europe



Innovative Solution

The European Rail Traffic Management System (ERTMS) consists of:

- GSM-R
- European Train Control System (ETCS)



Target and Benefits

- Enhanced safety by ATP systems
- Many choices of suppliers (UNISIG supplier)
- Lower production cost
- Compliant with European Interoperability



ERTMS/ETCS Deployment for Trans-European Transport Network 2007 to 2013 in EU Budget

Source: Deployment of the Rail Signalling System ERTMS/ETCS, http://europa.eu/legislation_summaries/transport/rail_transport/l24458_en.htm and the Newsletter of ERTMS, Issue No.1, April 2007

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IV. Suggestive Framework of Railway Development towards AEC in 2015

4. ทิศทางและการพัฒนาระบบรางภายในภูมิภาคอาเซียน

Framework for Railway Development

1. Network Development

- Interoperability: TSI
- TOD/FON
- Intermodal

2. Railway Bodies and Agencies

- Standard, UIC
- Regulator, ERA and UNIFE

3. Human Capital

- Railway Skill Development
- Railway Education (STI)
- Rail Academy (NSTDA)

V. Neighbouring Countries at Glance

5. การพัฒนาระบบรางของประเทศเพื่อนบ้าน

High Speed Train in Vietnam



Source: Picture from Vietnam Railways, http://en.wikipedia.org/wiki/Vietnam_Railways

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Project Name: HCMC High Speed Railway

Owner: Vietnam Railways (VNR)

Scope of Project: Hanoi – HCMC high-speed rail, 1,555km in length and through 20 provinces

Scale of Project: service speed of 300km/h with 1,433mm width of track and in 2035 complete line in plan

2004 Studied on plan of Vietnam railway network

2008 VNR signed the consultant contract with Vietnam and Japanese Joint Venture

2011 The project was on hold due to the huge investment.

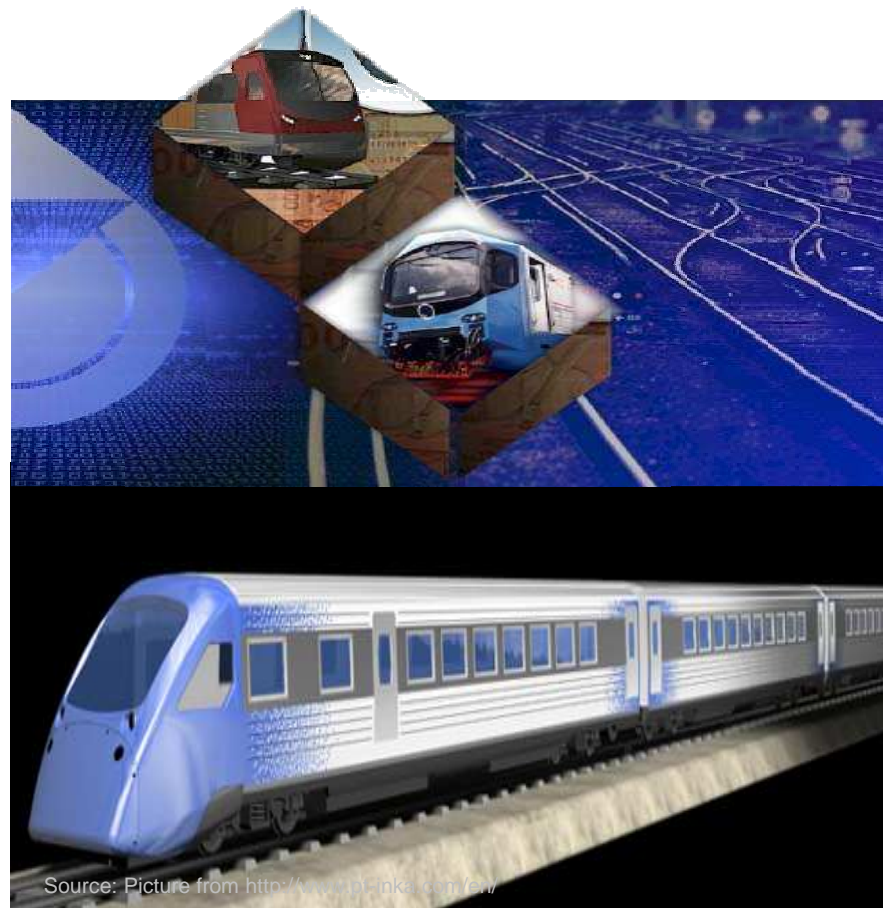
Present situation: Being studying of investment and finance in cooperation with consultant consortium such as JICA

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Railway Rolling Stock in Indonesia

PT. INDUSTRI KERETA API

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Source: Picture from <http://www.pinkoi.com/>

Company: PT. INDUSTRI KERETA API established in 1981

Business Type: State own company from steam locomotive workshop under Minister of SOE

Business Activity: rolling stock manufacture, trade, engineering service and diversification product

Vision: world class manufacture of railway rolling stock in Indonesia

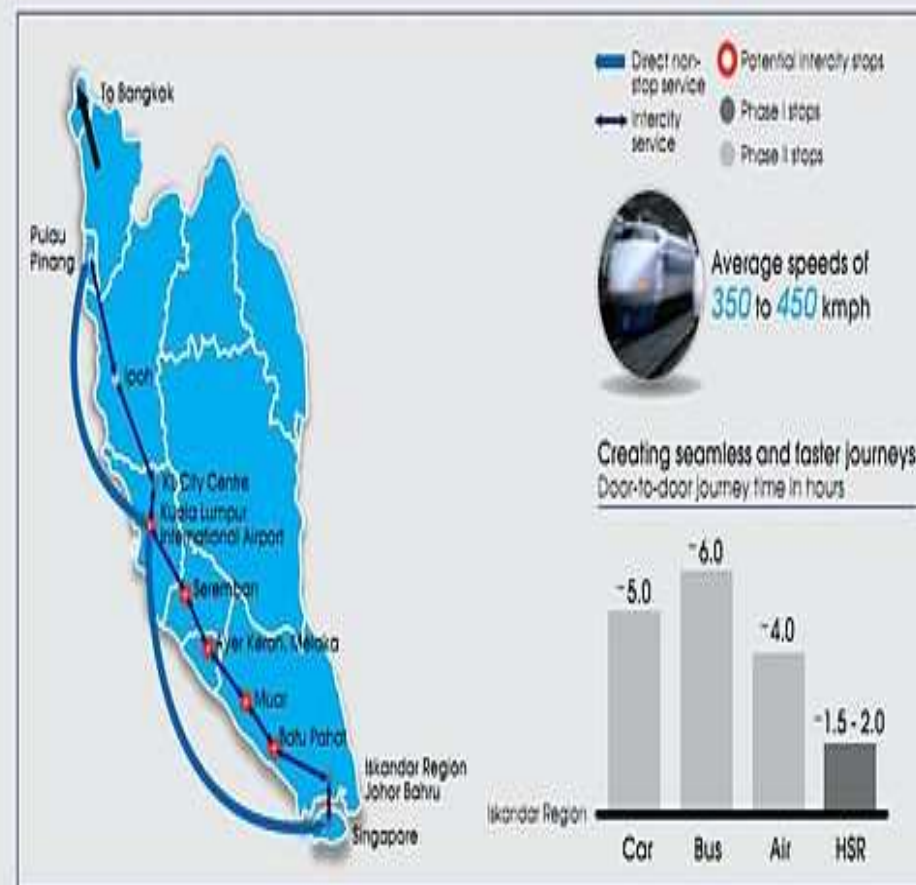
Mission: creating business and technology competitiveness in railway products

wining competition in ASEAN market and in development country

State own company is as factor of Sustainable Industry in Country.

High Speed Rail – Malaysia and Singapore

High speed rail will provide non-stop services to major regional centres and intercity services



Source: Picture from Penang-Singapore High Speed Rail, <http://en.wikipedia.org/wiki/Penang>

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Project: High-speed Rail to link Kuala Lumpur and Singapore with a possible extension to Bangkok

Distance: 400km long and travel time 90 minutes

Plan: by 2020

Financial: No cost estimated

To be built by private companies with two governments in support

Railway in India



Source: Picture from Indian Railways Plans \$9 billion in Investments for 2010, <http://www.thetransportpolitic.com/2010/02>

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Railway in India



New Delhi Metro Line 3

Siemens was contracted with equipping Signalling and Telecommunication.

Phase 1: Length of line 23 km / 22 stations

Phase 2: Length of line 6.5 km

Commissioning Date: 2006



New Delhi Airport Metro Express

Airport Metro Express Line

In future providing with convenient high –speed link to airport. E&M of Signalling by Siemens

Phase : Length of line 23 km / 6 stations

Commissioning Date: 2010



Mumbai Metro L1

Siemens was contracted with equipping Automatic Train System.

Phase: Length of line 11.4 km / 12 stations

Commissioning Date: 2011

Thank You for Your Attention!

Question & Answer

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Infrastructure and Cities Sector
Rail Systems
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www.siemens.com/answers