

# THAI-MADE TRAINS :

**New Economic Driven Industry for Breaking Industrial Transformation Challenges**

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**Rail Technology Research and Development Agency (RTRDA)**

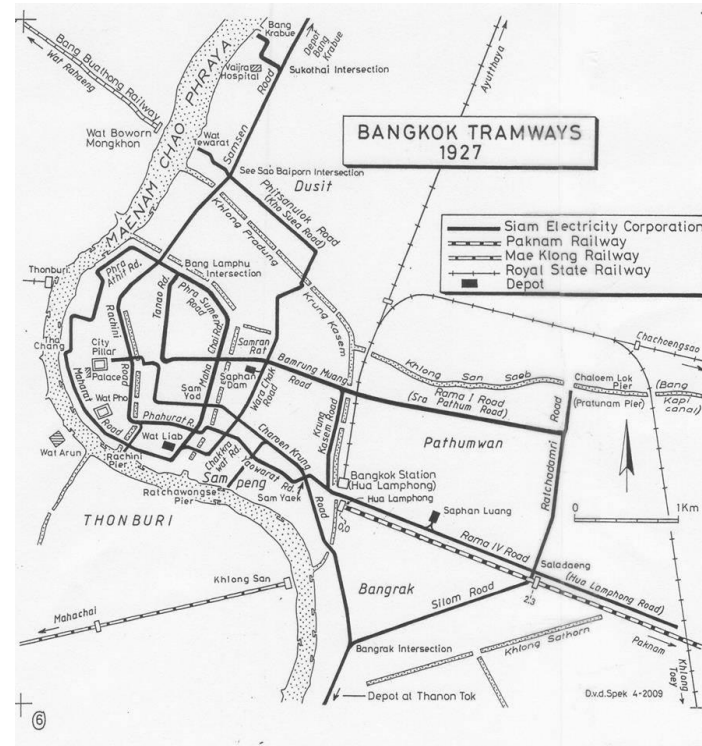
**Ministry of Transport, THAILAND**



**THAILAND Railway** started

since KING RAMA V, 1890

**BANGKOK Tramways** started 1892



Source: State Railway of Thailand



# Strategic Positioning of Thailand Rail Transport



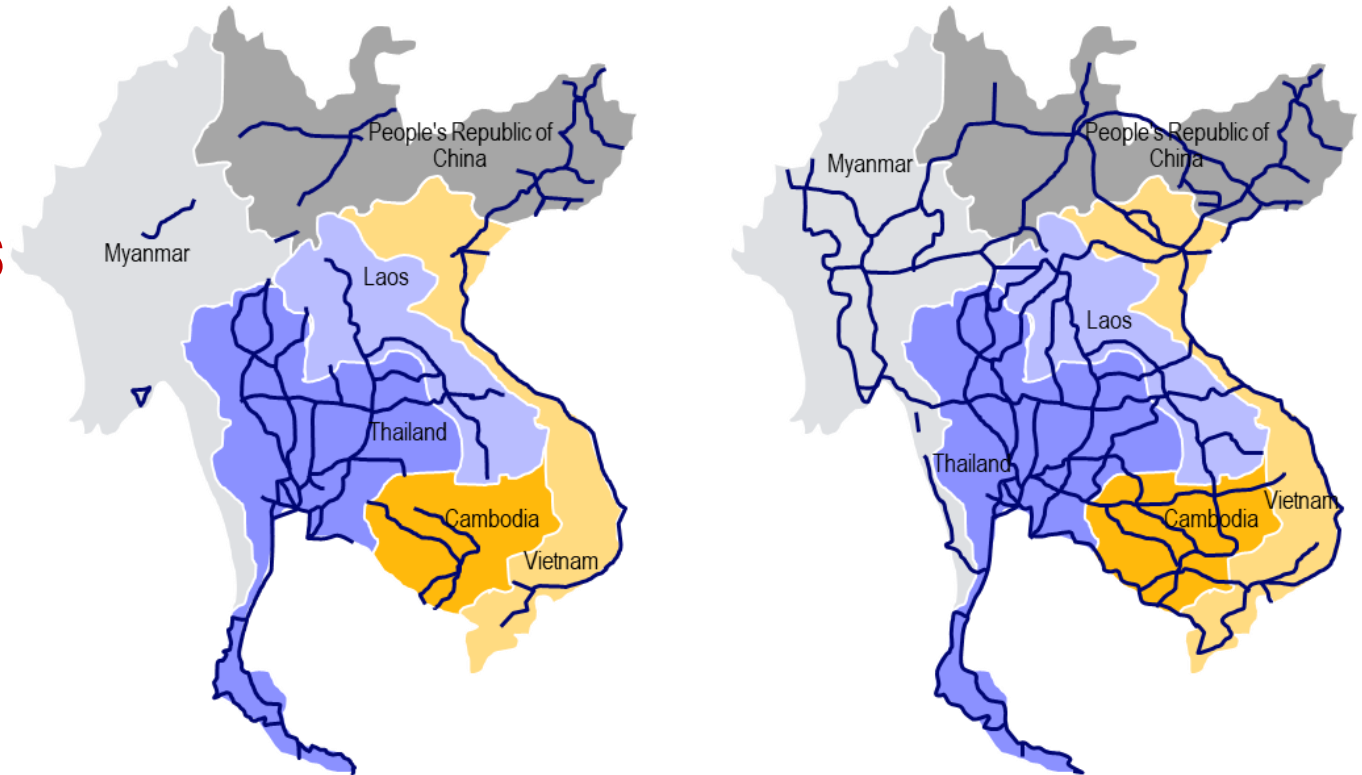
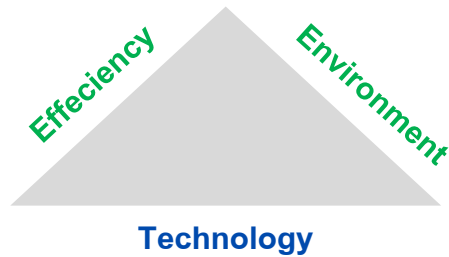
- Thailand as the regional hub for rail transport
- Regional Opportunities for rail-related Industries
- Modal Shift to Rail

Past  
(2005)



Current & Future  
(2025 & Beyond)

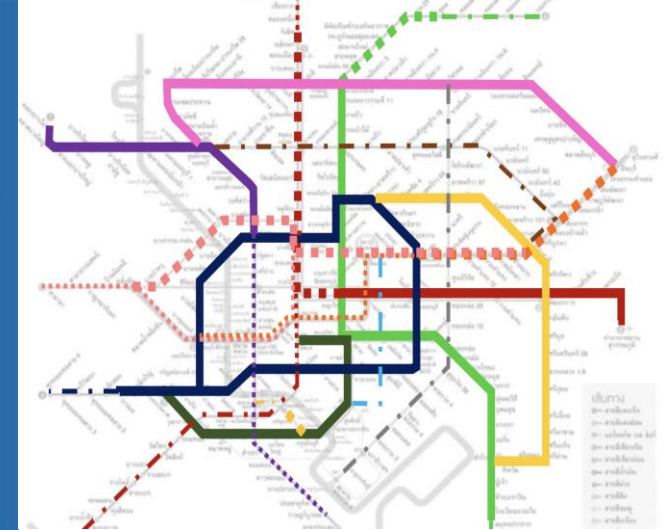
## Window of Opportunities for Thailand?



Source: Economic Reform Committee



Rail Technology Research and Development Agency (Public Organization) for Asia Pacific Rail (May 29, 2015)



**Metro**

- Bangkok Mass Transit 13 Lines 277 kms.
- Final Plan 553 kms.
- 4 Secondary Cities during planning & design.

**Long Distance**

- meter-gauge railway 4,044 kms.
- Double-track
  - Completion 993 kms.
  - Under construction 677 kms.
  - Under planning and budgeting 1,500 kms.

**High Speed Train**

- Under construction 253 kms.
- Design & Engineering 357 kms.
- Planning 1,800 kms.

# THAILAND'S Trains



average life more than **30** years



## Metro



**SRT**  
State Railway of Thailand

## Long Distance Train

### Locomotives



### Diesel Multiple Unit (DMU)



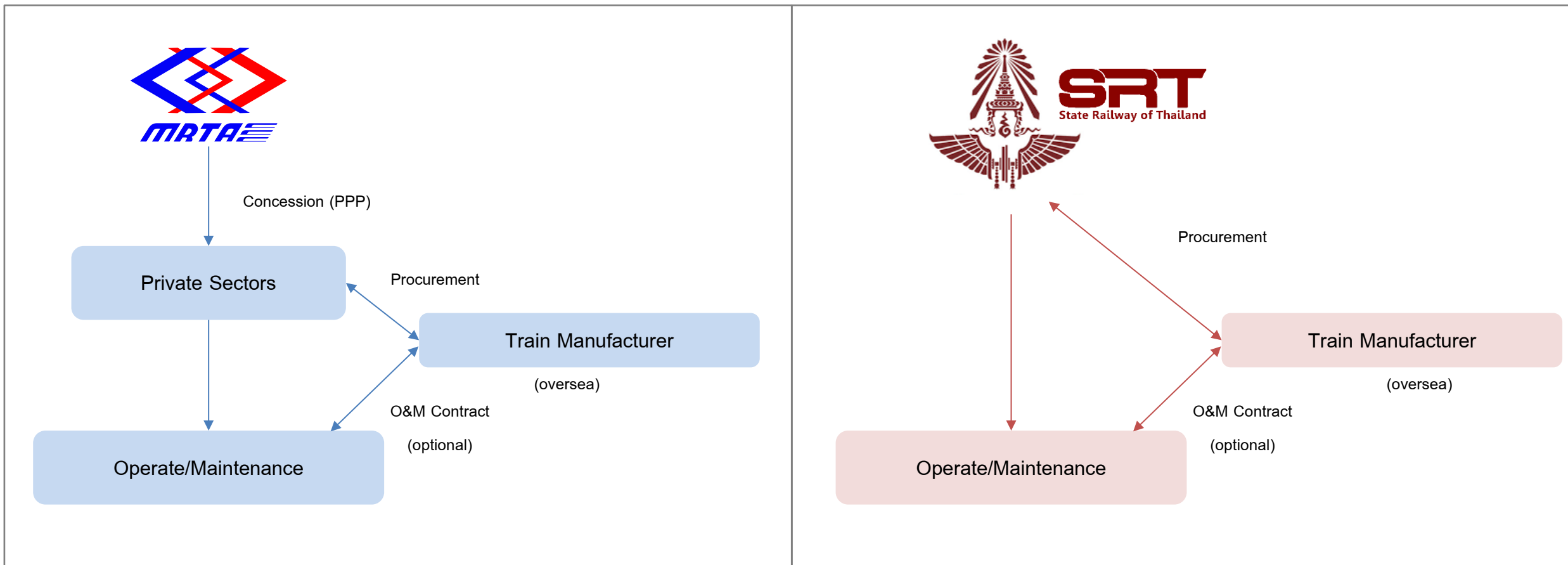
### Passenger Coaches



### Flat Wagon



# Train Procurement in THAILAND



**THAILAND No Capability in Design, Engineering and Manufacturing  
Only Operation and Maintenance  
No Rolling Stock Industry**

# Mode Shift to Rail = Thailand needs more trains

Overseas

Procurements

or...



Creating National Rolling Stock

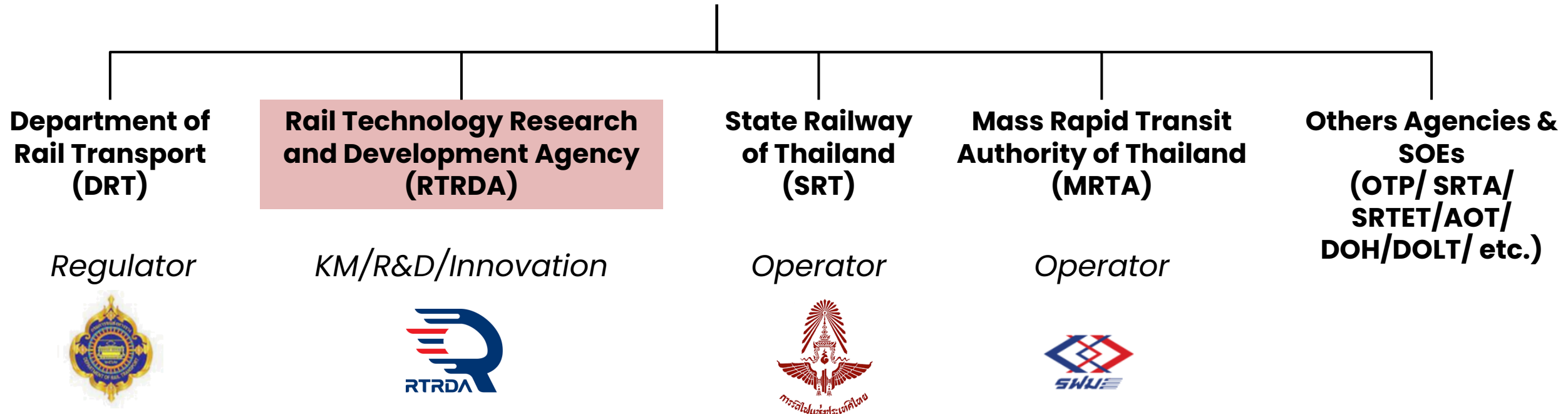
Manufacturing Industry and

Rolling Stock Supply Chains

# Ministry of Transport



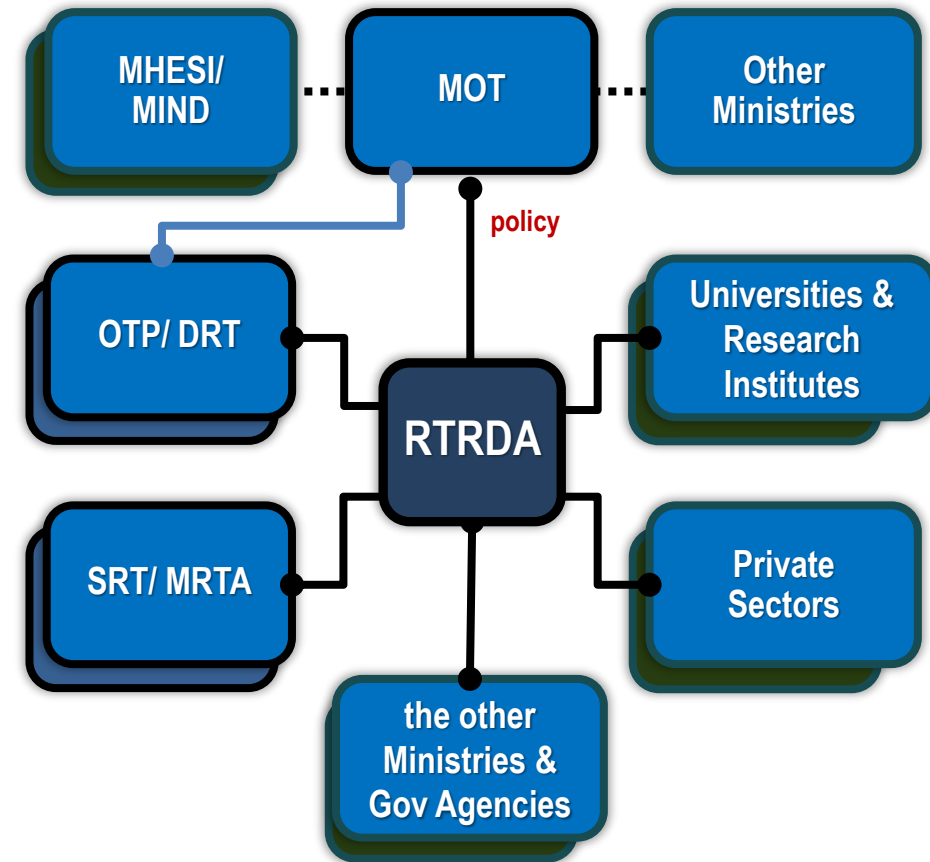
## Ministry of Transport



**Ministry of Transport's policy to advance national transport systems by investing in Research & Technological Innovation**

# Missions of RTRDA

- 1 Formulating the **'National Rail Technology Strategy'** for approval by the cabinet.
- 2 **Research and Development of Rail Technology & Innovation** to support growth of rail transport and industries
- 3 **Research and Development for rail standards and testing** and undertaking testing and certifications for rail operating licenses
- 4 Being the national center for **rail technology transfer and localization** as well as for cooperation with international partners
- 5 **Training and development of manpower & talents** for rail transport sector and industries
- 6 Building **rail technology data platform** covering research and innovations, organizations, experts, and other important rail technologies



**Remark:**

- |              |  |             |                                     |
|--------------|--|-------------|-------------------------------------|
| <b>MOT</b>   | The Ministry of Transport                                      | <b>MIND</b> | The Ministry of Industry            |
| <b>DRT</b>   | Department of Rail Transport                                   | <b>SRT</b>  | State Railway of Thailand           |
| <b>MRTA</b>  | Mass Rapid Transit Authority of Thailand                       | <b>OTP</b>  | The Office of Transport and Traffic |
|              | Policy and planning  |             |                                     |
| <b>MHESI</b> | Ministry of Higher Education, Science, Research and Innovation |             |                                     |
| <b>NESDC</b> | Office of the National Economic and Social Development Council |             |                                     |

# Strategic Goals of RTRDA



1

## RAIL INDUSTRY DEVELOPMENT

To manufacture train locally and develop local supply chain for rail industry both domestic and international.

- Train refurbishment from local technology
- Modern train design, engineering and manufacturing by global TT



2

## RAIL'S FRONTIER INNOVATIONS

To modernize Thailand and regional rail sector by technology transfer from premier technology company and creating & commercializing 'Frontier Innovation'

- High-impact R&D with private sectors
- Rail technology transformation and industrialization



3

## RAIL MANPOWER & TALENTS

To develop manpower and talents for design, engineering and manufacturing of modern trains and railway system.

- Rail academy
- Rail talent platform

# MOU Partners

## Public Sector



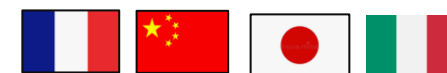
## Professional Society



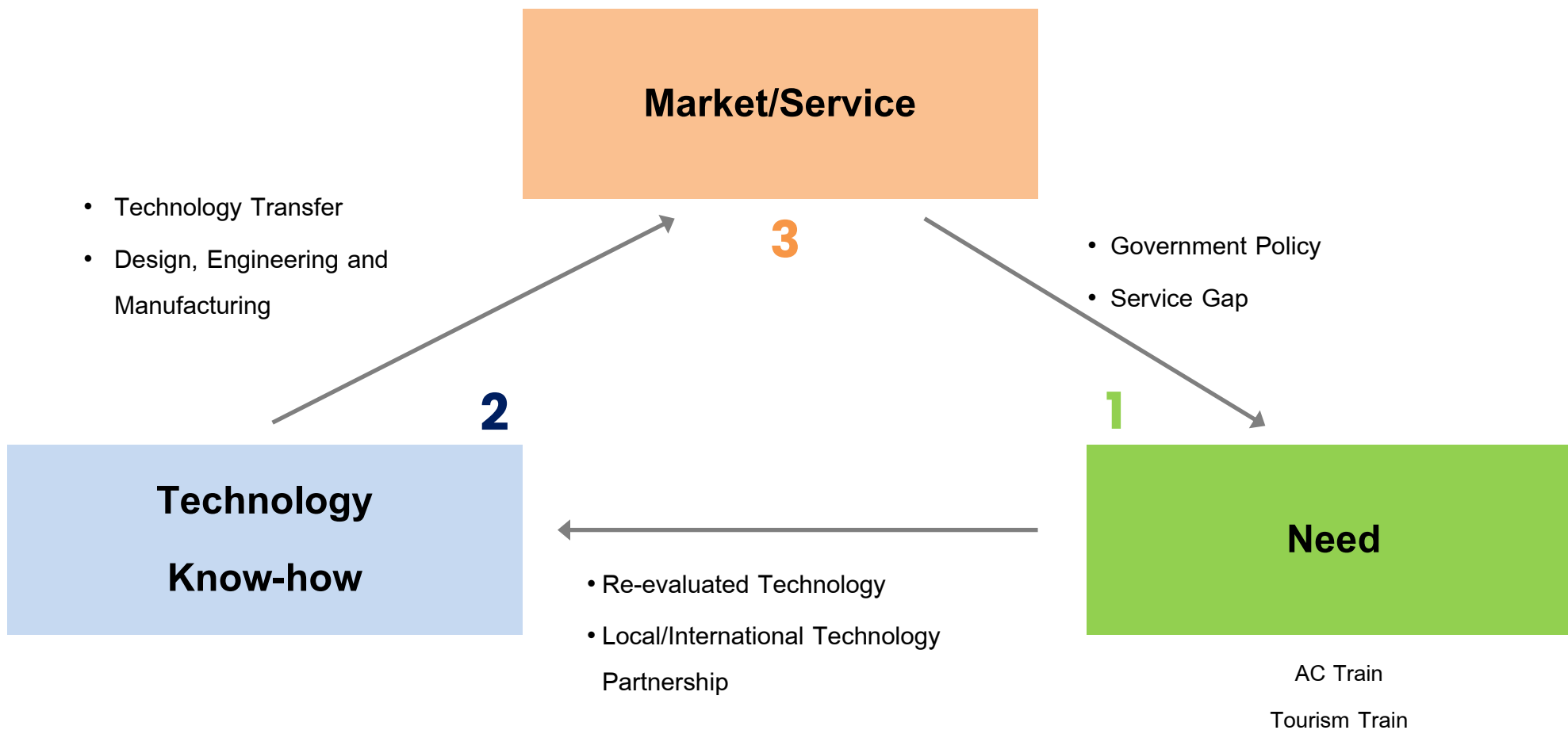
## Local Private Sector



## International Company



# Technology Model





Visit RFI



Visit TÜRASAŞ



MOU with BLUE

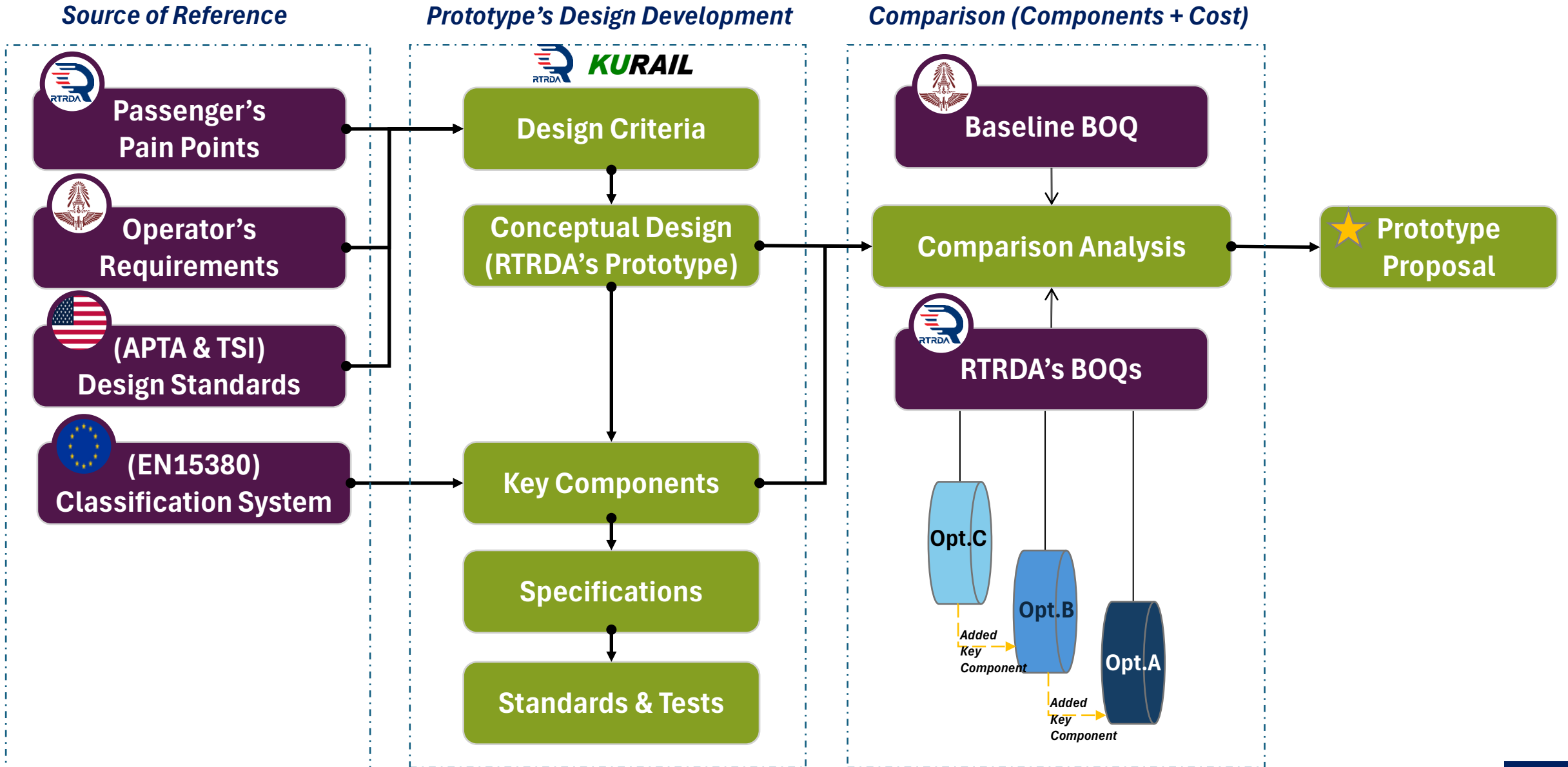


# Local Innovation for Rail Transport

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**AC Train Refurbishment**

**Leisure Train**



[Note] APTA: American Public Transportation Association, TSI: Technical Specifications for Interoperability (EU)

1

*(Followed EN15380)*

## Classification System of Rolling Stock

1	Vehicle Body
2	Vehicle Fitting out
3	Interior Appointments
4	Auxiliary Operating Equipment
5	Lighting
6	Air conditioning
7	Doors, Entrances
8	Information facilities
9	Brake
10	Vehicle linkage devices
11	Carrier Systems, Enclosures
12	Electrical wiring

2

*(Followed SRT)*

## Refurbishment Work Packages

1	Structural Repair Work
2	Exterior Painting Work
3	Interior Painting Work
4	Interior Renovation Work
5	Toilet Refurbishment Work
6	Electrical Work
7	Installation of AC Work
8	Modification of Air-Ducts

RTRDA's Prototype



SRT's Design



Original Train



Original Train  
3<sup>rd</sup> Class Train



# AC Train Refurbishment

Rust Resistant Paint  
(TIS 2387-2012)

AU-13 x 5 Units  
(JR-WEST No. 101-109 & 201-208)

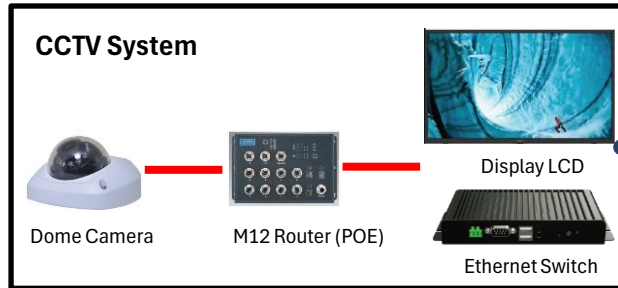
Roll-Curtain



Overhead Storage  
Compartment

GRP Fire-retardant Board  
(EN13501-1)

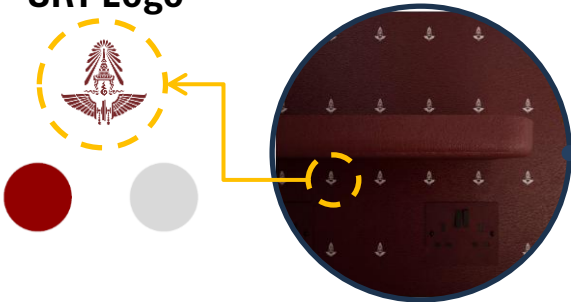
Anti-Bacteria Wall  
(ISO 22196/ JIS Z 2801)



Laminated Tempered Glass  
(TIS 196-1993)

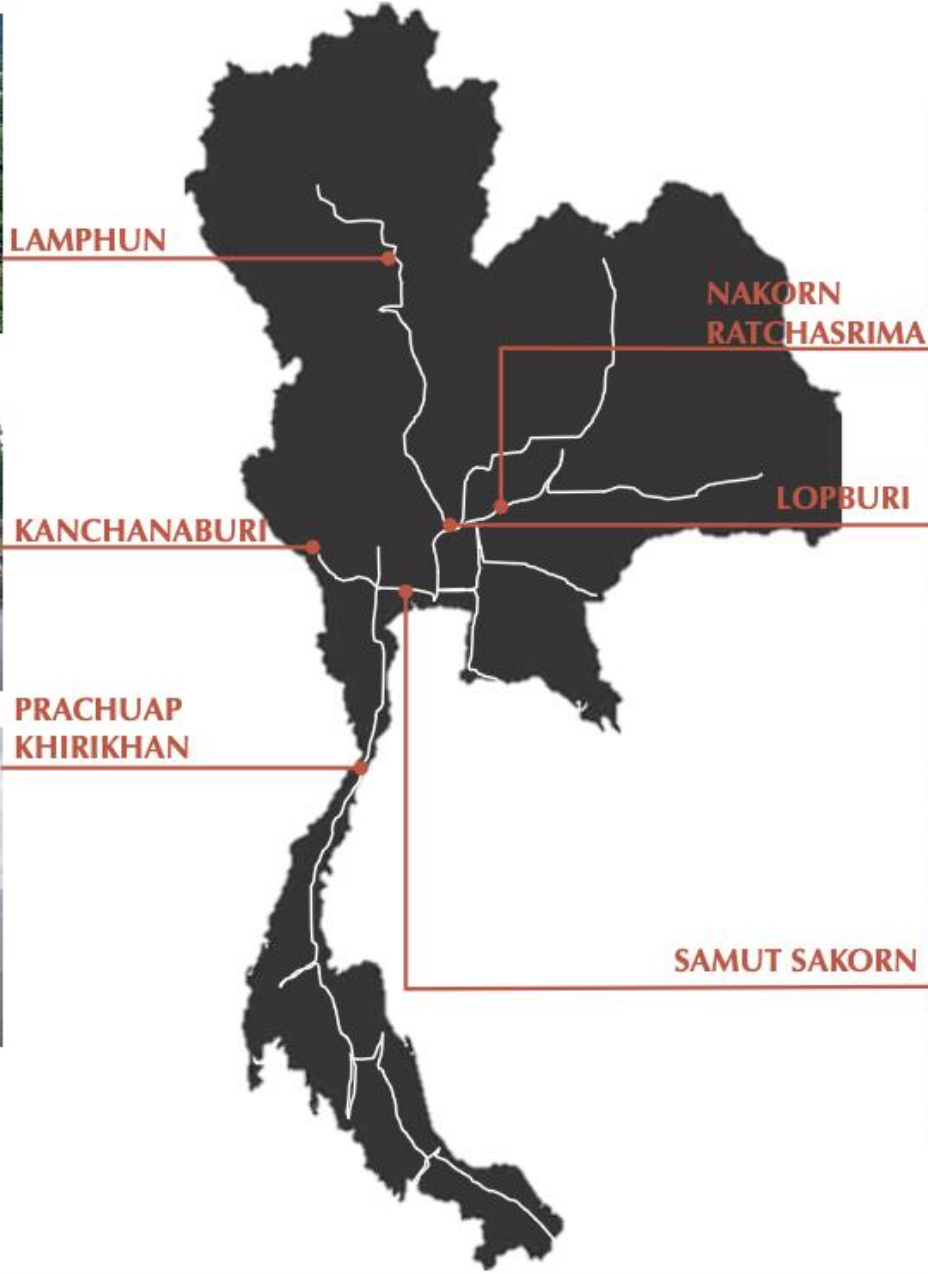
Ergonomic Seating Design  
(JIS E 7104 or equivalent)

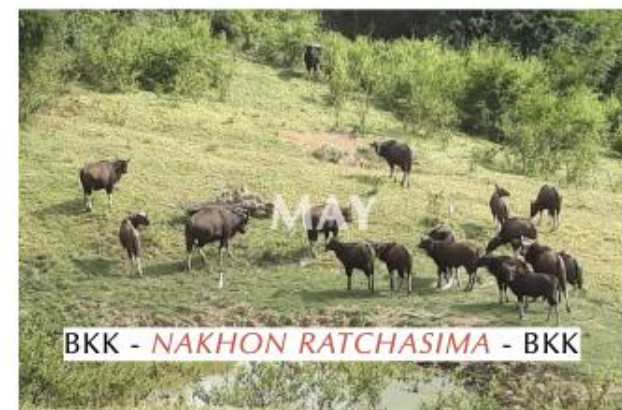
SRT Logo



Fire-retardant Material

Non-Slippery Floor (EN13845)









## Leisure Train

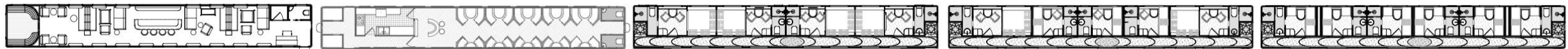
LOUNGE CAR

DINNING CAR

SLEEPER CAR 03 (SUITES)

SLEEPER CAR 02 (MIXED)

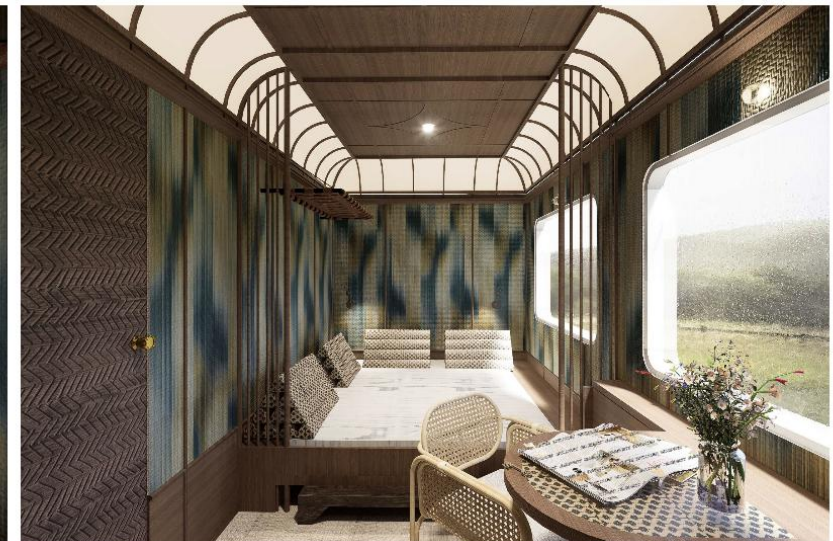
SLEEPER CAR 01 (BUNKBED)



SUITE ROOM-DAY



DINING/WORKING AREA-DAY



RELAXING AREA-DAY

# Train Development Model

