

# Transportation Solutions from Italy and Japan



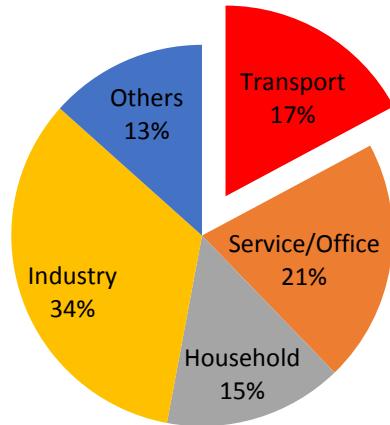
**25<sup>th</sup> November, 2016**

**Yasuo Tanabe**

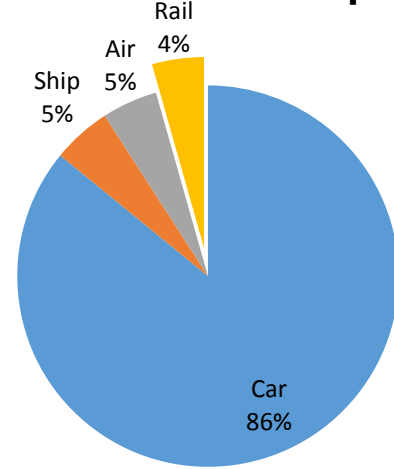
**Senior Vice President and Executive Officer**

# 1. Railway -Environmentally Friendly Transportation

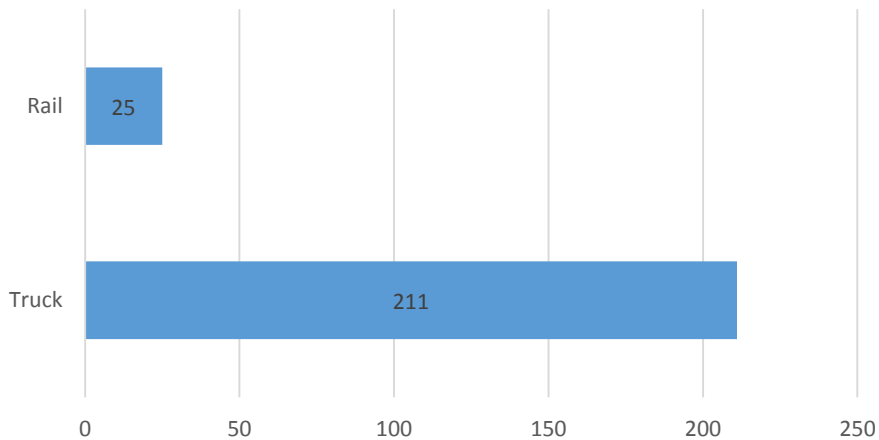
### Share of CO2 Emission



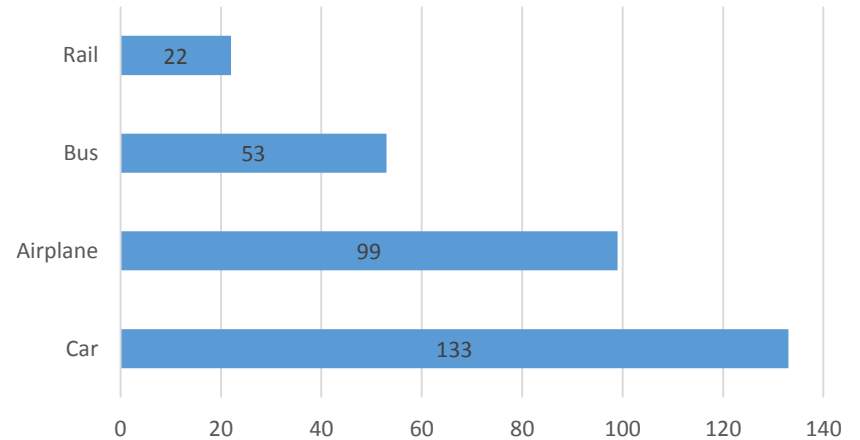
### CO2 Emission in Transport Sector



### CO2 emission for freight (g-CO2/ ton-km)



### CO2 emission (g-CO2/ passenger)

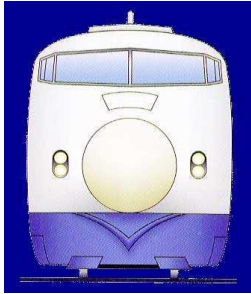


Data from Ministry of Land, Infrastructure, Transport and Tourism

## 2. Hitachi's Records of Less Emission Railway

### 1. Continuous improvements of Shinkansen

1964 Series 0



30% weight reduction



Series N700



Almost half energy consumption

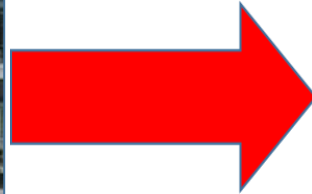
### 2. Suggesting optimum operation using IoT



- High density operation
- Advising driver the most efficient driving.
- Efficient time tabling.
- etc.....

# 3. Hitachi's Records of Less Emission Railway

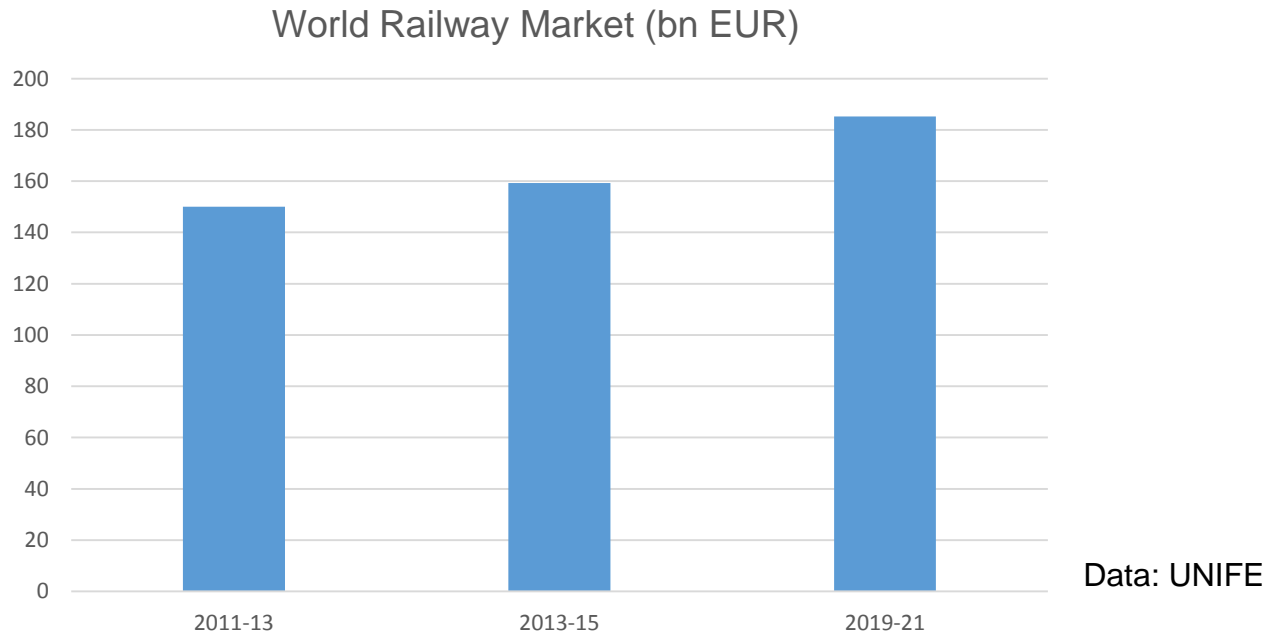
## 3. Replacement of heavy and old trains



## 4. Development of energy storage system which reduces energy consumption up to 20%



# 4. To Win Competitions



The railway market is steadily growing, however, we need to be prepared for tough competition with European, Japanese and massively growing Chinese competitors.

We also need significant R&D to compete with other transportation modes especially automobile.

# 5. Transformation of Ansaldo, Breda and Hitachi



1910 Namihei Odaira founded Hitachi



1920 First Steam Locomotive



1964 Tokaido Shinkansen



2009 Olympic Javelin



2017 Class 800



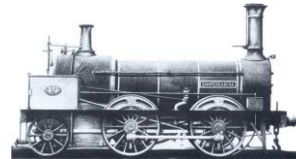
2015 Ansaldo STS and AnsaldoBreda joined Hitachi



1853 Giovanni Ansaldo founded Ansaldo



1886 Eugenio Breda founded Breda



1854 First Steam Locomotive  
Sampierdarena



1993 ETR500



2002 Copenhagen Metro

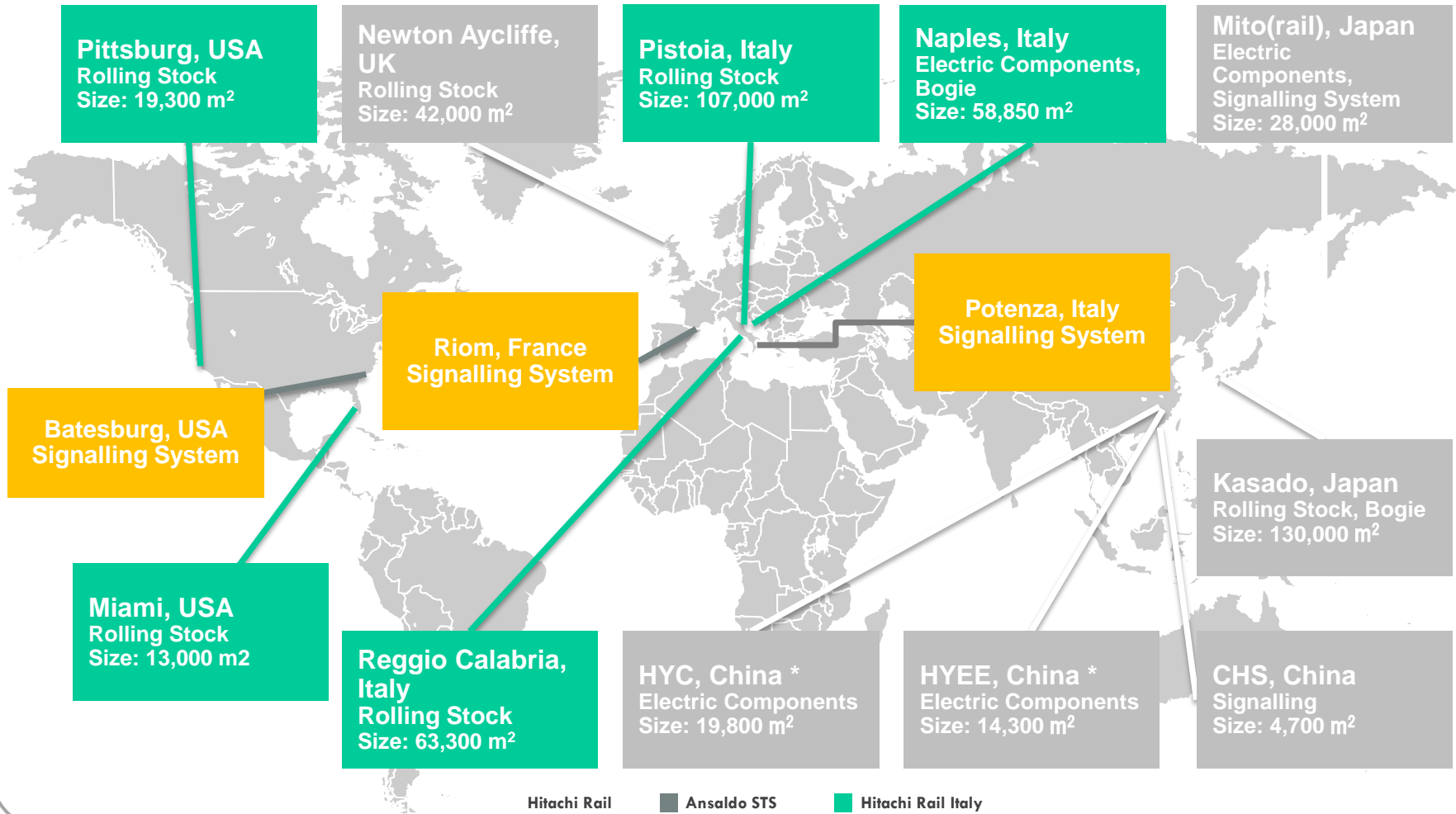


2015 ETR 1000

# 6. Expanded Global Production Site

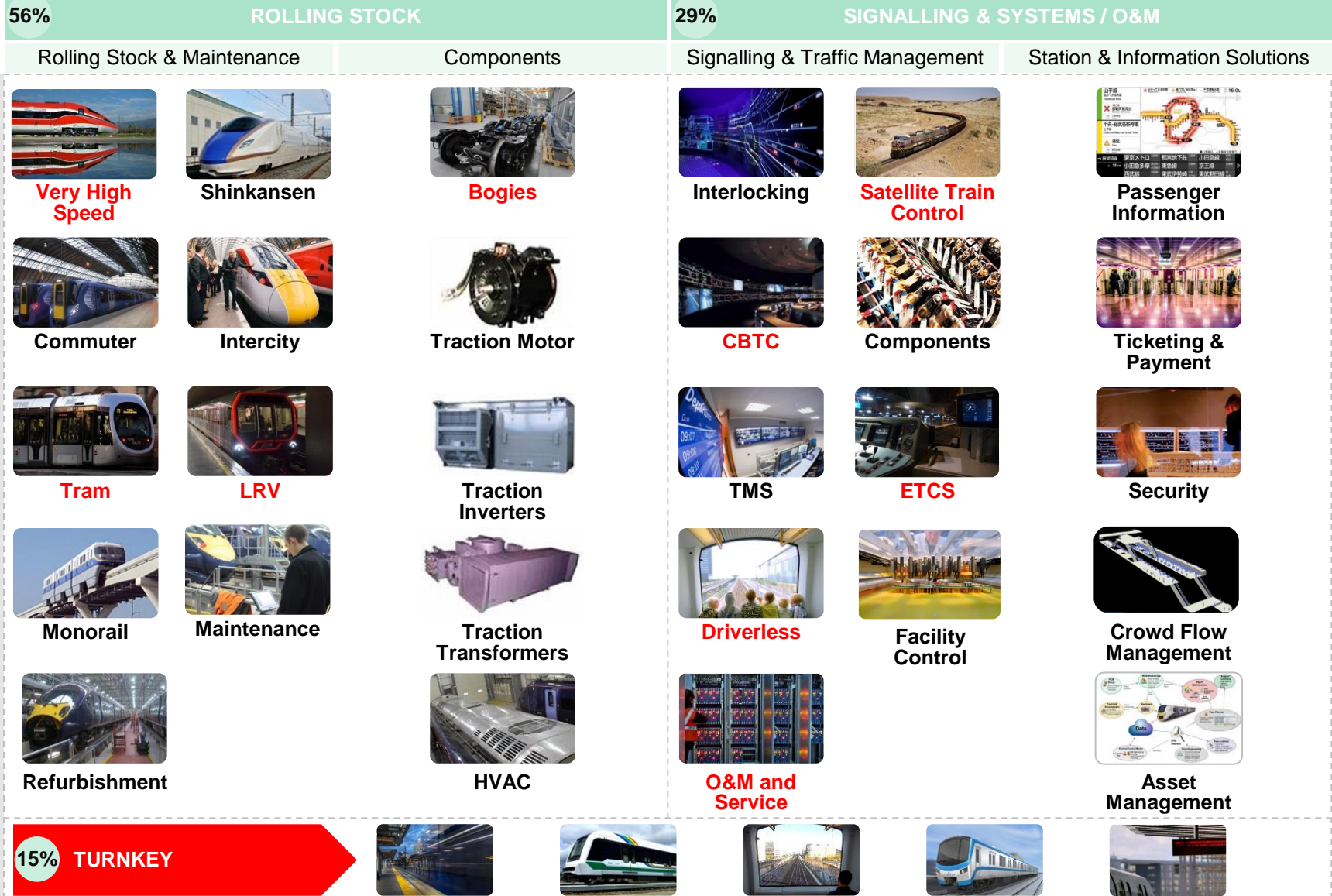
Worldwide presence with a total headcount of 9,554 <sup>(1)</sup> forecast for 2016 supporting ¥500 billion of revenues

We have an extensive manufacturing footprint to manage projects globally



\* JV with CRRC, HYEE:Hitachi Yonge Electric Equipment (Xi'an) Co., Ltd., HYC:Hitachi Yonge Electric Equipment (Changchun) Co., Ltd.)

# 7. Expanded Product Range



HVAC: Heating, Ventilation and Air Conditioning, TMS: Train Management System, ETCS: European Train Control System, CBTC: Communications-based Train Control, LRV: Light Rail Vehicle

As a % of FY16 revenue forecasts | Red text indicates products added or strengthened through the Ansaldo acquisitions

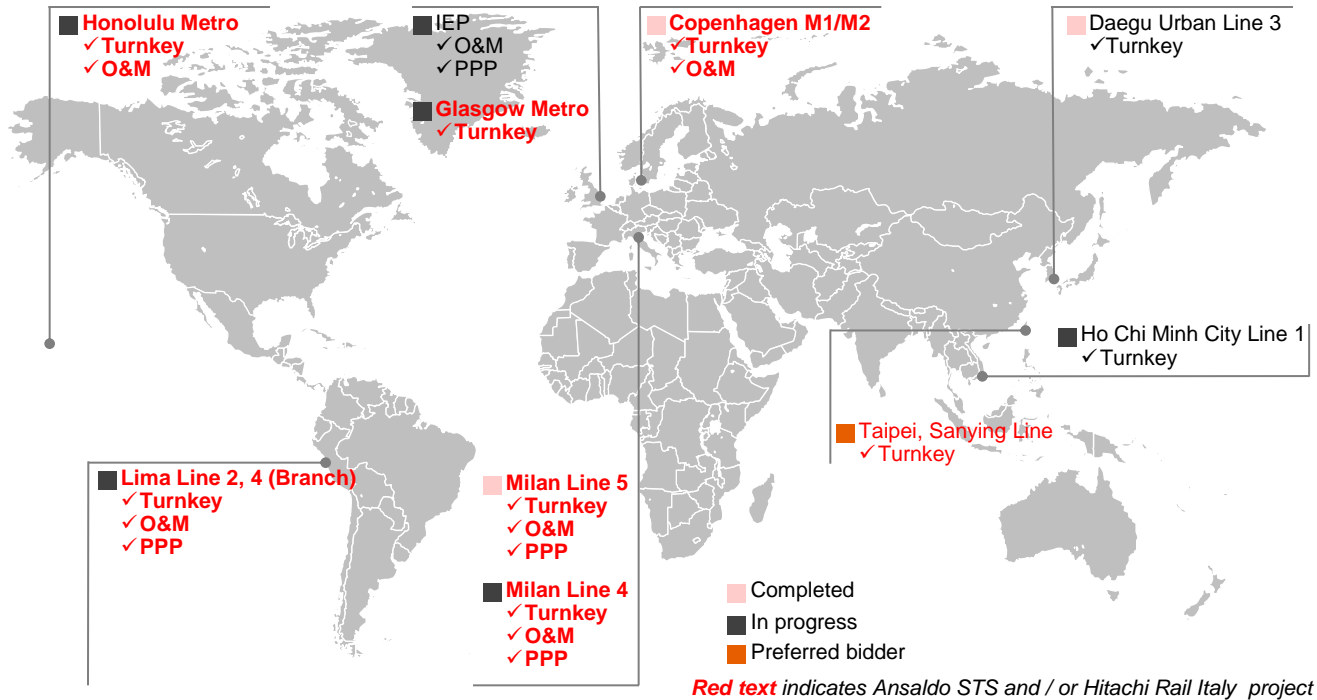
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# 8. Transforming Business Portfolio

## Service/ Engineering

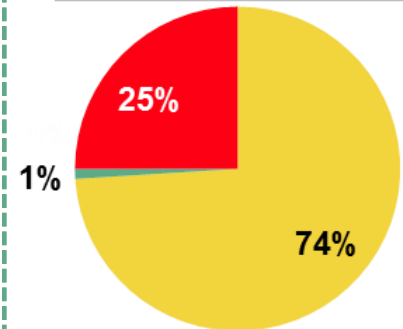
We will optimise the business portfolio to avoid overdependence on specific products and services as well as strengthen our integrated product-service solutions. This includes the Turnkey market (typically includes O&M, Rolling Stock & Signalling) where we can leverage our balance sheet and rebalance the product mix.

### Rail as a Service – Turnkey, O&M or PPP Projects

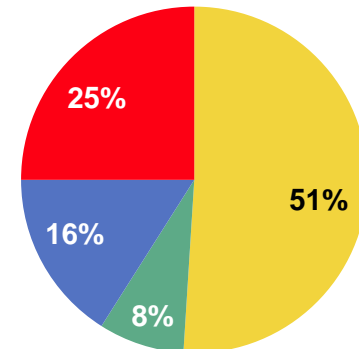


### Rebalancing the Portfolio

FY2014 Revenue Result %



FY2018 Revenue Target %



How does Rail as a Service contribute to our financial objectives?

#### Increase Global Market Share

Improvement of our chances of winning by leveraging Hitachi's balance sheet and relationship banks to provide low cost of finance solutions

#### Transform the Revenue Mix

Typically PPP projects are turnkey that include the build of rolling stock and systems plus the long term operation and maintenance of the network

## Core of Social Innovation

Means for customers to enjoy digitalized innovation quickly and easily

### Characteristics of Lumada

Lumada = illuminate data

#### 1 Single Platform, Multiple Solutions

Realize solutions in various business fields  
“Cross Domain Business EcoSystem”

#### 2 Open

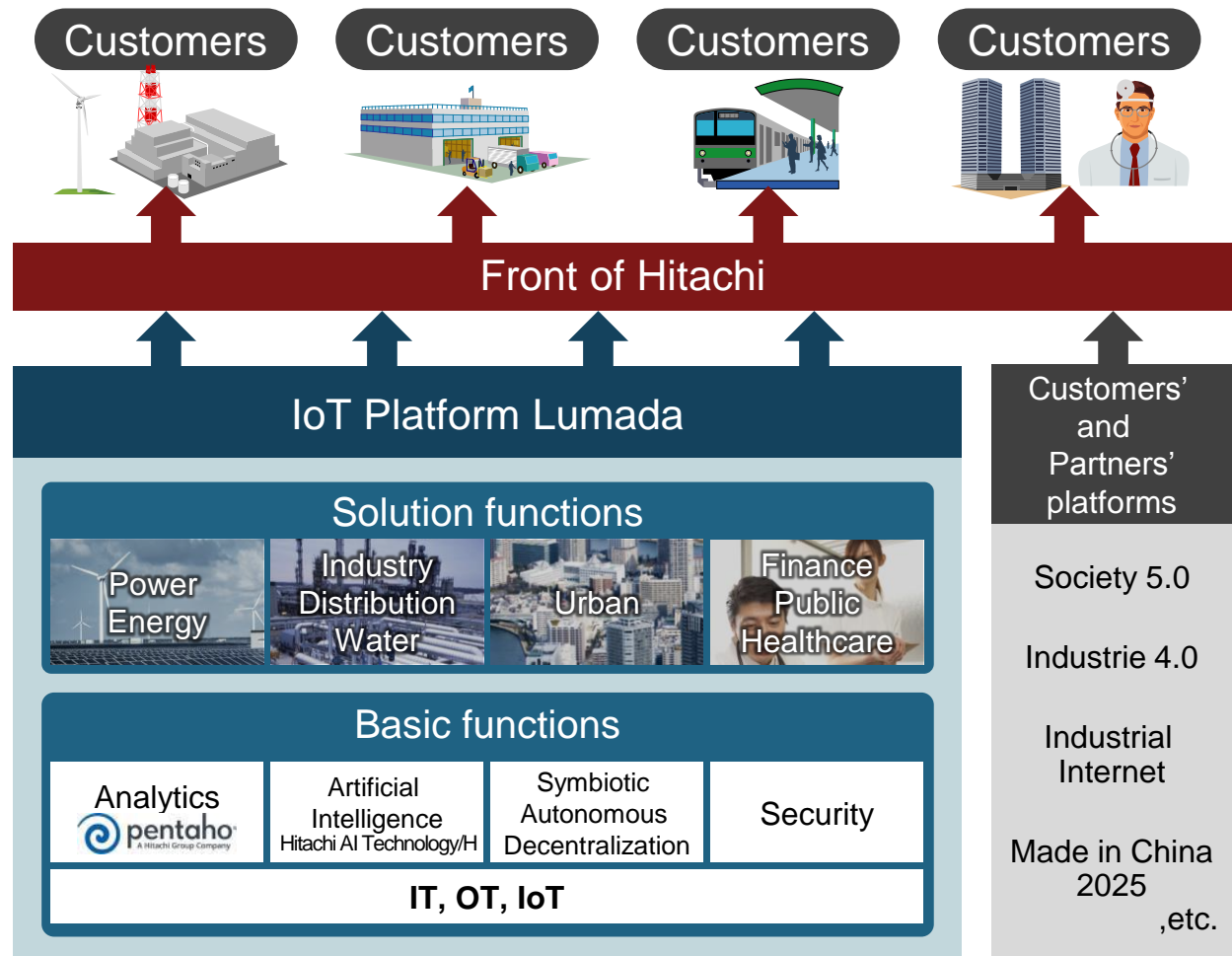
Open architecture available for partners

#### 3 Adaptable

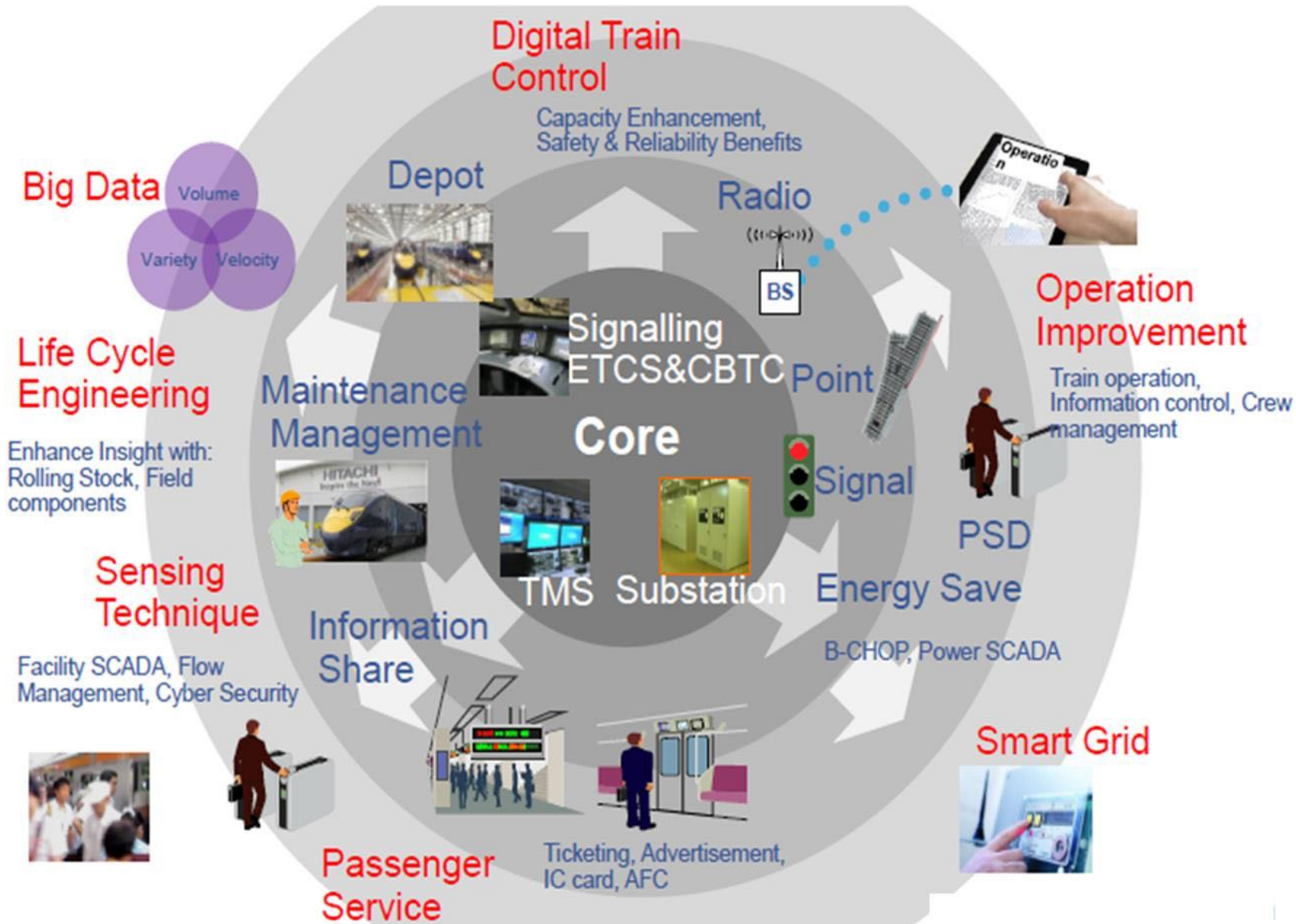
Easily connected to customers' assets  
Graduated dilatation is possible  
(Symbiotic Autonomous Decentralization)

#### 4 Verified and Secure

Reliable technologies based on experiences in Social Innovation



# 10. Huge Potential with IoT



# 11. Synergies after Acquisition

## 1. New orders

- Taipei Sanying Line  
Full turn-key automated metro



- UK West of England  
Intercity trains manufactured in Pistoia



- UK Glasgow Metro  
Ansaldo STS manages project. It can use Hitachi's connections in UK industry.

- Double deck EMUs for Trenitalia  
Framework agreement for 300 trains (EUR 2.6bn) of which 39 trains (EUR340m) have been confirmed.



# 11. Synergies after Acquisition (cont.)

## 2. Attracting attentions from governments



1. Railway is environmentally friendly transportation.  
Hitachi has long records leading innovation.
2. Hitachi acquired railway business units of Finmeccanica in 2015.  
Combining their skills and market base, Hitachi will grow further.

**HITACHI**  
Inspire the Next 