

# Introduction of Railway Systems Business Unit (RSBU)

January, 2021

Hitachi, Ltd.
Railway Systems Business Unit
HR & General Affairs

### 1. Society is changing and so is the way we think about Mobility



#### Global trends and challenges....



**Population Growth** 

Global population is forecast to grow to approximately **9.7 billion by 2050** from 7.6 billion in 2018\*1



Urbanization

The proportion of people living in urban areas will reach **68% by 2050**, up from 55% today\*2



**Climate Change** 

The negative impact from climate change causes environmental, economic and social damage

#### ...driving different Mobility solutions

Faster, cleaner intercity transport





Reduced reliance on cars within city centres

Smart solutions needed to manage people flow as population density increases within cities



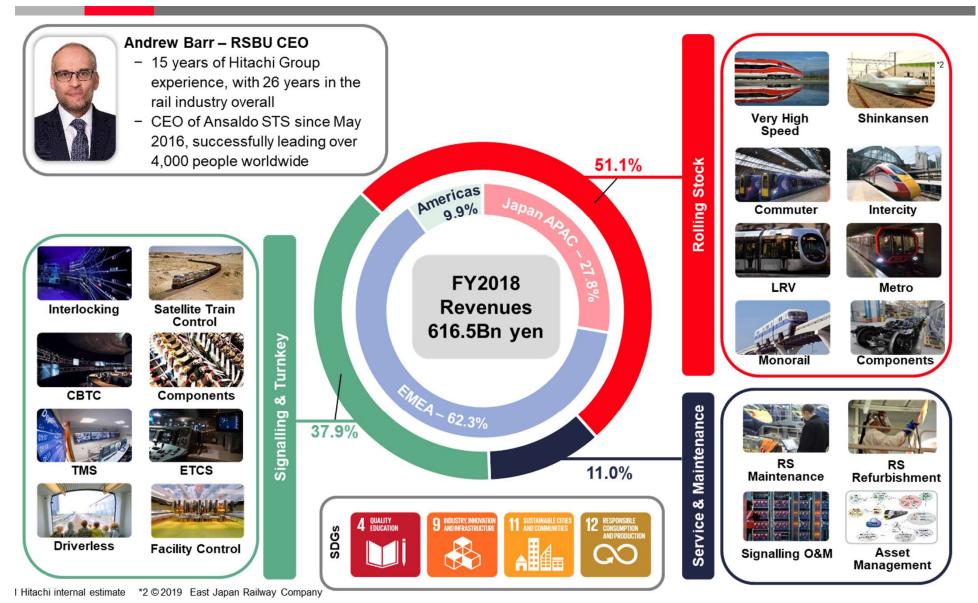


Progressing towards Mobility as a Service

<sup>\*1</sup> World Bank data \*2 United Nations: World Urbanization Prospects 2018

# 2. RSBU is a global, full line-up rail solutions provider. Our products helped over 18 billion people travel last year\*1

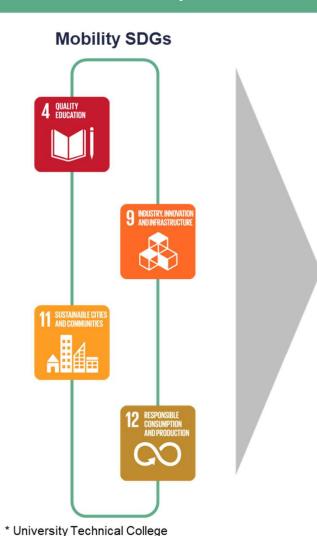




# 3. Our products, solutions and operations support the United Nations Sustainable Development Goals



Mobility sector is committed on Social Innovation Business with a positive impact on society



Hitachi Rail was a founding member of UTC\* South Durham, a **technical school for up to 600 pupils** aged 14 – 19 years old



UTC South Durham

New rolling stock platform built from 95% recyclable material



New double-deck EMU "Caravaggio"

Our products have a positive economic, environmental and social impact on millions of people across the world every day

"Lovely leg room on the new LNER Azuma trains. And complimentary WiFi. Recommended!"

### 4. RSBU's major project delivery last year demonstrates the breadth of products and geographies the business covers





**UK RS** 

Full fleet delivery for IEP GWR fleet and start of Azuma delivery for LNER



**UK RS** 

61 new Class 385 EMUs for Scotland accepted as at end of May 2019



**Denmark RS** 

Completed Metro Copenhagen vehicle delivery. Revenue service due 2019



Delivery of New Luxury Limited express train for SEIBU Railway Co., LTD.

#### Japan RS

New monorail car delivered to OSAKA MONORAIL CO., LTD. in July 2018

#### Japan RS

LOI signed with Central Japan Railway Company for N700S



**USA Signalling** 

**Delivered Positive** Train Control project for MBTA Boston commuter rail network



### Morocco SIG

Tangier - Kenitra High Speed Line (HSL) entered operations

\*1 @ 2019 SEIBU Railway Co., LTD. \*3 © 2019 Central Japan Railway Company



Italy SIG

Completed work on Florence Tram line T1 and T2

\*2 © 2019 OSAKA MONORAIL CO., LTD. \*4 © 2019 East Japan Railway Company



Italy RS

The first Rock double-deck EMU trains were unveiled at Pistoia



India SIG

29.7 km Agua Line metro opened January 2019



Delivery of 3 x 10-car Shinkansen E5 sets and car body and traction for E7 to East Japan Railway Company



Australia SIG

AutoHaul solution achieved 1 million Km autonomous operation

# 5. Utilising Hitachi technology for digital solutions to improve processes and create new revenue streams



#### **Strengthen Core Product**



**Dynamic Headway** 

- Flexible operation
- Maximize ridership and reduce congestion
- Value proposition with TMS



- Labour-saving
- Flexible operation combined with Dynamic Headway

**Driverless** 

#### **Create New Revenue Streams**



**Ticketing** 

- Back end system and Operation service business
- Acquire passenger behaviour for new value creation



Security

- Image recognition technology for automatic detection and search
- Prevention of anti-social behaviour

#### **Operational Efficiency**



PLM

- Unify development of Rolling Stock data globally to maximize reuse
- Aggregate data through interface with legacy systems



- Digital twin
- Control tower to supervise supply chain
- Real-time information sharing with suppliers

#### O LUMADA

#### FY2019 Pilots to Improve Operational Efficiency

#### **Product**



- Sensor-enabled
- Autonomous driving
- Train of the future Value proposition linked to TMS

#### **Production Asset Connectivity**

Utilising Hitachi technology to facilitate machine learning

#### Manufacturing



- Advanced robotics Smart, connected machines
- Digital factory & operations

#### Supply Chain Control Tower

Improve supply chain control to maximise throughput



- Seamless supply chain
- Optimized
  Support warehouse management

# Predictive Quality & Factory Maintenance

Optimise factory maintenance and component right-sizing

#### **Operations**



- Health check monitoring
- Prognostics

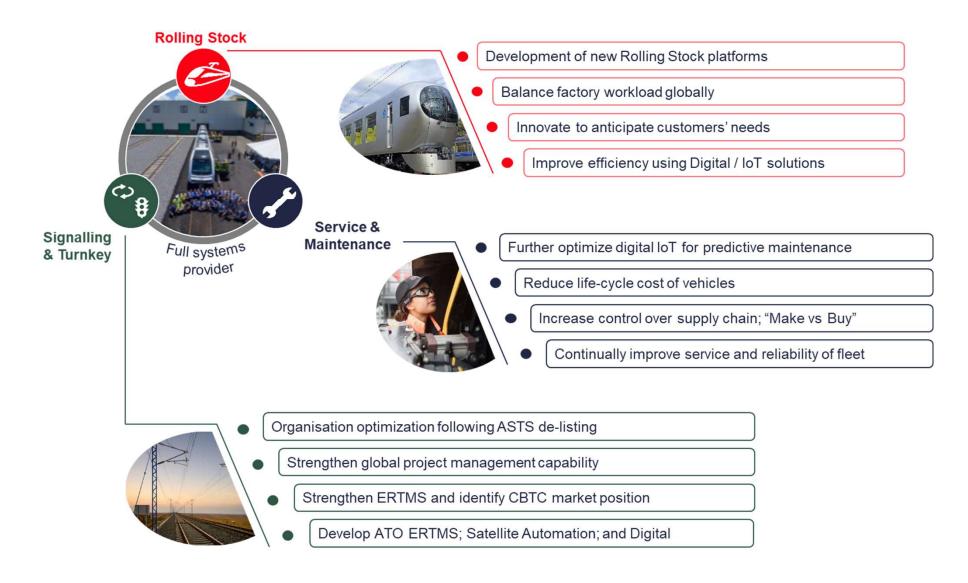
# Operations activities

#### Propulsion Health Check Suite

Predictive maintenance system for motor and traction converter

# 6. Investment in core products and technology will enhance RSBU's offering for customers, and increase competitiveness





# 7. Targeting continued growth through strong customer relationships in core markets, and expansion in new geographies



#### **Americas**

#### **Key Facts**

- FTEs 933
- 3 manufacturing sites
- 10% of revenue



Baltimore, USA
Strategic Priorities

Lima, Peru

Increase engineering capacity to facilitate growth

Enhance S&M presence and establish local bases

Target wins in Turnkey PPP and CBTC markets

Actively seek the right M&A opportunities

#### **EMEA**

#### **Key Facts**

- FTEs 8,322
- 6 manufacturing sites
- 62% of revenue



London, UK
Strategic Priorities



Riyadh, Saudi Arabia

Entry into UK Signalling and IoT market

Expand Services revenue in UK & Italy

Target 'jumbo' turnkey projects in Middle East

Balance factory loading

#### Japan & APAC

#### **Key Facts**

- FTEs 4,377
- 2 manufacturing sites
- 28% of revenue



Tokyo, Japan



Taipei, Taiwan

# Strategic Priorities

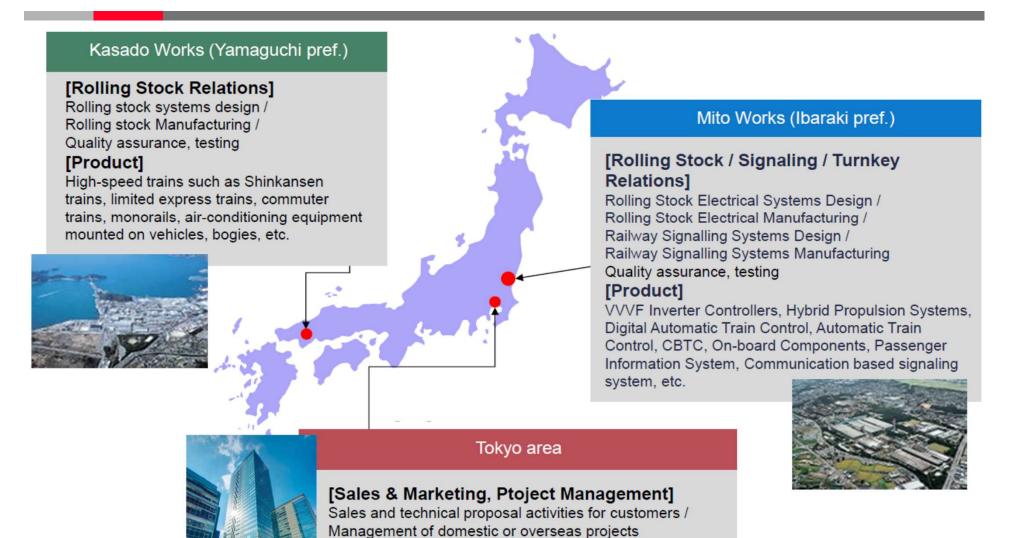
Maintain and strengthen order intake in Japan (e.g. TMS/CBTC, Shinkansen)

Group-wide collaboration on Signalling, TMS, IoT and Digital

Continue to be develop and deliver cutting-edge technologies (e.g. automation, traction, battery)

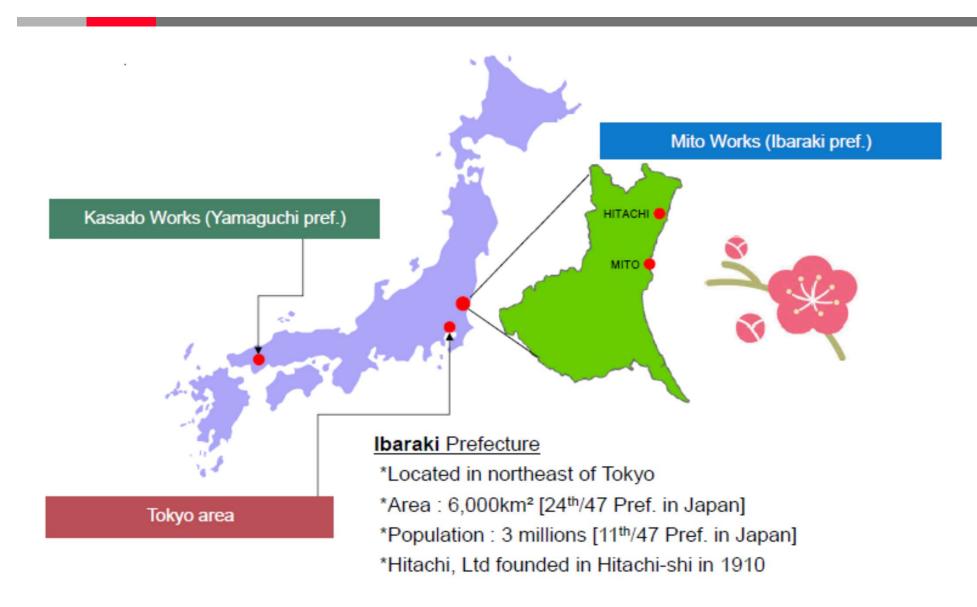
### 8. Office in Japan





### 8. Office in Japan





# 9. Office in Japan



Mar. 31 2018

ESTABLISHED	1940				
SHOP AREA	TOTAL GROUND AREA     WORK-SHOP AREA		600 m² 700 m²		
COMPANY	<ul> <li>Hitachi, Ltd. Building Systems Business Unit</li> <li>Hitachi Building Systems Co., Ltd.</li> </ul>		Hitachi,	Ltd. Railway Systems Business U	Jnit
NUMBER OF EMPLOYEES	1,085			810	
MAIN PRODUCTS	<ul><li>Elevators</li><li>Escalators</li><li>Moving Walk</li></ul>		<ul><li>Traffic M</li></ul>		Power Supply
PRODUCTIVE CAPACITY (MONTHLY)	Elevator     Escalator	600 80	<ul><li>Train Co</li><li>Traffic M</li><li>Passeng</li><li>Ground</li><li>DC-Swite</li></ul>	System, On-board Signalling System Introl and Monitoring System Ianagement System ger Information System Side Signalling System chgear for Railway Power Supply Equip. for Railway Power Supply	130 set 10 set 1 syst. 7 sta. 5 sta. 5 set. 15 pcs.
PRODUCTION RECORDS ( );Exported	Elevator     Escalator	300,708 (29,462) 44,947 (10,346)	<ul> <li>Traction S</li> <li>Train Cor</li> <li>Traffic M</li> <li>Passeng</li> <li>Ground</li> <li>DC-Swite</li> </ul>	Locomotive  System, On-board Signalling System, ntrol and Monitoring System  lanagement System ger Information System Side Signalling System chgear Equip. for Railway Power Supply	2,474 set (687 set) 51,092 set (9,228 set) 95 syst. 735 sta. 439 sta. 4,273 set. 1,670 pcs.

### 10. Products



#### **Rolling Stock** Signaling / Turnkey Rolling Stock Electrical Systems Signaling & Traffic Management Station & Rolling stock Information Solution Mito Works Kasado Works High Speed Train Shinkansen Electronic Train Control Operation Information for Passenger & Staff Interlocking Systems using Satellite Commuter Trains Traction Systems CBTC Components Interurban Ticketing Inverter Control Power Supply Metro Trains Tram Traffic Management Security Other Business Unit In Hitachi, Ltd. Monorail Automated Driving Air Conditioning Maintenance

# Hitachi Social Innovation is

# POWERING GOOD

世界を輝かせよう。