Railway Systems Business Strategy
Hitachi IR Day 2011

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President & CEO, Rail Systems Company
Hitachi, Ltd.
Railway Systems Business Strategy

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1. Overview
2. Market Environment
3. Policy and Strategy
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1-1 Revenues by Systems and Products & Services

Transport management & control systems

- Signaling/traffic management systems
- Signaling/train control systems
- Traffic management systems/power management systems

Rolling stock systems

- Rolling stock/Overseas maintenance
- High-speed trains
- Limited express trains
- Commuter trains
- Monorails
- Overseas maintenance

- FY2010 consolidated revenues ¥133.1 billion
- 32%
- 68%

Electrical components

- Main circuit/main motor
- Air-conditioning/air-moving systems

Power supply systems
- Platform gates
1-2 Organization

**Rail Systems Company**

**Rail Systems Division**
- Kasado Rail Systems Product Div. (Rolling stock)
- Mito Rail Systems Product Div. (Electrical components, signaling/train control systems, traffic management systems/power management systems)

**Sales & Marketing Division**
- Rail Systems Sales Div. (Domestic market)
- Global Sales & Marketing Div. (Overseas market)

**Global Rail Business Development Division**

**Hitachi Works**
- Main motors, IGBT modules
- Kokubu Engineering & Product Div. (Power supply systems)
- Omika Works (Traffic management systems/Power management systems, Business support systems)
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2-1 Market Trends

Japan

- Increase investment in services and environment-related areas, but major growth in capital expenditures cannot be expected
- Drop off construction of new Shinkansen lines, and increase demand on replacement/upgrading aging lines, etc.

Overseas

- 11 trillion yen per 3 years average (2007-2009) □ 13 trillion yen per 2 years average (2015-2016) (CAGR 2.3%)
- High growth in service and Signaling/control segments
- Increase investments in railway networks in emerging countries

Market Size by Segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>2007-2009 (3 years average)</th>
<th>2015-2016 (2 years average)</th>
<th>CAGR</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling stock</td>
<td>¥4.20</td>
<td>¥4.83</td>
<td>2.0%</td>
<td>21%</td>
</tr>
<tr>
<td>Services (Maintenance, etc.)</td>
<td>¥3.15</td>
<td>¥4.00</td>
<td>3.3%</td>
<td>27%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>¥2.31</td>
<td>¥2.47</td>
<td>1.0%</td>
<td>15%</td>
</tr>
<tr>
<td>Signaling/control</td>
<td>¥1.25</td>
<td>¥1.55</td>
<td>3.2%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td>15%</td>
</tr>
</tbody>
</table>

By region

- **Asia & Pacific**: 27%
- **Europe**: 36%
- **North America**: 21%
- **Others**: 15%

Source: UNIFE World Rail Market Study 2010
Position as a Total Systems Integrator

### Position

<table>
<thead>
<tr>
<th></th>
<th>Rolling stock systems</th>
<th>Transport management &amp; control systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hitachi</strong></td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td><strong>Big 3</strong></td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td><strong>China (Company A)</strong></td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td><strong>Japanese manufacturers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rolling stock (Company A)</td>
<td>□</td>
<td>-</td>
</tr>
<tr>
<td>Electrical Components (Company B)</td>
<td>-</td>
<td>□</td>
</tr>
<tr>
<td>Signaling (Company C)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Figures are for FY2010

- Hitachi ¥133.1 billion (FY2010)
- Hitachi ¥320.0 billion (FY2015 target)

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2-3 Strength and Key Target

### Rolling stock systems

<table>
<thead>
<tr>
<th>Higher efficiency, lower environmental impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Aluminum train technology</td>
</tr>
<tr>
<td>(High-speed trains, Commuter trains)</td>
</tr>
<tr>
<td>- Highly economical rolling stock in the</td>
</tr>
<tr>
<td>next generation (A-train)</td>
</tr>
<tr>
<td>- Inverter technology</td>
</tr>
<tr>
<td>- Developed small, lightweight, low noise</td>
</tr>
<tr>
<td>(World-class) products</td>
</tr>
<tr>
<td>- Hybrid technology</td>
</tr>
<tr>
<td>- World's first to enter service</td>
</tr>
<tr>
<td>(Ki-Ha E200 series for East Japan Railway Company)</td>
</tr>
</tbody>
</table>

### Transport management & control systems

<table>
<thead>
<tr>
<th>High reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Signaling/train control systems technologies</td>
</tr>
<tr>
<td>- Developing signaling systems compliant</td>
</tr>
<tr>
<td>with European standards (ETCS*)</td>
</tr>
<tr>
<td>*ETCS: European Train Control System</td>
</tr>
<tr>
<td>- Traffic management system technologies</td>
</tr>
<tr>
<td>- Provide high-performance, high function</td>
</tr>
<tr>
<td>systems to support high-density transportation with advanced control technologies (Top share in Japan)</td>
</tr>
</tbody>
</table>

### Total project integration

Develop globally with own core systems technologies on traffic management, signaling, power supply and rolling stock
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### 3-1 Policy and Strategy

**Accelerate Globalization with Technologies Developed in Japan**

#### Target

- **Revenues**: ¥320 billion
- **Overseas revenue**: 60%
- **Operating income**: 8%

#### Strategies

- **Sustainable Growth in Japan**
  - Expand sales of rolling stock systems
  - Secure market share in signaling/train control systems
  - Expand hybrid traction systems business
  - Create new businesses by collaboration with customers

- **Expand overseas business**
  - Focus on the High-speed trains market
  - Expand Electrical components business
  - Expand Signaling/train control systems business
  - Accelerate to develop emerging countries

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* Excluding business support systems which belongs to Information & Telecommunication Systems segment (FY2015 sales target: ¥30 billion)
Expand Sales of Rolling Stock Systems

- Expand aluminum trains (A-train) sales to municipal and private railways
  (Hankyu Corporation Series 9000 train, Tobu Railway Co., Ltd. Series 50000 train)
- Secure market share of Shinkansen (East Japan Railway Company E5/E6 series)
- Expand sales of electrical components
  (Central Japan Railway Company E233 series)

Secure Share in Signaling/Train Control Systems

- Complete Shinkansen signaling system projects
  (Hokuriku/Hokkaido)
  (Hokuriku Shinkansen (Takasaki to Kanazawa), Hokkaido Shinkansen (Shin-Aomori to Shin-Hakodate))
- Maintain and ensure high share in Traffic management systems (81% for JR)

Expand Sales of Hybrid Traction Systems

- Develop by leveraging track record (World’s first to enter service)
  (East Japan Railway Company Ki-Ha 200 series/ HB-E300 series)

Create New Businesses in Collaboration with Customers

- Create new business by fuse information and control technologies (IC card, Digital signage, etc)
3-3 Expand Overseas Business (1)


- **U.K.**
  - Rolling stock + maintenance, Electrical components, Signaling/train control systems

- **China**
  - Electrical components, Signaling/train control systems

- **Emerging markets (Southeast Asia, Brazil, India)**
  - Total project integration business
3-3 Expand Overseas Business (2)

U.K. (1)

Rolling stock + maintenance

Expand maintenance business by Rolling stock sales
- Establish high profitable business model by maintenance business
  - Starting-up a full maintenance service for Class 395 train
- Challenge to the future project, (Rolling stocks and maintenances)
  - Intercity Express Programme (IEP)
  - Commuter trains and replacement of aging trains

Electrical components

Actively target retrofit projects

- Leverage Class 465 track record

Signaling/train control systems

Expand sales through the trial project with Network Rail
- Complying with European standard (ETCS)
- Start trial running in 2012

Ashford Depot (Class 395)
3-3 Expand Overseas Business (3)

U.K. (2)

Intercity Express Programme (IEP)

Background
Mar. 2009 Selected as preferred bidder
Mar. 2011 Resumed negotiations with UK Department for Transport
Dec. 2011 Financial close

Project overview
High Speed Trains (HST) replacement package (Rolling stock, maintenance)
- No. of vehicles: approx. 500 cars + options
- Maintenance period: 30 years

Local manufacturing site
- Candidate location: Northeast England
- Approx. 500 employees
3-3 Expand Overseas Business (4)

China (1)

### Electrical components

- **High-speed railways**
  - High-speed train (300kph) CRH380C
    - Order receipt for 25 trains

- **Intercity transportation**
  - Middle-speed train (200kph) CRH7
    - Order receipt for prototype trains
    - Target share: 40% for commercial production

- **Urban transportation**
  - Target: 200 sets/year (equivalent to no. of inverters)

### Signaling/train control systems

- **Middle and high speed railways**
  - Expand sales of Chinese-version train control systems (CTCS)
    - Dedicated high speed passenger line
      - Target share: 40% (on-board units)
      - 20% (wayside units)
  - Middle-speed onboard units
    - Target share: 70%
  - Continuous sales expansion of computerized-interlocking
    - (Target: 100 stations/year)

- **Urban transportation**
  - Promoting CBTC
    - Chongqing No.3 line
      - Start commercial operation in September, 2011

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CRH: China Railway High-speed
CTCS: China Train Control System (Compliant with European regulations)
CBTC: Communication Based Train Control (Wireless train control system)
Increase local production capacity (Establish Changchun plant)

- Hitachi Yonge Electric Equipment (Xi’an) Co., Ltd. (HYEE*)
  - Expand production capacity
    50sets/month → 80sets/month (Q2010)
  - Established the second production site in Changchun
    (April, 2011)
    - Hitachi Yonge Electric Equipment (Changchun) Co., Ltd. (HYC)
    - Start production in 2012
    - Initial production capacity: 50 sets/month

- Establish capacity of 130 sets/month in total

- Possible to increase production capacity to 280 sets/month in the future

*HYEE : Joint venture with Yongji Xinshisu Electric Equipment Co., Ltd.
Increasing demands for Total project integration

- Target projects
  - Systems integration for urban transport (E&M)
    - Metro, Monorail
  - Subsystems integration
    - Signaling, Rolling stock

- Target region
  - Southeast Asia, Brazil and India

Strengthen capabilities for E&M

- Sales and engineering
  - Establish the dedicated organization for E&M
  - Strengthen local operations

- Project management
  - Promote the alliance with Mitsubishi Heavy Industries
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4 Performance and Targets

- Overseas revenues:
  - FY2010: 24%
  - FY2011: 31%
  - FY2012: 31%

- Operating Income (%):
  - FY2010: 1.5%
  - FY2011: 1.5%
  - FY2012: 8.0%
  - FY2015 Target: 60%

- Core systems and markets:
  - Rolling stocks
    - IEP (U.K.)
    - Shinkansen (Japan)
  - Electrical components
    - Middle-and High-speed (China)
    - New markets (India)
  - Signaling/train control systems
    - Japan, China, U.K. and India
  - Total project Integration
    - Emerging Markets
      (Southeast Asia, Brazil, India)

- Revenues (Billion yen):
  - FY2010 Actual: 133.1
  - FY2011 Forecast: 134
  - FY2012 Plan: 140
  - FY2015 Target: 320
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FY2015 Targets

- Revenues: ¥320 billion
- Overseas revenue: 60%
- Operating income: 8%

Accelerate Globalization with Technologies Developed in Japan
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