Presentation of Strategies for Railway Systems Business

Strategies for Railway Systems Business
-- Accelerate Globalization with Technologies Developed in Japan --

Gaku Suzuki
President & CEO,
Industrial & Social Infrastructure Systems Company
Vice President and Executive Officer, Hitachi, Ltd.
March 29, 2010
Strategies for Railway Systems Business
Accelerate Globalization with Technologies Developed in Japan

1. Overview
2. Strategies
3. Domestic Business
4. Overseas Business
5. Conclusion
1. Overview

Railway Systems Business in Hitachi

SEGMENT INFORMATION

Year ended March 31, 2009
Consolidated Revenues ¥10,000.3 billion

Financial Service
Revenues ¥412,040
Operating Income ¥10,210

Logistics, Services & Others
Revenues ¥1,089,971
Operating Income ¥23,063

High Functional Materials & Components
Revenues ¥1,556,886
Operating Income ¥27,777

Digital Media & Consumer Products
Revenues ¥1,261,501
Operating Loss ¥(105,563)

Information & Telecommunication Systems
Revenues ¥2,594,450
Operating Income ¥176,629

Electronic Devices
Revenues ¥1,151,066
Operating Income ¥27,322

Power & Industrial Systems
Revenues ¥3,310,544
Operating Income ¥24,245

Industrial & Social Infrastructure Systems Company
(Transportation Systems Div.)
- Rolling Stock Systems: rolling stock, electrical component, overseas rolling stock maintenance services
- Transport Management & Control Systems: Signalling/Train control system, traffic/power management system, power supply system

Information & Control Systems Company
(Transportation Information Systems Div.)
- Transport Management & Control Systems:
  - Seat reservation system
  - Railway operation information system
  - IC card ticketing system

Total Railway Systems Integrator
Total railway systems revenue: ¥176.7 billion (Year ended March 31, 2009)

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1. Overview

Organization

Industrial & Social Infrastructure Systems Company

Transportation Systems Div.

- Kasado Transportation Systems Product Div. [Rolling Stock]
- Mito Transportation Systems Product Div. [Electrical component, Signaling/Train control system, Traffic management System]
- Hitachi Works [Main motor, IGBT module]
- Kokubu Engineering & Product Div. [Power supply system]

Sales Management Div.

- Sales & Marketing Div. [Domestic market]
- Global Sales & Marketing Div. [Overseas market]

Information & Control Systems Company

Transportation Information Systems Div.

- [Traffic/power management system, Business support systems]

R&D sites

- Central Research Lab.
- Mechanical Engineering Research Lab.
- Energy & Environmental Systems Lab.
- Hitachi Research Lab.
- Systems Development Lab.
- Design Div.

Hitachi Group / Associated companies [Major railway business products]

- Hitachi Cable, Ltd. [Rolling Stocks cable]
- Hitachi High-Technologies Corporation [Track device]
- Hitachi Kokusai Electric Inc. [Train system (radio/monitor)]
- Renesas Technology Corp. [Microprocessor for signal control]

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1. Overview

Offices and Factories in Japan

Kasado Transportation Systems Product Div.
(Chiyoda-ku, Tokyo)

Rolling Stocks
(Kudamatsu-shi, Yamaguchi-ken)

Transportation Systems Div. (HQ)
Sales Management Div.
(Chiyoda-ku, Tokyo)

Hitachi Works

Main motor
IGBT module

Kokubu Engineering & Product Div.

Power supply systems

Transportation Information Systems Div.
Traffic/power management systems
Business Support Systems
(Hitachi-shi, Ibaraki-ken Shinagawa-ku, Tokyo)

Mito Transportation Systems Product Div.

Electrical components
Signaling/Train control systems
Traffic management Systems
(Hitachinaka-shi, Ibaraki-ken)
1. Overview

Overseas Subsidiaries and Partners

- **Hitachi Rail Europe Ltd. / UK**
  (Sales & Marketing, engineering, and maintenance service)
  Established in 2005
  Ashford Depot

- **Hitachi Yonge Electric Equipment (Xi’an) Co., Ltd./China**
  (Manufacture of electrical component)
  Established in 2003

- **Network Rail Ltd./UK**
  (Signaling/Train control systems)

- **Downer EDI Rail Ltd./Australia**
  (Electrical components)

- **Changchun Railway Vehicles Co., Ltd/China**
  (Monorail)

- **Beijing Hollsys Co., Ltd./China**
  (Signaling/Train control systems)

- **Woojin Industrial Systems Co., Ltd./Korea**
  (Monorail, Electrical components)

- **China Academy of Railway Science/China**
  (Signaling/Train control systems)
1. Overview

Products and Service

Rolling Stock Systems

Rolling Stocks/Overseas maintenance

| High speed train | Limited express train | Commuter train | Monorail | Overseas maintenance |

Electrical components

| Main circuit/Main motor |

Air-conditioning/Air-moving system

Transport Management & Control Systems

Signaling/Traffic Management Systems

| Signaling/Train control system | Traffic management system |

| Power management system |

Business Support Systems

| Power supply system | Seat reservation system |

| Railway operation information system |

Platform gate

IC card ticketing system

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# Products and Service ②

## Efforts as total railway systems integrator

<table>
<thead>
<tr>
<th>High efficiency</th>
<th>High-efficiency rolling stock systems for the acceleration of modal shift</th>
<th>Aluminum trains (A-train)</th>
<th>High-speed train</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment friendly</td>
<td>Rolling stock systems to further reduce the environmental burden</td>
<td>Small and lightweight inverter</td>
<td>Hybrid traction system</td>
</tr>
<tr>
<td>High reliability</td>
<td>Highly reliable transport management &amp; control systems supporting safe, stable and high-density transportation</td>
<td>Signaling/train control system</td>
<td>Traffic management system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rolling Stock Systems</th>
<th>Hitachi</th>
<th>Bombardier</th>
<th>Alstom</th>
<th>Siemens</th>
<th>Rolling Stock</th>
<th>Signaling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling stocks</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○ ○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>electrical components</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○ ○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Signaling/Traffic management</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>—</td>
<td>○ ○ ○ ○ ○ ○</td>
</tr>
</tbody>
</table>

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2. Strategies

Accelerate Globalization with Technologies Developed in Japan

**Target**
- Revenue: ¥350 billion
- Overseas revenue: over 60%
- Operating income: 8%

<table>
<thead>
<tr>
<th>FY2008</th>
<th>FY2015 (Target)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¥176.7 billion</td>
<td>¥350.0 billion</td>
</tr>
</tbody>
</table>

**Strategies**
- **Sustainable growth in Japan**
  - Focus on new Shinkansen lines
  - Expand aluminum trains sales to municipal and private railway companies
  - Expand hybrid traction system business
  - Expand business support systems business
  - Create new businesses by collaboration with customers

- **Expand overseas businesses**
  - Focus on high-speed trains market
  - Expand electrical components business
  - Expand signaling/train control systems business
  - Expand monorail business
3. Domestic Business
(1) Rolling Stock Systems: Delivery Record

Share of rolling stocks: 23%  Share of electrical components: 30%

* Share percentages are Hitachi estimates

Conventional lines

Shinkansen

Hokkaido Railway Co.
Series 785 limited express train

East Japan Railway Co., East Japan Railway Co.
Series E5 preceding production train

Central Japan Railway Co./
West Japan Railway Co.
Series N700 Shinkansen train

Kyusyu Railway Co.
Series 885 tilting train

Transportation Bureau of
Fukuoka Metropolitan Government
Series 3000 train

Hankyu Corporation
Series 9300 train

Kyusyu Railway Co.
Series 800 Shinkansen train

East Japan Railway Co.
Series 800 Shinkansen train

Metropolitan Intercity Railway Co., Ltd.
Series 2000 train

Tobu Railway Co., Ltd.
Series 50000 train

Selbu Railway Co., Ltd.
Series 30000 train

Tokyo Metro Co., Ltd.
Series 10000 train

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3. Domestic Business

(1) Rolling Stock Systems

Monorail: Major Delivery Records

Straddle-type monorail (No.1 share)

- Osaka Monorail Co., Ltd.
  1990~

- Kitakyushu Urban Monorail Co., Ltd.
  1985~

- Okinawa Monorail Co., Ltd.
  2003~

- Tokyo Monorail Co., Ltd.
  1964~

- Tokyo Tama Intercity Monorail Co., Ltd.
  1998~

- Yomiuri Land Monorail
  1964~1978

- Inuyama Monorail
  1962~2008

- Monorail in Japan World Exposition (EXPO’70) 1970
A-train: A highly economical next-generation train technology

- Delivery: About 1,700 trains
- Lightweight and easy-to-recycle compared with steel

<table>
<thead>
<tr>
<th>Power consumption</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>60t (steel)</td>
<td>100</td>
</tr>
<tr>
<td>45t (aluminum)</td>
<td>80</td>
</tr>
</tbody>
</table>

(based on Hitachi’s Estimation)

Digital Manufacturing Technology

- 3-dimensional machining
- Structural apertures Hollowing-out processing
- FSW※

※ FSW: Friction Stir Welding

Module Assembly

- Overhead rack/ducts module
- Side Ceiling module
- Seat module
- Piping module
- Wiring module

Capacity of Kasado Transportation Systems Product Div.

- 60 trains/month (FY2008～)

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### Inverter Technology

## Small, lightweight and low-noise (world-class) inverters

<table>
<thead>
<tr>
<th></th>
<th>New Product</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior</td>
<td></td>
<td>![Inverter Image]</td>
</tr>
<tr>
<td>No. of Parts*¹</td>
<td>60</td>
<td>- More reliable system with smaller and lighter features reducing the number of parts</td>
</tr>
<tr>
<td>Weight*¹</td>
<td>64</td>
<td>- Easier Maintenance with unit-type built-in components</td>
</tr>
<tr>
<td>Volume*¹</td>
<td>66</td>
<td>- Smaller, lighter and less noisy with low-noise IGBTs*² and heat spreading and cooling system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- More precise control with high-performance micro processors and high-response on-board control</td>
</tr>
</tbody>
</table>

*¹: Comparison with Hitachi’s conventional inverter (=100)

*²: IGBTs: High-voltage insulated gate bipolar transistors, which are core devices of large-capacity inverters

Capacity of Mito Transportation Systems Product Div.

- 64 inverters/month (FY2008～)
Hybrid Traction Technology

Hybrid traction system for Ki-Ha E200 Series

Energy-saving system for railways with lithium-ion secondary batteries (Joint development with East Japan Railway Company)

Regenerative energy stored in the storage battery during braking

- Efficient energy control has been achieved
- On-board batteries with superior energy density

- 60% reduction of the hazardous substances in engine exhaust
- 30db reduction of noise (when stopped at a station)
- Reduction of fuel consumption

*Compared to the conventional diesel multiple units of East Japan Railway Company

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### 3. Domestic Business (2) Transport Management & Control Systems: Delivery Records

#### Contributed to innovations of railway system with information technology

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td></td>
</tr>
<tr>
<td>1964</td>
<td>▲ Tokaido Shinkansen: Tokyo – Shin-Osaka started operation (1964)</td>
</tr>
<tr>
<td>1980</td>
<td>▲ Tohoku Shinkansen: Omiya – Morioka</td>
</tr>
</tbody>
</table>

#### Business Support Systems supporting convenient and comfortable customer services

- **Seat reservation system (MARS*)**
  - Pioneering large-scale online system (1960)

- **IC card ticketing systems**
  - (2001)

#### Traffic management systems contributing to safe, stable and high-density transport

- **First real-time control system in Japan (COMTRAC)**
  - Automated track control of trains in response to increase of number of trains (1972)

- **COSMOS**
  - (1995)
  - Expanding in series

- **ATOS**
  - (1996)

---

MARS: Multi-Access Reservation System  
COMTRAC: Computer Aided Traffic Control System  
COSMOS: Computerized Safety Maintenance and Operation Systems of Shinkansen  
ATOS: Autonomous decentralized Transport Operation control System

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Seat Reservation System (MARS)

Railway Information System Co., Ltd. provides Multi-Access Reservation System with high reliability, and high response supporting various customer needs

- Delivery Records
  - AP8000×2 units
  - UNIX Server 50 units

IC Card Ticketing System

The center system of IC card ticketing system supports the high reliability under expansion of customers

- 3 large projects in Tokyo and Kansai areas
- 4 projects in Hokkaido, Chubu and Kyushu

Railway Operation Information System

Information systems enable customers to see railway operations information at a glance

- Good Design Award 2007 (together with East Japan Railway)
- Systems installed for East Japan Railway, West Japan railway and Tokyo Metro Fukutoshin lines
3. Domestic Business
(2) Transport Management & Control Systems

Signaling/Traffic Management Systems: Delivery Record ①

JR railway companies

Digital ATC (Signaling)
Share 60%

- Shinkansen lines
  Tohoku/Joetsu Shinkansen

- Conventional lines
  Yamanote line
  Shinjuku
  Negishi line
  Ofuna
  Sakuragiho
  Keihin Tohoku line
  Omiya
  Tabata
  Shinagawa

Traffic Management Systems
Share 81%

- Tokyo Area Traffic Management System (ATOS)

JACROS : JR Kyushu Advanced and Concentrated Railway Operating Systems
SIRIUS : Super Intelligent Resource and Innovated Utility for Shinkansen Management
ATC : Automatic Train Control

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3. Domestic Business
(2) Transport Management
& Control Systems

Signaling/Traffic Management Systems:
Delivery Record ②

Municipal and private railway companies

Municipal Railway Companies

- Nankai Electric Railway
  - Main line
  - Semboku Rapid Railway
  - Municipal Railway Companies

- Keihan Electric Railway
  - Main line, other

- Osaka Prefectural Urban Development
  - Midousuji line

- Nanka Port Town line
  - Tanimachi line

- Kyoto City
  - Karasuma line
  - Tozai line

- Osaka City
  - Osaka City
  - Transportation Bureau
    - Nanakuma line
    - Airline
    - Hakozaki line

- Kobe City
  - Kobe New Transit
    - Port Liner
    - Rokko Liner

Private Railway Companies

- Sapporo City
  - Transportation Bureau
  - Toho line
  - Tozai line
  - Namboku line

- Tokyo Metropolitan Government
  - Saitama Railway Corp.
    - Saitama Railway line
    - Toyo Rapid Railway line

- Fukuoka City
  - Namboku line
  - Hakozaki line

- Yokohama City
  - Transportation Bureau
    - Green line
    - Blue line

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3. Domestic Business
(2) Transport Management
& Control Systems

Digital ATC Technology

Digital ATC system supporting safe and stable transport

Conventional ATC

- Headway reduction by single-step braking control and optimum braking control matched to train specification characteristics
- Single-step braking profile enables smoother deceleration and breaking, thereby providing better riding comfort
- Saves space by simplifying the wayside units

Transmits permitted speed information

Digital ATC

Remarkable Technologies in Hitachi signaling system

- Fail-safe technology using general-purpose computers: High functionality and extensionability by software technology
- Data communication using general-purpose digital signal processor:
  Simultaneous processing of 10 communication channels
  Size reduction of equipment and easy improvement of functions

* In Japan, ATC stands for ATP (Automatic Train Protection) in general

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3. Domestic Business
(2) Transport Management & Control Systems

Traffic Management Systems Technology

Autonomous decentralized system technology

- Autonomous decentralized systems architecture
  - Enables hierarchical system architecture
  - Partial failure does not impact on entire system
  - A complex control and the business of a large station can be systematized (allotment with business at station and center)

- General-purpose computers provide real time control systems
  - Better reliability and productivity of signaling system
  - Systematization of operations needed for safety such as track maintenance

- Autonomous decentralized Transport Operation control System (ATOS)
  - World’s Largest Real-time Control System

- Computerized Safety Maintenance and Operation Systems of Shinkansen (COSMOS)
  - System Management of All Operations of Shinkansen
3. Domestic Business

**Strategies ①**

**Focus on new Shinkansen line (Rolling stocks/Signaling/Train control system)**

<table>
<thead>
<tr>
<th>Opening Schedule</th>
<th>Route</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tohoku Shinkansen</td>
<td>Hachinohe～Shin-Aomori</td>
<td>2010</td>
</tr>
<tr>
<td>Hokuriku Shinkansen</td>
<td>Nagano～Kanazawa</td>
<td>2014</td>
</tr>
<tr>
<td>Kyushu Shinkansen</td>
<td>Shin-Yatsushiro～Hakata</td>
<td>2011</td>
</tr>
</tbody>
</table>

**Expand aluminum trains sales for municipal and private railway companies**

- Deeply involve existing customers’ plan for new trains
- Develop new customers

**Expand hybrid traction system sales**

- Develop needs to retrofit existing diesel multiple-units

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3. Domestic Business

Strategies ②

Business Support Systems: Keep current position and further expansion

- Keep share of seat reservation systems
- Increase share of IC Card Ticketing Systems and Railway Operation Information Systems
- Firmly extend and update transport planning and operations planning systems

Create new businesses by collaborations with customers

- Develop service-oriented railway information control systems (fusing information and control technologies)

- Implement optimum systems to improve customer services
- Improve environmental performance: reduce CO2 and save energy
- Improve customer systems, including station services and on-board railcar services
- Increase efficiency of transport operations for command operations, railcar operations, etc.
- Expand communication channels to improve services for individuals and partners
- Improve customer services, including station services and on-board railcar services
- Implement optimum systems to improve customer services
- Improve environmental performance: reduce CO2 and save energy
- Improve customer systems, including station services and on-board railcar services
- Increase efficiency of transport operations for command operations, railcar operations, etc.
- Expand communication channels to improve services for individuals and partners

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4. Overseas Business

Accelerate Globalization with Technologies Developed in Japan

**Target**
- Revenue: ¥350 billion
- Overseas revenue: over 60%
- Operating income: 8%

**Strategies**
- **Expand overseas business**
  - Strengthen partnerships in Japan and overseas
  - Focus on high-speed trains market (China, UK, Brazil, U.S. and others)
  - Expand electrical components business (Strengthen partnerships with rolling stock manufacturers)
  - Expand signaling/train control systems business (China, UK and others by complying with European standards)
  - Expand monorail business (Mainly in emerging market)
4. Overseas Business

Global Market

2005-07 ¥11 trillion -> 2014-16 ¥14 trillion (CAGR: 2.6%)
- High growth in service and signaling/control
- Huge market in Europe
- Increase investments in emerging countries

Market size by segment

- Signaling/control: ¥11 trillion, ¥14 trillion (CAGR: 2.9%)
- Infrastructure: ¥2.13 trillion, ¥4.63 trillion (CAGR: 3.6%)
- Services (maintenance, etc.): ¥3.38 trillion, ¥4.75 trillion (CAGR: 2.3%)
- Rolling Stocks: ¥3.88 trillion, ¥4.75 trillion (CAGR: 2.3%)

By region
- Europe: 38% (2014-16 ¥14 trillion)
- Asia & Pacific: 23% (2014-16 ¥14 trillion)
- North America: 23% (2014-16 ¥14 trillion)
- Others: 16%

Resource: Based on UNIFE 2008 Report

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4. Overseas Business

Major Delivery Record

UK
- Class 395 high speed train
- Electrical components for Class 465 commuter train

Bulgaria
- Electrical components for Sofia metro train

UAE
- Palm Jumeirah Monorail

Singapore
- Sentosa Monorail

Australia
- Electrical components for Sydney commuter train (Operations to start in 2010)
- Electrical components for tilting train

China
- Electrical components for Beijing metro
- Electrical components for high speed train
- Electrical components for Beijing metro
- Chongqing Monorail

South Korea
- Daegu Monorail (Operations to start in 2014)
- Express train named "NOORIRO"
### Strategies by Region

#### Focus on UK, China, High-speed Railways and Monorail Projects

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
</table>
| (1) UK | High-speed railways with maintenance services business  
Signaling/train control systems business |
| (2) China | Electrical components for high-speed railways  
Signaling/train control systems |
| (3) New markets | The Americas, India and Southeast Asia |
| (4) Existing markets | Australia and South Korea |
4. Overseas Business

(1) UK: History

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>Railway systems manager stationed in London</td>
</tr>
<tr>
<td>2000</td>
<td>First tender participation</td>
</tr>
<tr>
<td>2003</td>
<td>Started trial operations of V-Train with Hitachi’s electrical components. Trial completed with no accidents or failures (March 2005 as scheduled)</td>
</tr>
<tr>
<td>2009</td>
<td>Started Class 395 passenger service</td>
</tr>
</tbody>
</table>
Delivery Record

Delivery of Class 395 trains and launch maintenance service

**Contract:**
- 174 cars (29 trains: 6 cars per trains) of Class 395 trains: ¥50.0 billion
- 7 years Train maintenance (maximum 35 years): ¥20.0 billion
  (maximum ¥100.0 billion)

**Railcar delivery:** Completed on schedule
- June 29, 2009: Preview service started (6 months ahead of schedule)
- December 13, 2009: Official service started

**Launch maintenance services:** Established Ashford Depot

Opening ceremony of
St. Pancras International station (November 6, 2007)

Ceremony of Class 395 train
official service commencement
(December 14, 2009)

Ashford Depot
Rolling stock with maintenance service business

In February 2009, Selected as preferred bidder for Intercity Express Programme (IEP)

- Project Overview
  High speed trains (HST) replacement package (Rolling Stocks, maintenance and finance)
  - No. of cars to be delivered: Up to 1,400
  - Period of trains delivery: 2013 – 2018

【Future Projects】
- Crossrail (About 600 commuter cars, scheduled delivery 2015 - 2017)
- HS2 (UK high-speed railway, from London to Midlands, scheduled delivery after 2020)
  HS2: High Speed Two

Establishment of local manufacturing site

- Under examination for IEP and future projects
4. Overseas Business

Strategies ②

Electrical component

- Retrofit electrical components for Class 465 trains
  - Contract in 2007: To complete delivery in April 2010
  - Contract details: 196 sets (94 trains), maintenance services (for 10 years)
  - Without accident for 2.8 million miles in operation (March, 2010)

- Expand business to retrofit electrical components
  - Respond to increasing future demand to retrofit ageing trains

Class 465 trains

Signaling/Train control System

- In 2007, signed trial project with Network Rail
  - Compliant with European standards
  - Start trial running in 2012
  - On-board units to be installed in IEP trains
4. Overseas Business

(2) China: Market

World biggest railway systems market

- High-speed railways
  - Plan to construct 18,000 km of high-speed lines
    (Plan called “4 east-west and 4 north-south lines”, ~2020)
  - Expect to be placed orders for 3,000 high-speed
    (over 350 km/h) cars per year (for next 4-5 years)

- Urban Transport
  - Scheduled to construct 158 lines
    (10,000 cars through to 2015)
  - Expect 15 tenders per year

- Inter-city Transport
  - Increasing demand in the future
  - 20 train lines (6,000 cars through to 2050)
4. Overseas Business

(2) China

Delivery Record

Electrical component

- **High-speed railways**
  - CRH2 rolling stocks and electrical components for Ministry of Railways (Awarded contract in 2004)
    - Delivered by China South Locomotive & Rolling Stock and Japanese consortium
    - Hitachi’s delivery: 24 cars and electrical components*
      - * 68 Main traction converter (for 17 trains)
      - 752 air-conditioning equipments
  - For China South Locomotive & Rolling Stock’s CRH2
    - (Continuous delivery since 2005):
      - **Cumulative Delivery**
      - 220 Main traction converters
        - (for 35 trains)
      - 1,520 air-conditioning equipments

- **Urban transport**
  - For Metros:
    - **Cumulative Delivery**
      - About 700 cars (for Beijing, Shanghai, Xian and others)
  - For Monorails:
    - **Cumulative Delivery**
      - Chongqing No. 2/No. 3 lines (222 cars)

Signaling/Train control system

- **High-speed railways**
  - Chinese Train control systems (CTCS2) for Ministry of Railways
    - On-board units for high speed trains
      - [In collaboration with Beijing HollySys Co., Ltd.]
      - (Continuous delivery since 2005)
      - **Cumulative Delivery**
      - 170 trains (share: 70%)

- Computerized-interlocking for Ministry of Railways
  - [In collaboration with the China Academy of Railway Science]
  - (Continuous delivery since 2007)
  - **Cumulative Delivery**
  - In operation at over 130 stations

CRH: China Railway High-speed

CTCS2: Chinese Train Control System Level2
(for 250 km/h railway operation complying with European standard)
### Strategies 1

#### Electrical component

##### High-speed railways

- Awarded contract: CRH3 (380km/h, for 400 cars) from China North Locomotive & Rolling Stocks (FY 2010 – start of delivery)
- Target: CRH2 (380km/h) from China South Locomotive & Rolling Stock

**Future Targets**
- High-speed rolling stocks (CRH2, CRH3)
- Estimated demands: 3,000 cars/year

##### Urban transport

- Respond aggressively to vigorous demand
- Expand sales for Monorail

#### Signaling/Train control system

##### High-speed railways

- Chinese Train control systems (CTCS3) for Ministry of Railways
  - Awarded contract: High-speed line between Guanzhou and Shenzhen (113km)
  - Wayside units: 3 sets
  - On-board units: 40 trains
  - [In collaboration with Beijing HollySys Co., Ltd.]
  - (Scheduled to start operation in 2010)

- Continuous expansion of computerized-interlocking
  - (Target: 100 stations per year)

**Future Targets**
- Wayside units: 30% share from 18,000km in total
- On-board units: 30% share from estimated 540 trains

##### Urban transport

- Awarded contract for Chongqing No. 3 line
  - Train control system using 2.4 GHz radio frequency
  - (Scheduled to start operation in 2011)
- Respond aggressively to vigorous demand

CTCS3: Chinese Train Control System Level3
(for 350 km/h railway operation complying with European standard)
Expansion of local production and capacity of electrical component

Increase capacity to 130 sets per month (after 2011)

Hitachi Yonge Electric Equipment (Xi’an) Co., Ltd.

- Established: August 2003
- Location: Xian, China
- Capital: 85 million yuan
  - Hitachi, Ltd.: 40%
  - Hitachi (China), Ltd.: 10%
  - Yongji Xinshisu Electric Equipment Co., Ltd.: 50%

- Roles:
  - Manufacture of electrical component for rolling stock
- Employees: 230
- Production capacity: 50 sets per month
4. Overseas Business

(3) New Markets: The Americas

**Sao Paulo monorail**
- Bidding process in conjunction with local construction companies
- Number of cars: 324 (Tiradentes line) ; 84 (Congonhas line)
  *There are some monorail projects in other cities (Manaus, Rio de Janeiro)*

**Brazil high-speed railway**
(Rio de Janeiro – Sao Paulo – Campinas: about 510 km)
- Participate as member of Japanese consortium
- Roles: Design & manufacture of rolling stocks (and cooperate for traffic management/train control system)
- Targeted to start operation after 2015

**U.S. high-speed railway**
(11 lines planned)
- Intend to participate as member of Japanese consortium
- Gathering relevant information

Source: Brazil Ministry of Transportation
Source: US Department of Transportation

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4. Overseas Business
(3) New Markets

Emerging Market

Entry to Indian markets

- Train control systems
  - Dedicated Freight West Corridor
    (Project to be financed by yen loan; bidding scheduled in 2011)
    - Distance for yen loan: 1,468 km
    - Size of yen loan: ¥450 billion

- Electrical components
  - Enter for Indian Railways and urban transport projects

Entry to Southeast Asian markets

- Target: Urban transport projects that integrated railway system supply is required (to be financed by stepped yen loans)
  - Vietnam (Ho Chi Minh and Hanoi)
  - Indonesia (Jakarta)

- Aggressive participation in projects to upgrade railway infrastructures in emerging countries
  - Partnerships in Japan and overseas
(4) Continuing Market

**Australia**
- Awarded contract for electrical components for “double-decker” commuter trains in suburbs of Sydney (in 2006, scheduled to start operation in late 2010)
  - Contract details: 312 sets (78 trains)
    In collaboration with Downer EDI Rail
- Target continuous contracts for electrical components by strengthening partnership with Downer EDI Rail

**South Korea**
- Awarded contract for No. 3 line of Daegu Monorail (in 2009; scheduled to start operation in 2014)
  - 24 km track length (Double track)
  - 30 stations
  - 2 depots
  - 84 cars (28 sets)
  - Local production by Woojin Industrial Systems (Korea) for mass-production cars
- Work toward next projects in association with Woojin Industrial Systems
Target in FY2015

- **Revenue**: ¥350 billion
- **Overseas revenue**: over 60%
- **Operating income**: 8%

Accelerate Globalization with Technologies Developed in Japan
Cautionary Statement

Certain statements found in this document may constitute “forward-looking statements” as defined in the U.S. Private Securities Litigation Reform Act of 1995. Such “forward-looking statements” reflect management’s current views with respect to certain future events and financial performance and include any statement that does not directly relate to any historical or current fact. Words such as “anticipate,” “believe,” “expect,” “estimate,” “forecast,” “intend,” “plan,” “project” and similar expressions which indicate future events and trends may identify “forward-looking statements.” Such statements are based on currently available information and are subject to various risks and uncertainties that could cause actual results to differ materially from those projected or implied in the “forward-looking statements” and from historical trends. Certain “forward-looking statements” are based upon current assumptions of future events which may not prove to be accurate. Undue reliance should not be placed on “forward-looking statements,” as such statements speak only as of the date of this document.

Factors that could cause actual results to differ materially from those projected or implied in any “forward-looking statement” and from historical trends include, but are not limited to economic conditions, including consumer spending and plant and equipment investments in Hitachi’s major markets, particularly Japan, Asia, the United States and Europe, as well as levels of demand in the major industrial sectors which Hitachi serves, including, without limitation, the information, electronics, automotive, construction and financial sectors:

- exchange rate fluctuations for the yen and other currencies in which Hitachi makes significant sales or in which Hitachi’s assets and liabilities are denominated, particularly against the U.S. dollar and the euro;
- uncertainty as to Hitachi’s ability to access, or access on favorable terms, liquidity or long-term financing;
- uncertainty as to general market price levels for equity securities in Japan, declines in which may require Hitachi to write down equity securities that it holds;
- the potential for significant losses on Hitachi’s investments in equity method affiliates;
- legislative and regulatory changes enacted by the new Japanese government;
- increased commoditization of information technology products and digital media-related products and intensifying price competition for such products, particularly in the Information & Telecommunication Systems, the Electronic Devices and the Digital Media & Consumer Products segments;
- uncertainty as to Hitachi’s ability to continue to develop and market products that incorporate new technology on a timely and cost-effective basis and to achieve market acceptance for such products;
- rapid technological innovation;
- the possibility of cost fluctuations during the lifetime of or cancellation of long-term contracts, for which Hitachi uses the percentage-of-completion method to recognize revenue from sales;
- fluctuations in the price of raw materials including, without limitation, petroleum and other materials, such as copper, steel, aluminum and synthetic resins;
- fluctuations in product demand and industry capacity;
- uncertainty as to Hitachi’s ability to implement measures to reduce the potential negative impact of fluctuations in product demand, exchange rates and/or price of raw materials;
- uncertainty as to Hitachi’s ability to achieve the anticipated benefits of its strategy to strengthen its Social Innovation Business;
- uncertainty as to the success of restructuring efforts to improve management efficiency by divesting or otherwise exiting underperforming businesses and to strengthen competitiveness and other cost reduction measures;
- general socio-economic and political conditions and the regulatory and trade environment of Hitachi’s major markets, particularly Japan, Asia, the United States and Europe, including, without limitation, direct or indirect restrictions by other nations on imports, or differences in commercial and business customs including, without limitation, contract terms and conditions and labor relations;
- uncertainty as to the success of alliances upon which Hitachi depends, some of which Hitachi may not control, with other corporations in the design and development of certain key products;
- uncertainty as to Hitachi’s access to, or ability to protect, certain intellectual property rights, particularly those related to electronics and data processing technologies;
- uncertainty as to the outcome of litigation, regulatory investigations and other legal proceedings of which the Company, its subsidiaries or its equity method affiliates have become or may become parties;
- the possibility of incurring expenses resulting from any defects in products or services of Hitachi;
- the possibility of disruption of Hitachi’s operations in Japan by earthquakes or other natural disasters;
- uncertainty as to Hitachi’s ability to maintain the integrity of its information systems, as well as Hitachi’s ability to protect its confidential information and that of its customers;
- uncertainty as to the accuracy of key assumptions Hitachi uses to valuate its significant employee benefit related costs; and
- uncertainty as to Hitachi’s ability to attract and retain skilled personnel.

The factors listed above are not all-inclusive and are in addition to other factors contained in Hitachi’s periodic filings with the U.S. Securities and Exchange Commission and in other materials published by Hitachi.