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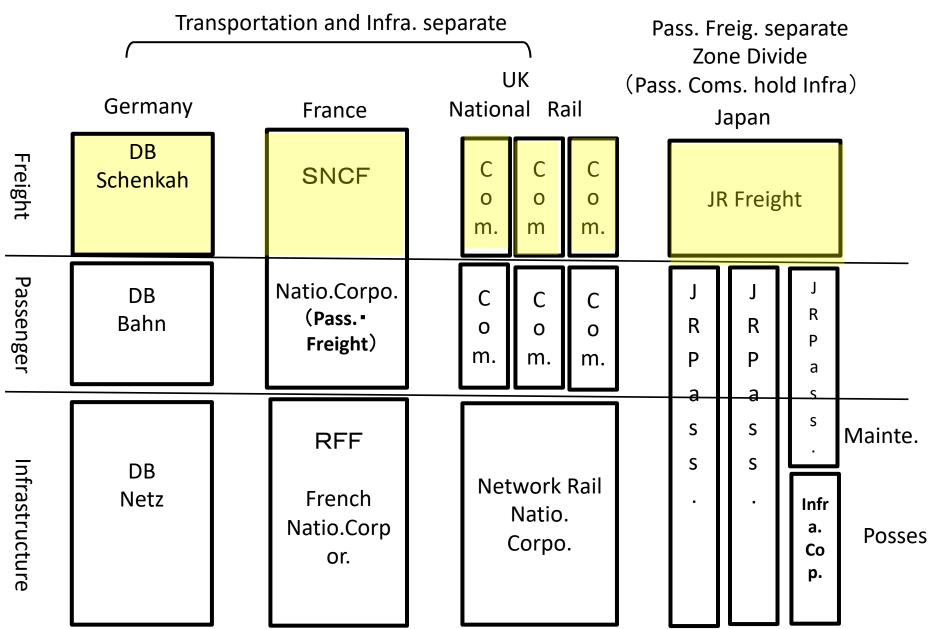
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 - **Knowledge: Railway Profit depends on Population Density**
 - High Safety ,High Accuracy and also High Frequency
- 3.Messages to the Railways especially in Asia "Railway Gauge Economic Zone", leap to the World Increase and decrease of population and railway ICT Development and Importance of Logistics



Relationship of passenger, Freight and Infrastructure



JR Passenger 6 Coms., Equal Footing Measures at start

Billion yen; Equal Footing, Interest Rate 7. 3% Stock Listing Stock Listing Stock Listing

Stock Listing

<u>2002</u> <u>2006</u> <u>2004</u>

2016

JR	East	Tokai	West	Hokkaido	Shikoku	Kyushu
Fund				6, 822	2, 082	3, 877
Debt	35, 936	5, 217	12, 832	745	261	801
Capital	2, 000	1, 120	1, 000	90	35	160





Railway Business

Other Business

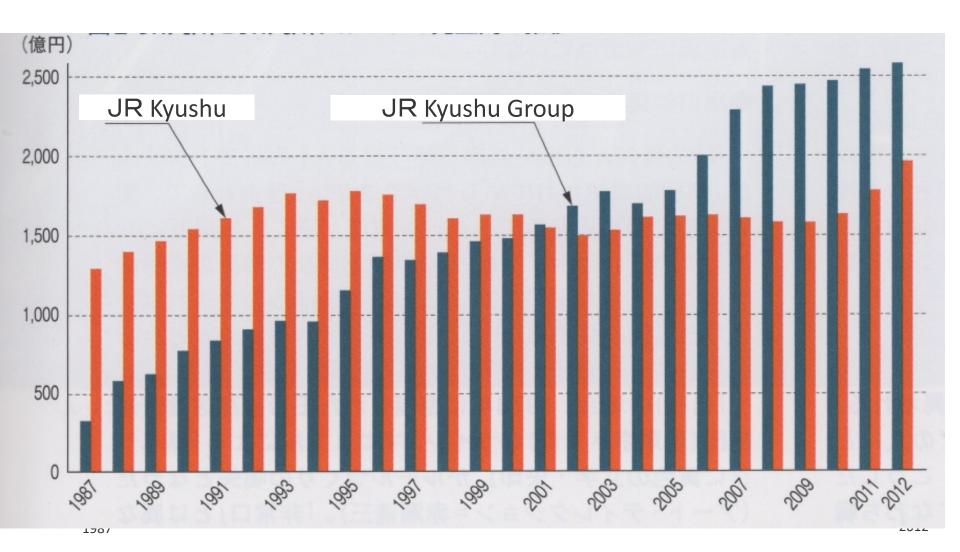
Only JR Kyushu has a larger other business than railway





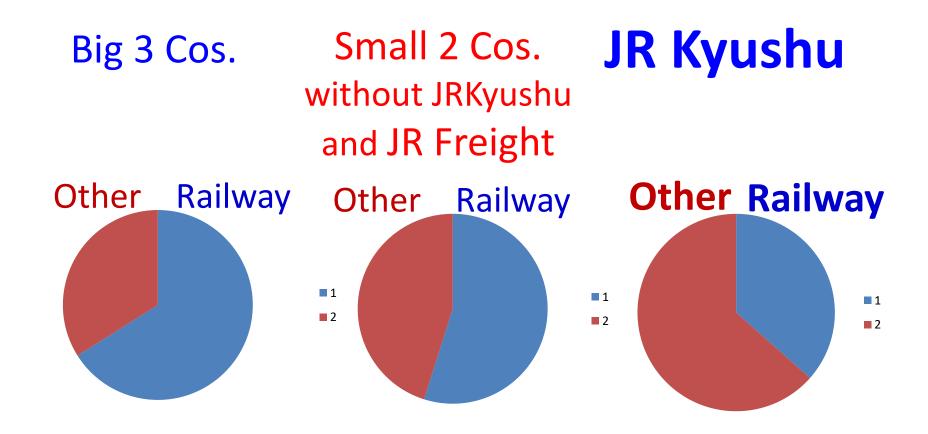


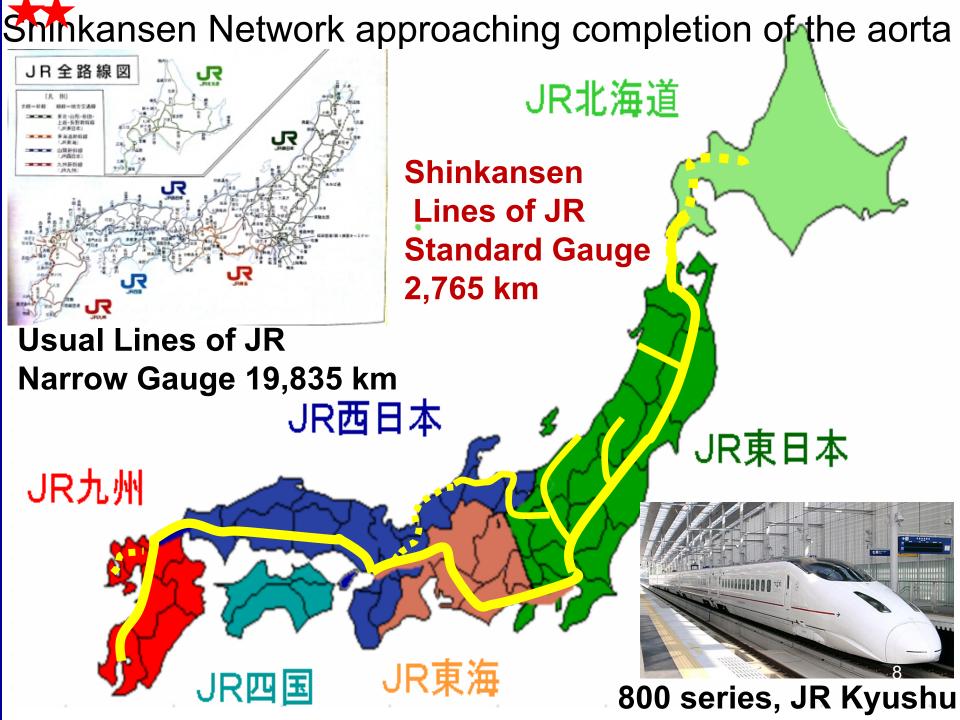
JR九州とJR九州グループ企業の売上高推移(鉄道を凌駕した関連部門)
Sales progress of JR Kyushu and JR Kyushu group companies (related divisions surpassing railways)



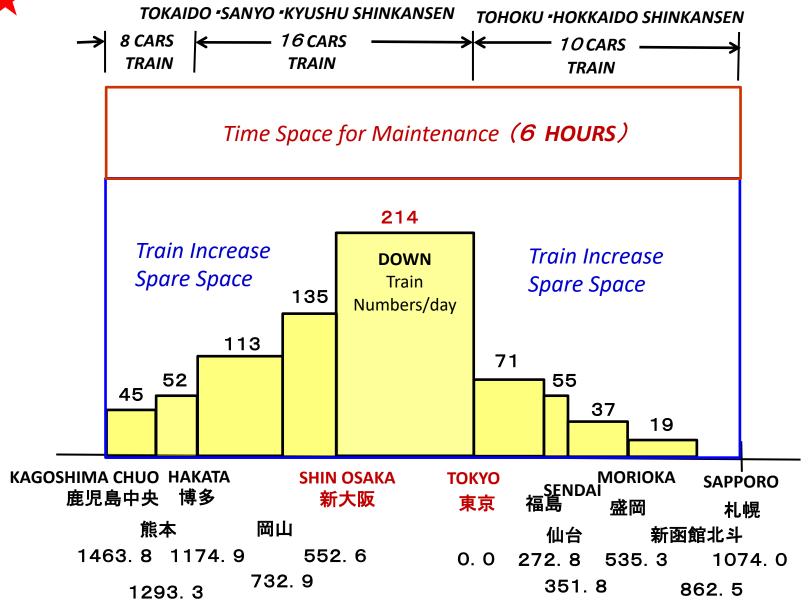
Only JR Kyushu has a larger other business than railway

Percentage of railway in the entire group Fiscal Year 2017





Planned Train Numbers/hour of Shinkansen (2016. 3. 26)



Freight Transportation by Shinkansen (under plan)

Model A

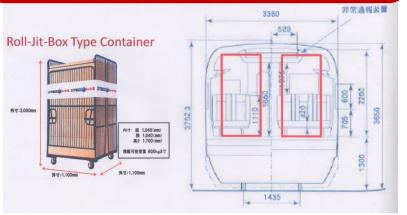
Shinkansen Container Train

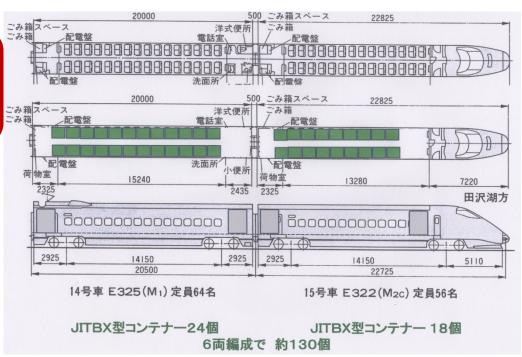


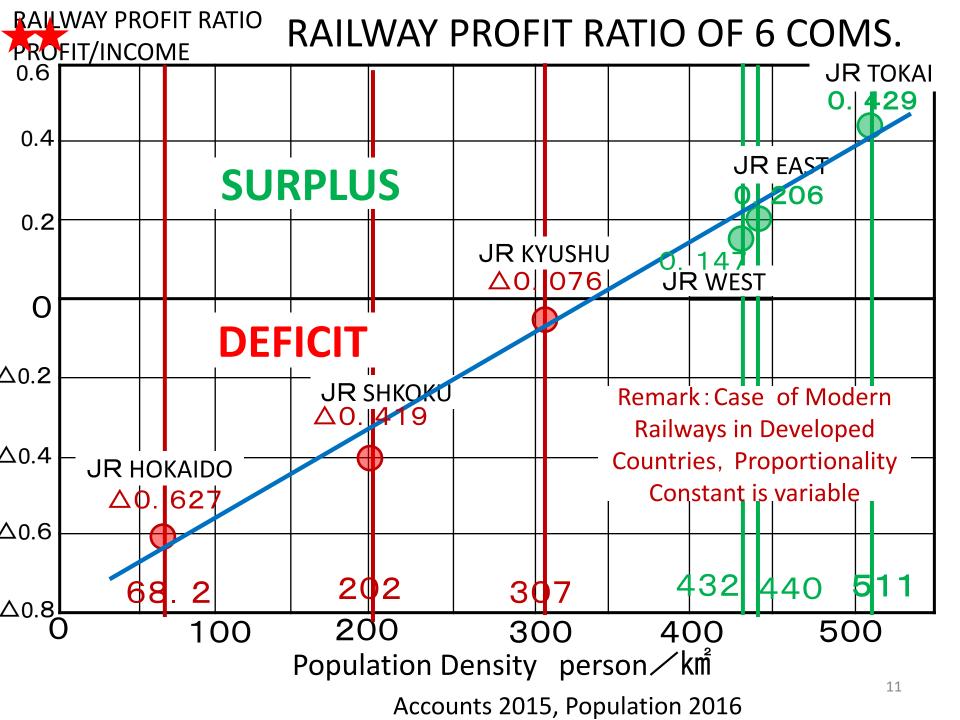


Model B

Transport of Roll-Jit-Box by 700 Series Shinkansen Remodeled Car







将来人口の推移「高齢社会白書」(内閣府 平成28年版)より

平成27(2015)年実績12,711万人、 平成62(2050)年推計9,706万人 高齢化の推移と将来推計 **Population Transition in Japan** (万人) 14,000 Now 35 years later 総人口 (棒グラフ上数値) 40.0 12,066 12,000 11,212 11,194 35.0 2,603 10,467 2,751 10,000 9,430 9,193 30.0 9.008 2,515 861 2,553 8,000 25.0 3,012 2.979 6.343 5,787 5,353 Percentage 20.0 6,000 4.418 8,251 7,883 7,581 15.0 7,212 4,000 6.744 6.047 10.0 1,600 1,645 5,017 1,495 1,225 1,517 2,000 1,407 1,301 5.0 1,109 892 776 900 597 0.0 32 37 12 22 Year 1975)(1980)(1985)(1990)(1995)(2000)(2005)(2010)(2015)(2020)(2025)(2030)(2035)(2040)(2045)(2050)(2055)(2060)

資料:2010年までは総務省「国勢調査」、2015年は総務省「人口推計(平成27年国勢調査人口速報集計による人口を基準とした平成27年10月1 日現在確定値)」、2020年以降は国立社会保障・人口問題研究所「日本の将来推計人口(平成24年1月推計)」の出生中位・死亡中位仮定 による推計結果

15~64歳

≥ 65 ~ 74歳

(注) 1950年~2010年の総数は年齢不詳を含む。高齢化率の算出には分母から年齢不詳を除いている。

75歳以上

東海道新幹線の2分目ダイヤ

Tokyo 0.0

14 Trains per hour One way, Today

Shizuoka 180.2

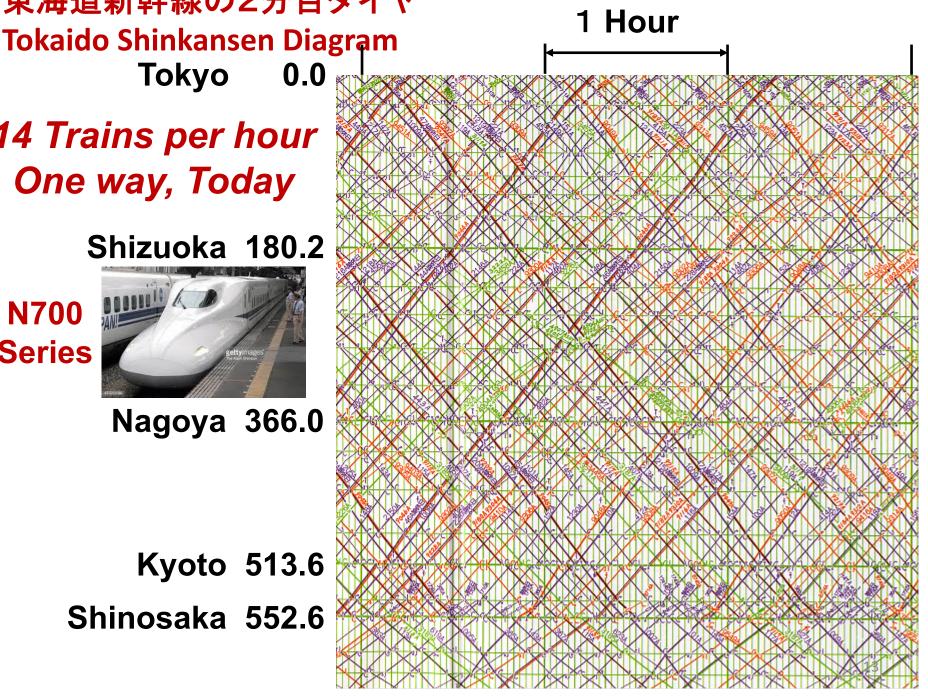
N700 Series



Nagoya 366.0

Kyoto 513.6

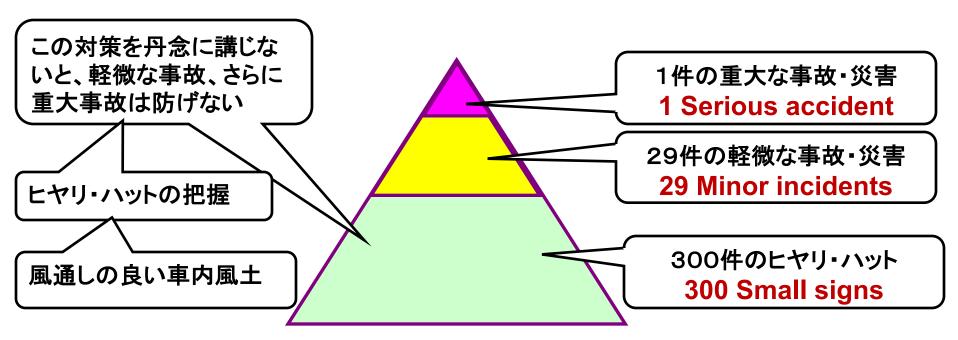
Shinosaka 552.6



ハインリッヒの法則

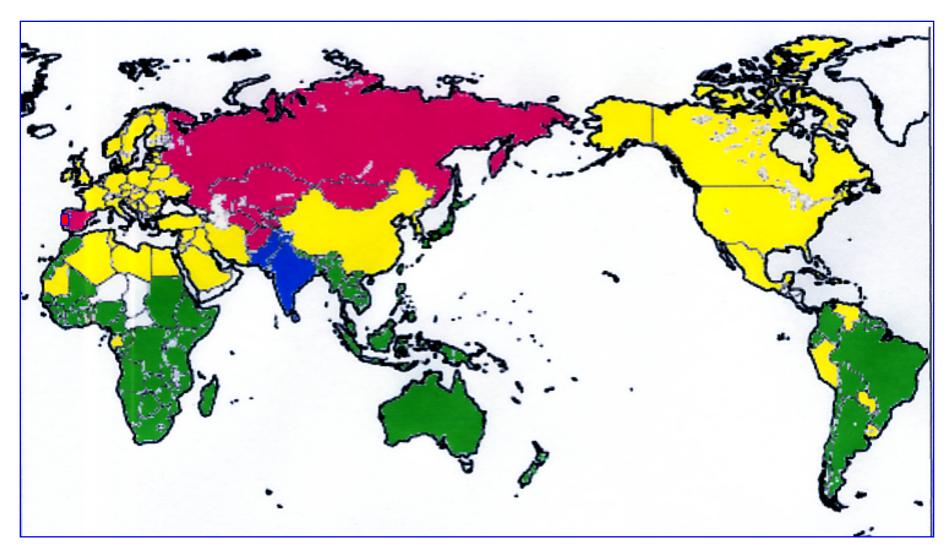
ーー限りなき安全への道ーー

"Herbert William Heinrich's Law" 1:29:300



労働災害における経験則 1つの重大事故の背後には 29の軽微な事故があり その背景には300の異常が存在

Distribution of Railway Gauge in the world













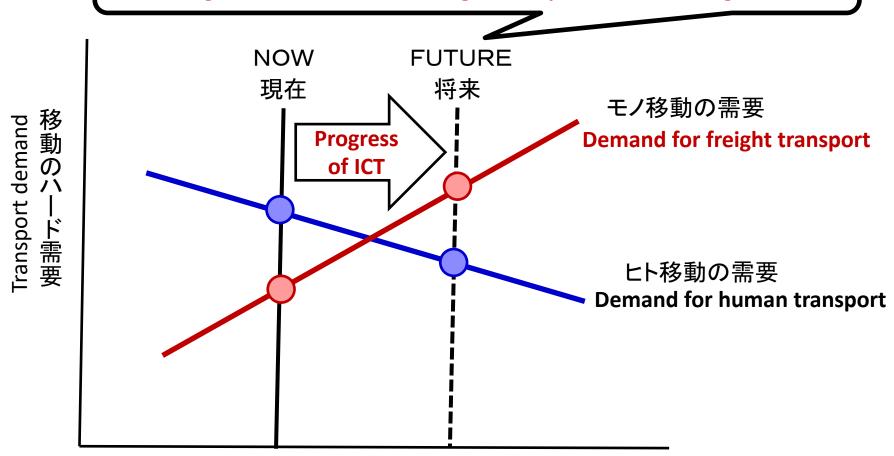
"One Belt One Road"「一帯一路」



Hard Demand for human and freight transport, forecast

ヒト・モノ移動のハード需要 将来予測

Due to the rapid development of ICT, the demand for human transport are decreasing, but the demand for freight transport are increasing.



情報の伝達拡散速度(ICTの進展)
Information spreading speed (progress of ITC)



Research, Human Resourc<u>es</u>

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"Population Decrease and the Railway" Y Ishii, on the Railway Gazette Oct. 2018



Population Decrease and the Railway

By Yoshitaka Ishii

Postulating that European and Japanese railways should learn from each other, the first President of JR Kyushu reflects in this Japanese language softback on

whether European experience might inform the future evolution of Asia's railways.

The 1987 reforms saw Japanese National Railways broken up into six integrated regional passenger companies and a national open access freight business, while Europe pursued vertical separation between track and trains.

Although the 'big three' Japanese railways were privatised within a few years, JR Kyushu was not floated until its 29th year. By that time, it had developed a wide range of ancillary businesses including property development, food and tourism, which together represent twice as much of the company's turnover than the unprofitable rail sector. However, the remaining 'small' players — JR Hokkaido, Shikoku and Freight — are becoming increasingly unstable.

Ishii argues that the profitability of the privatised railways has been directly related to population density, warning that the decline in the Japanese population since 2008 is leading to growing problems for the rail sector. Extrapolating current trends, he estimates that by 2050 all six passenger railways will once again be in deficit. The 'revenue adjustment model' established in 1987 is no longer working due to the collapse in interest rates, and he calls for a UK-style financial model that could harness

premia from profitable routes to support socially-desirable services in other regions.

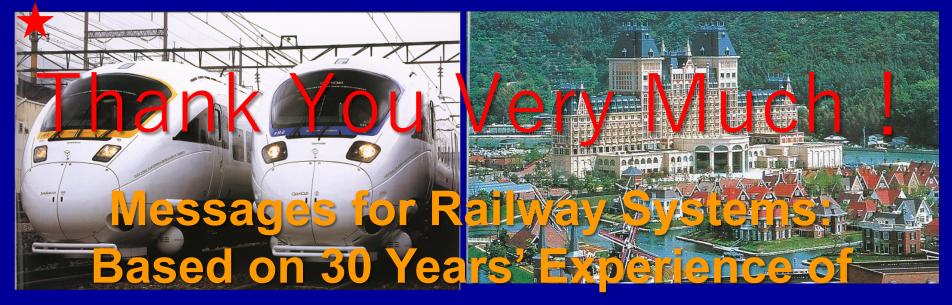
Emphasising that Japan, like other developed countries, has not paid sufficient attention to the railway 'system' as a whole, Ishii argues that the country needs to develop a 'national railway centre' which can take a strategic overview and facilitate the exchange of experience, as well as providing leadership in the event of disruption. He favours closer integration between conventional lines and the 2500 km Shinkansen network which he believes should serve as the backbone of the national network.

Suggesting that an 'effective railway system is vital' for the future prosperity of many Asian countries, Ishii proposes the establishment of an Asian International Railway Centre to provide similar strategic leadership at a continental level, potentially based in Singapore. He suggests that the forthcoming 2020 Olympic Games in Tokyo could provide an opportunity to build 'peaceful diplomacy' to support regional railway development.

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JR Kyushu Privatization

