



Urban Railway System Development in Japan - *Contribution of the Private Sector*-



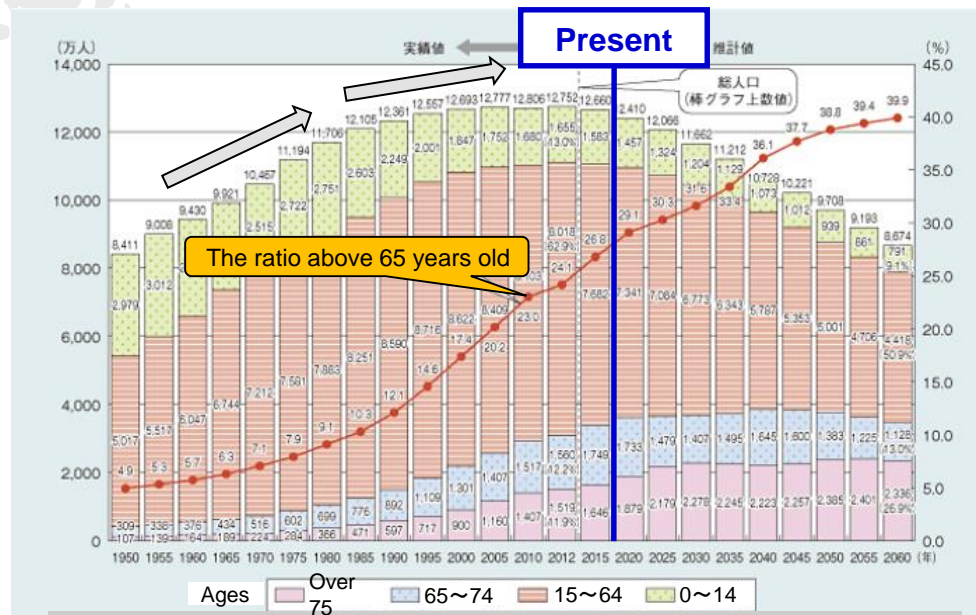
Senior Researcher
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Outline of Presentation

Introduction : Urban Railways in Japan

Part 1: Development Railway Systems in Japan

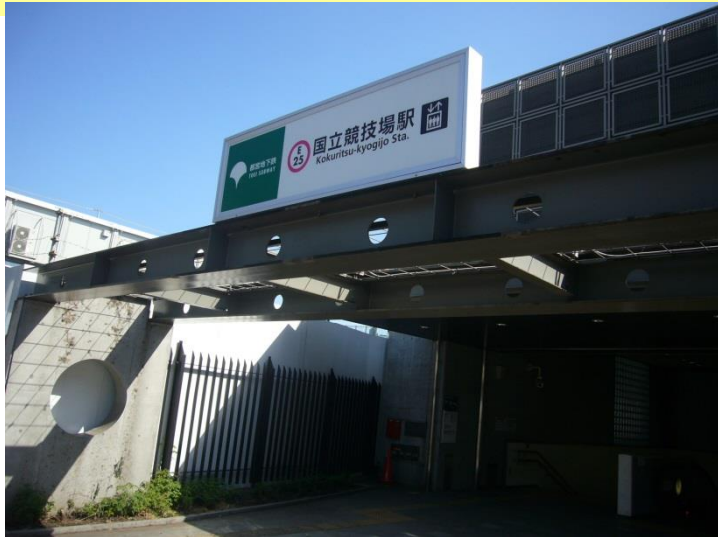
Part 2: Integration of Urban Railway Systems



Transition of population in Japan

Introduction

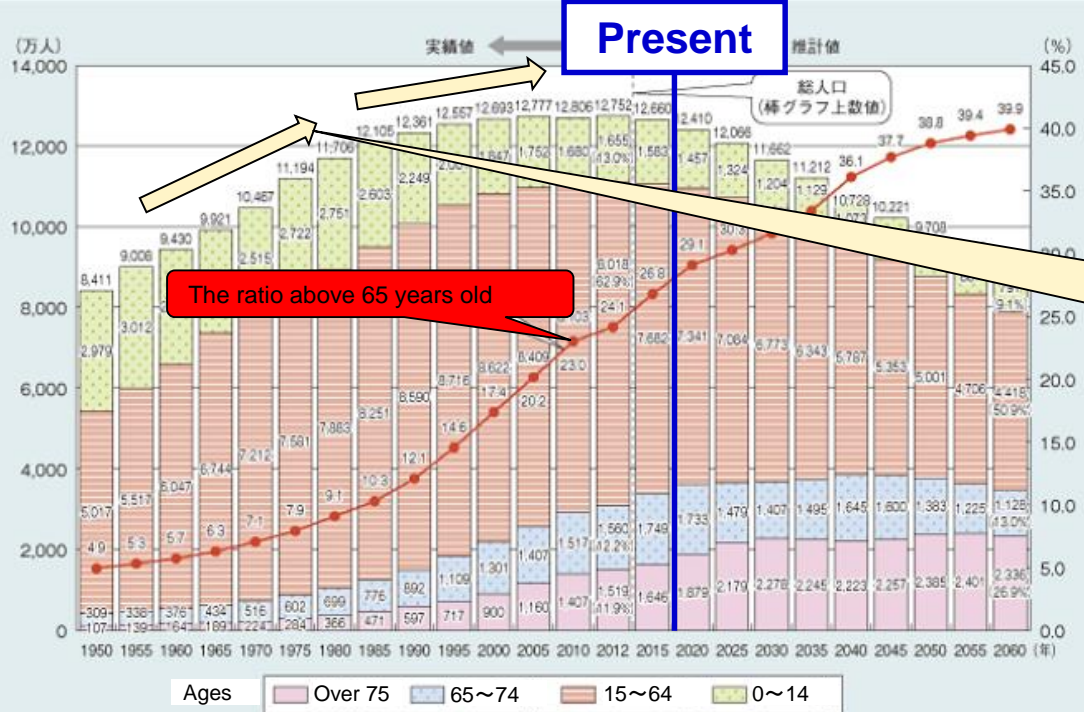
Urban Railways in Japan



Station of Metro System



Station of JR East



Tokyo Metropolitan Area

Urbanization progressed along with population increase.

Railways played an important role.



Railways with high market share



Roads with few congestions

Three Major Types of Railways in Metropolitan Areas in Japan

1) JR Lines



2) Metros



3) Private Railways*

*: JV (private & public) is included



- Metropolitan areas have some types of railway operators, such as JR, Metros and private railways.
- These railways have been promoting independent businesses. (They own infrastructure and provide transport services without subsidies.)

Urban Railways Systems in Japan

Metropolitan Areas e.g. Tokyo, Osaka

Short-distance

Medium-distance

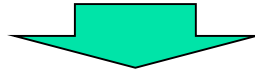
Long-distance



Combined Utilization

+

Convenient bus services from/to stations



Competitiveness against Cars

Part 1

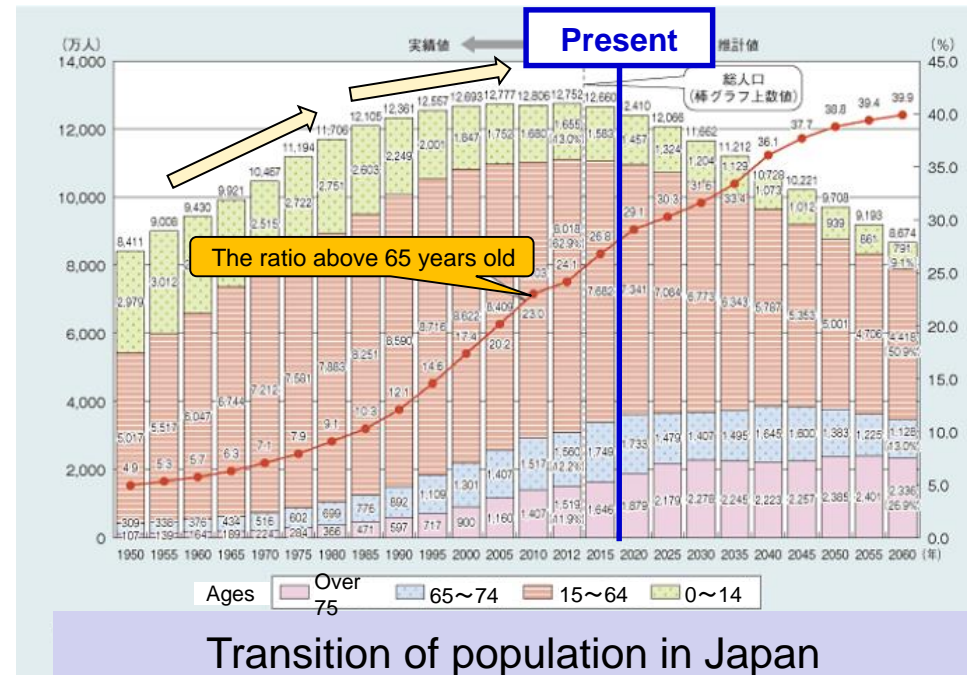
Development of Railway Systems in Japan

1) JR Lines

2) Metros

3) Private Railways

Unique to Japan

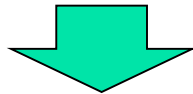


3) Private Railways

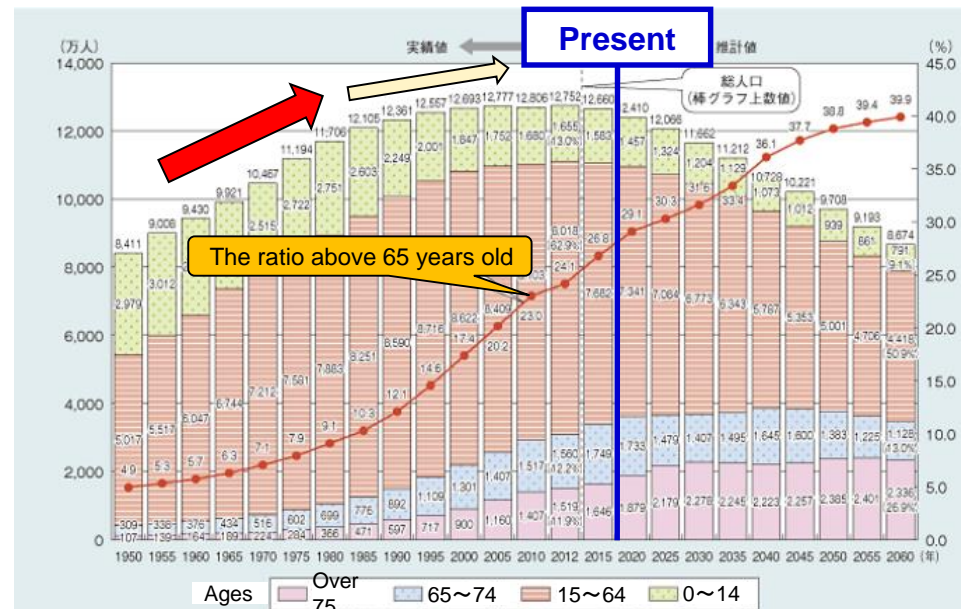
Integrated Development until 1970s

Background

- ✓ Road network was quite poor
- ✓ Expansion of urban rail network was required
- ✓ Land prices soared because of rapid urbanization



Private railway companies expanded suburban rail network along with land development.



3) Private Railways

Outline of Large-scale Private Railways in Tokyo

Company	Operating length (km)	Number of passengers (thousand)	Transport Volume (million P- km)	Passenger Traffic Density (thousand passengers)
Tobu	463.3	2,425	12,440	74
Seibu	176.6	1,722	8,589	133
Keisei	152.3	730	3,746	68
Keio	84.7	1,734	7,417	240
Odakyu	120.5	1,998	11,337	258
Tokyu	104.9	3,005	10,654	292
Keikyu	87.0	1,229	6,259	197
Sotetsu	35.9	615	2,507	191
Total	1,225.2	13,458	62,949	141

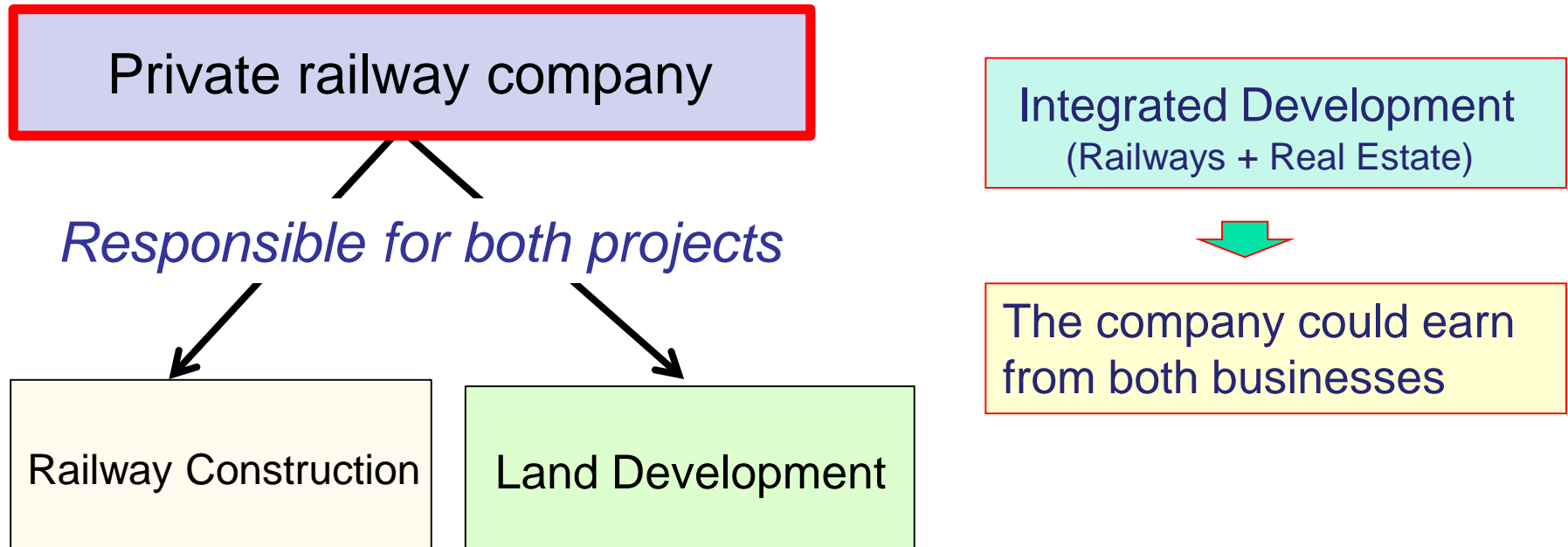
Source: "Railways 2016 in terms of Figures" (MLIT)

8 large-scale private railways transport 13.5 million passengers/day.

3) Private Railways

Integrated Development until 1970s

Kobayashi Ichizo model



Railway development during rapid population increase

In some railway groups, affiliated businesses cover more than 50% of the total revenue.

Integrated Development since 1970s

Private railway company

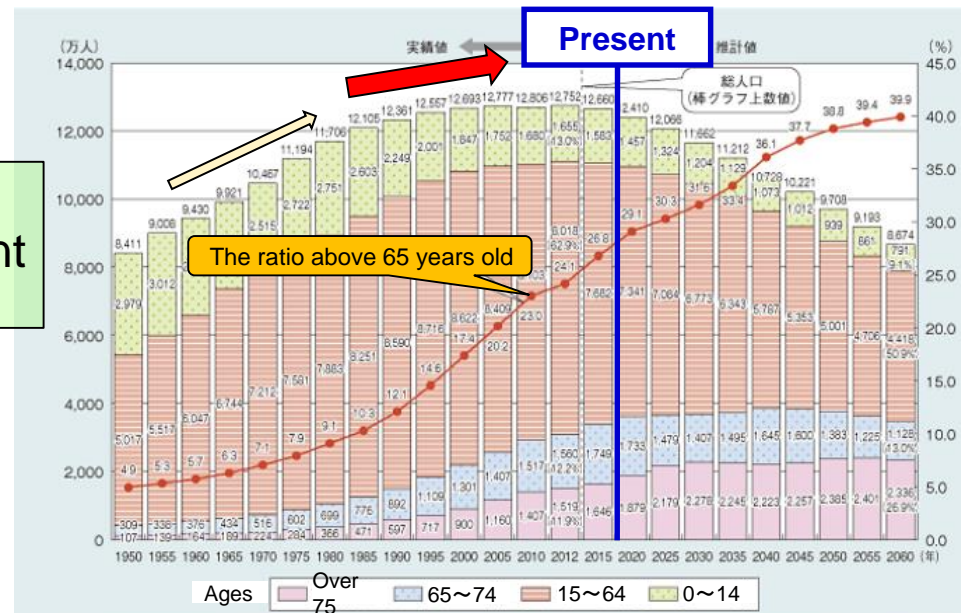
Excess financial burden

Railway Construction

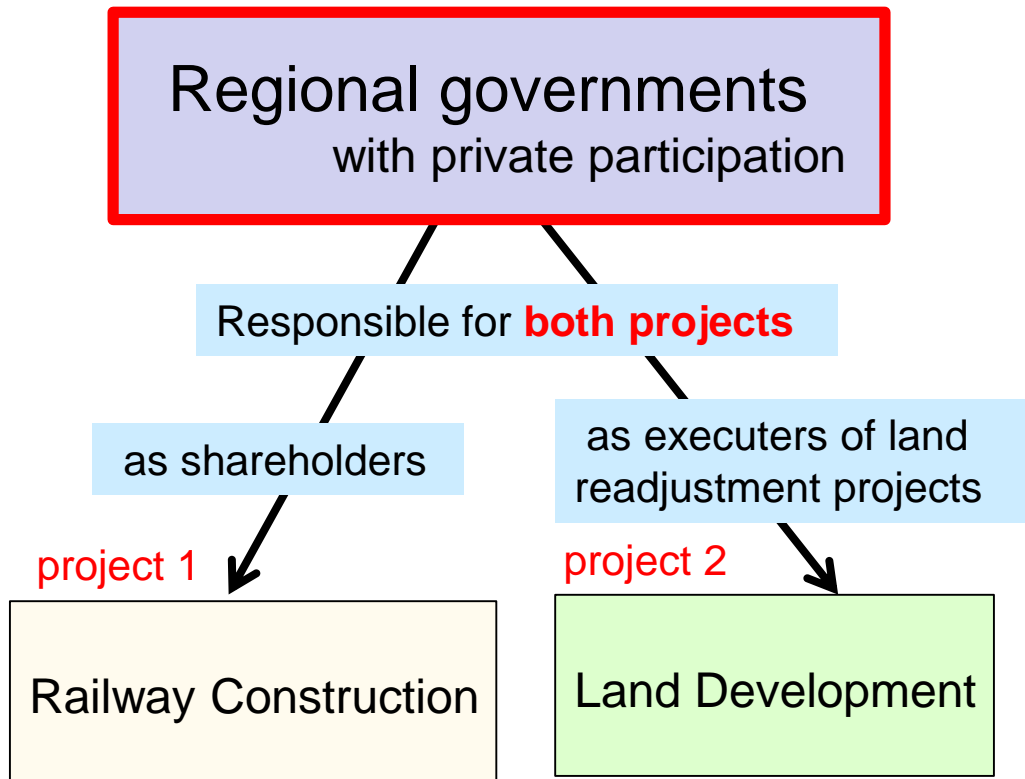
Land Development

Heavy costs and excess risk for the private sector.

Population increase has become gradual.



Scheme of TX Project

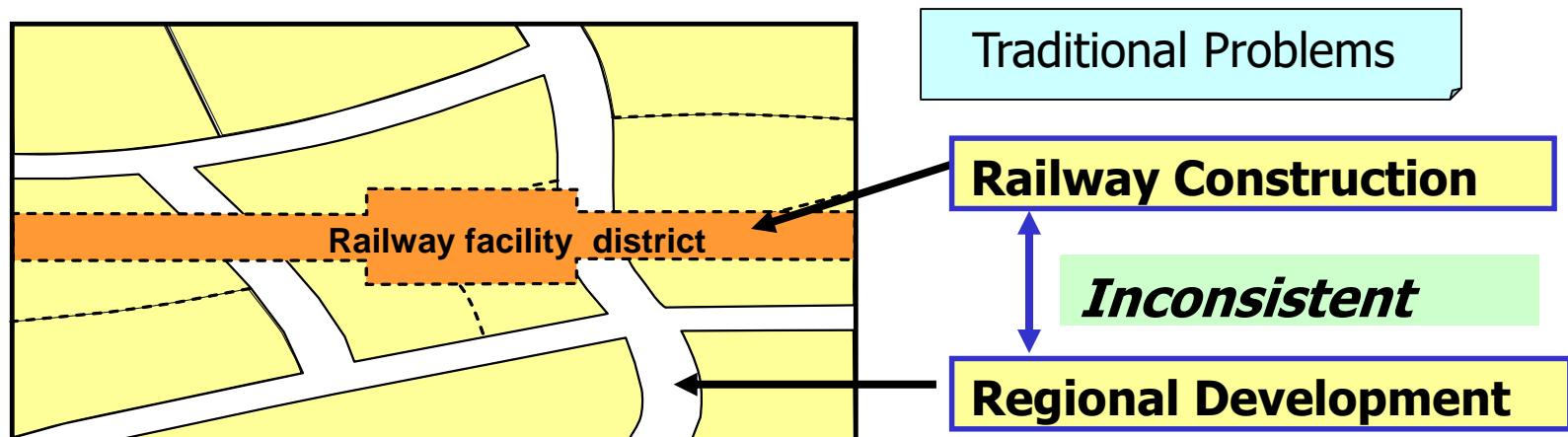


Station front of a TX station

Problems before the Law

■ Inconsistency with regional development

- ✓ Regional development usually occurred after the railway line started its operation.
- ✓ Inconsistency with regional development such as road planning.

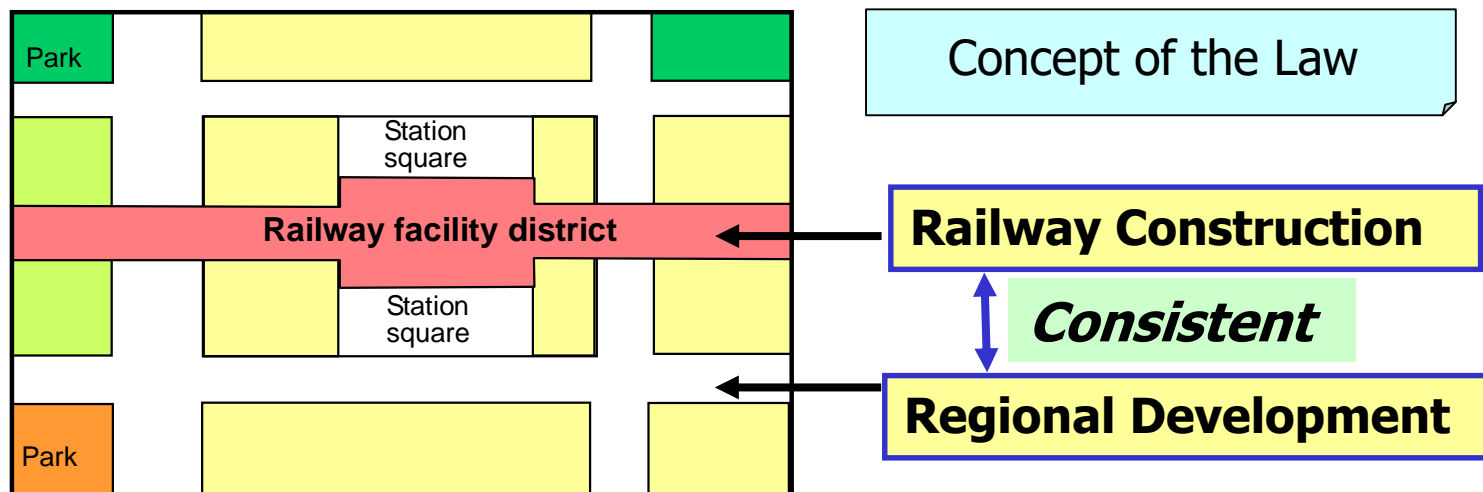


Aim of the Law

- Integrated Development Law-

- **To solve inconsistency between railway planning and regional planning.**

⇒ *The law promotes to supply large area of residential/business district in an integrated manner .*



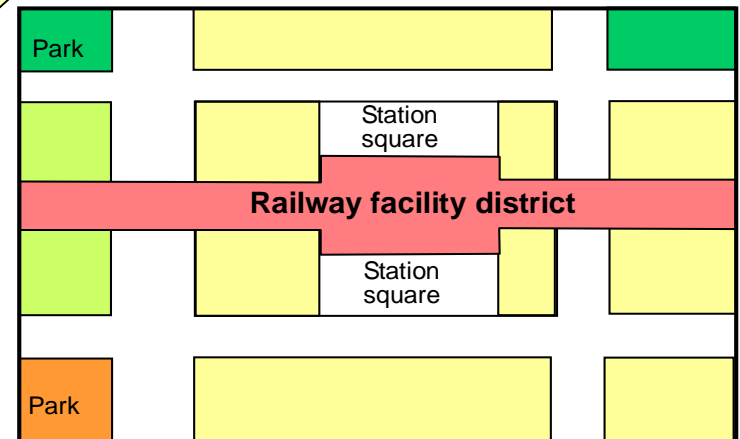
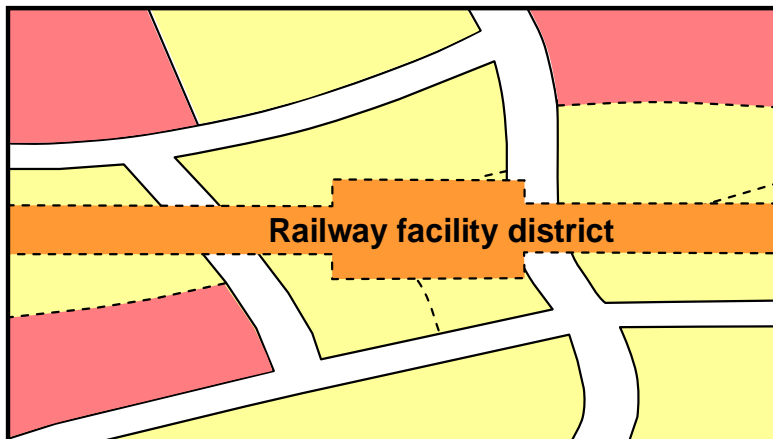
Characteristic of the Law

- Integrated Development Law-

Concept of the Law

- *Integration of “railway construction” and “land readjustment”*

Approach of “land readjustment”



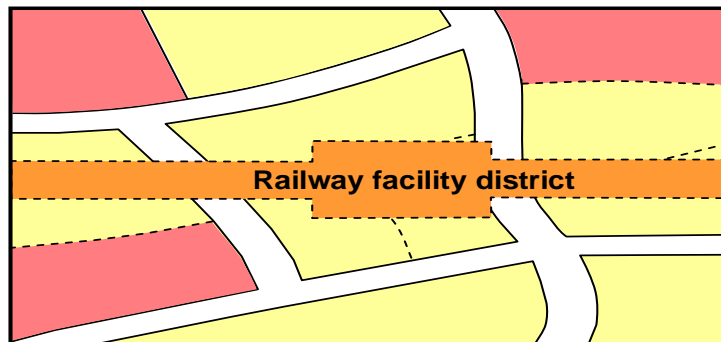
Successful Outcomes

Success

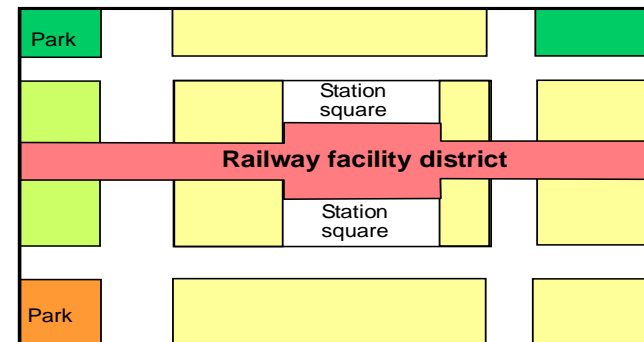
- ✓ Railway construction
- ✓ Railway operation
- ✓ Land development

<Reference>

Kurosaki, F. and Ogura, M. (2013) Construction of Tsukuba Express and Urban Development Based on the Integrated Development Law, *Selected Proceedings for 13th WCTR*

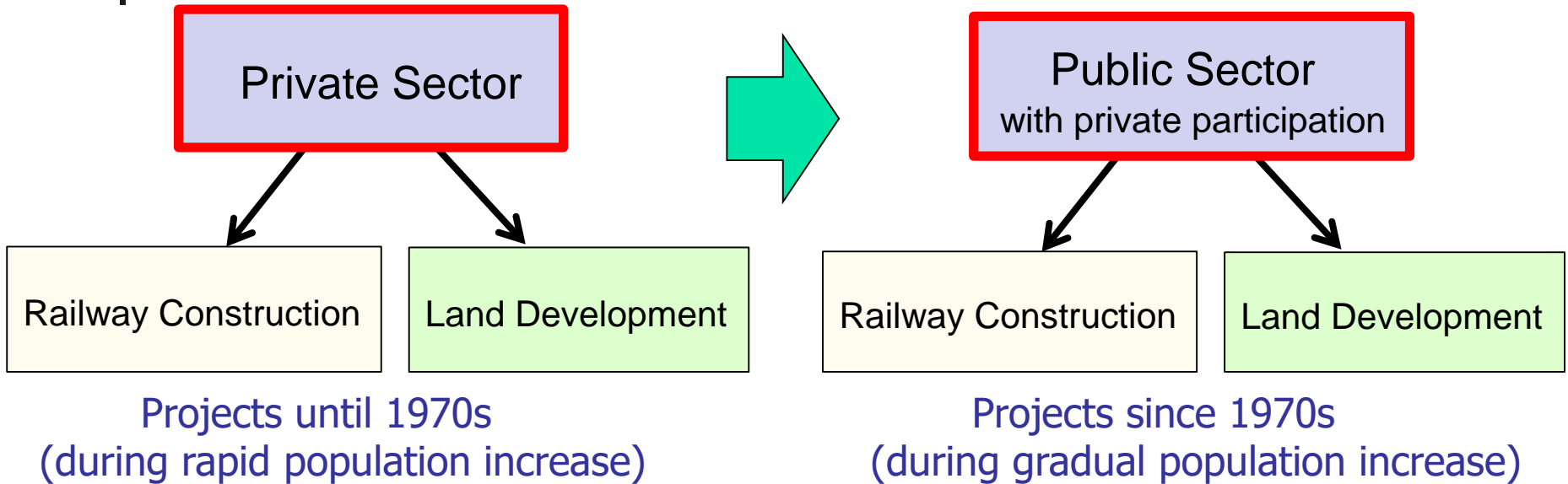


Before



After

Change of Project Schemes



Point 1

Railway construction and urban development should be integrated.

Point 2

Public sector should also play an important role for the projects these years.

Part 2

Integration of Urban Railway Systems

Passengers can enjoy integrated public transport services in metropolitan areas utilizing:

- 1) Transportation IC Card
- 2) Trough-train services

Transportation IC Card



or



A single card is effective for JR, Metro and private railways. It is also effective for many shops and related services.

Through-train Services



Operation by a single operator



Exchange of responsibility
at a border station

- Different railway operators cooperate by promoting through-train services.

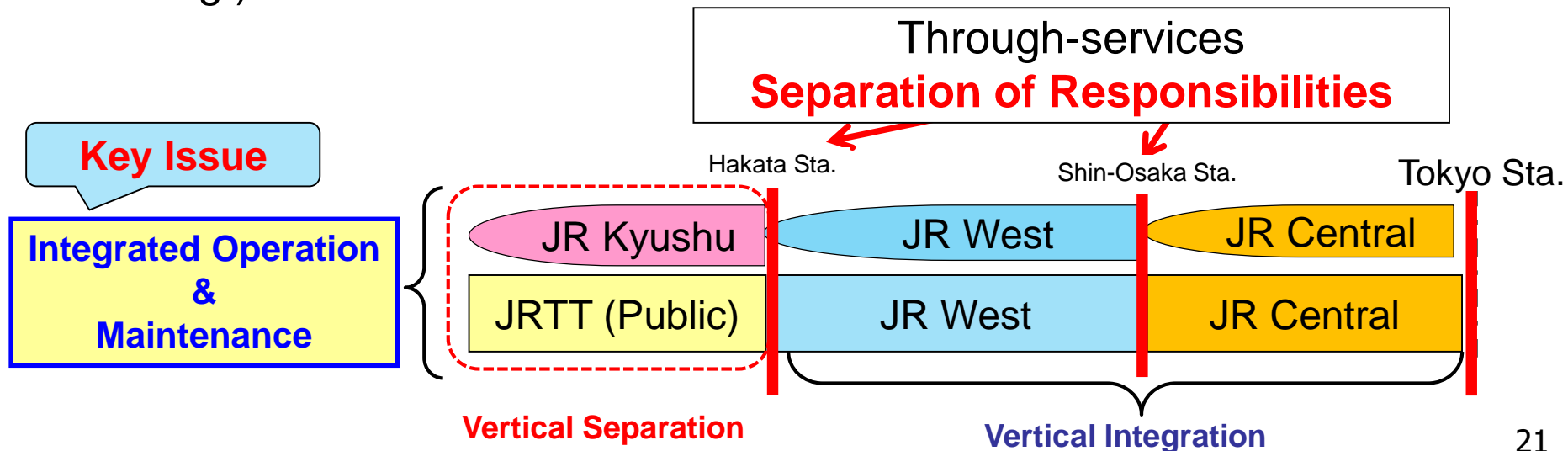
Passenger Through-train Services

Philosophy for Safety:

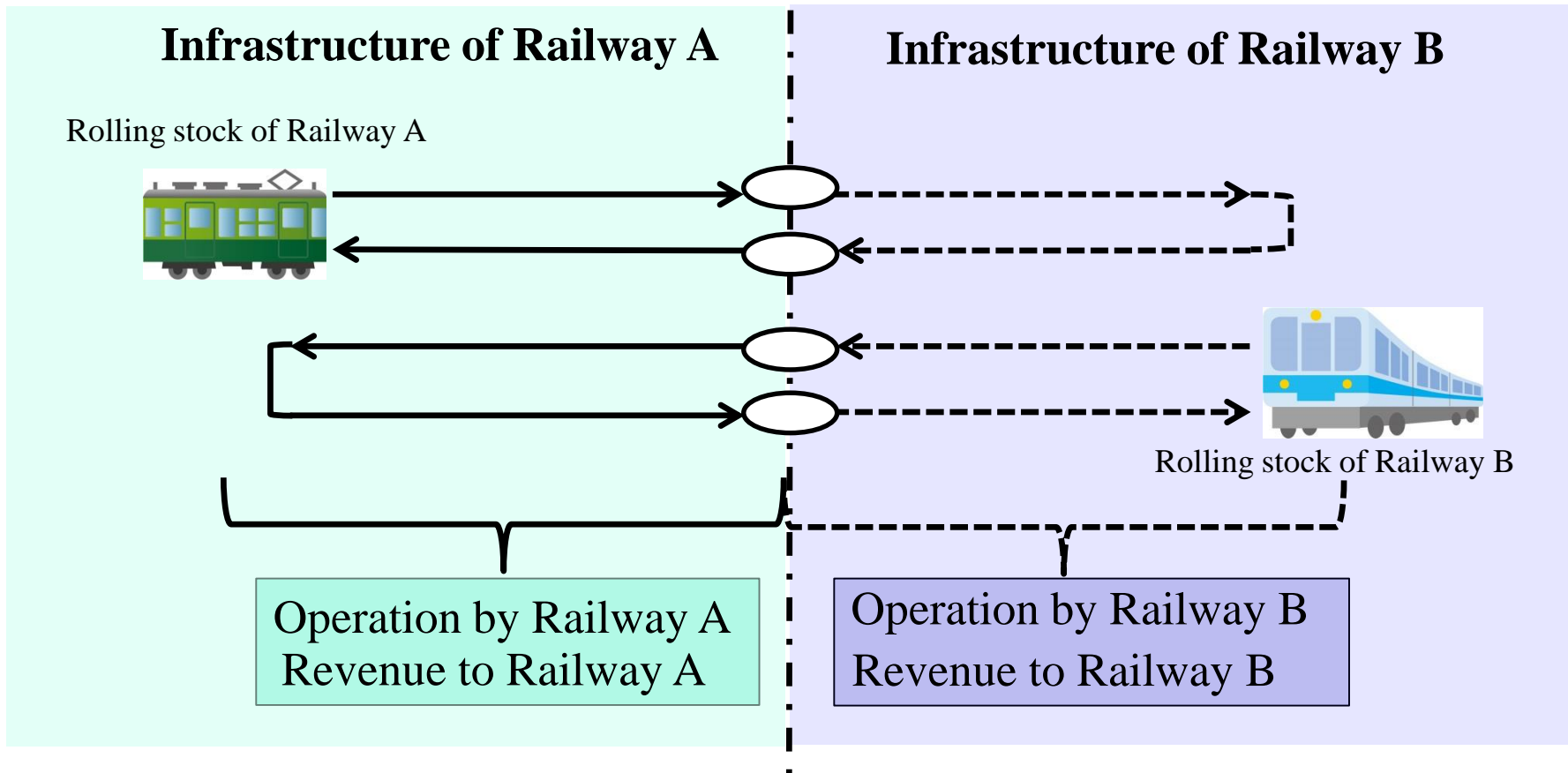
Separation of responsibilities at the border station

→ This philosophy is applied to all the passenger through-services in Japan such as: 1) JR & JR; 2) JR & Metro; 3) Private & Metro; 4) Other cases

e.g.) Shinkansen Lines



Passenger Through-train Services



○ : Border Station

Japan

The system is working smoothly

Because of the commercial benefits of the two railways, the number of the sections has been increasing steadily.

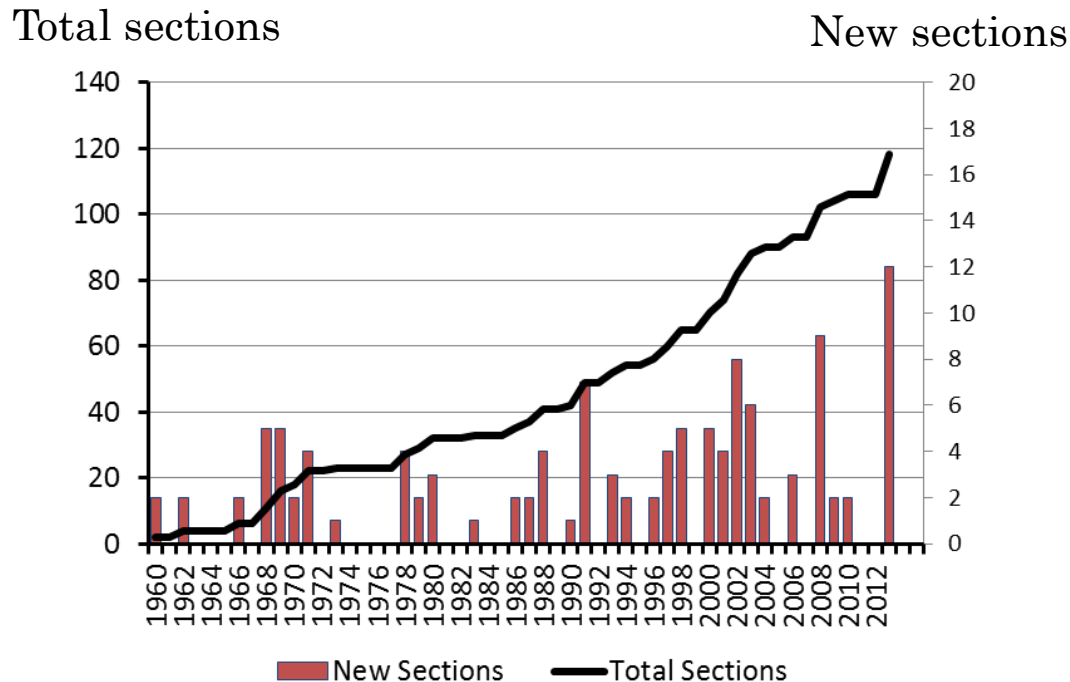
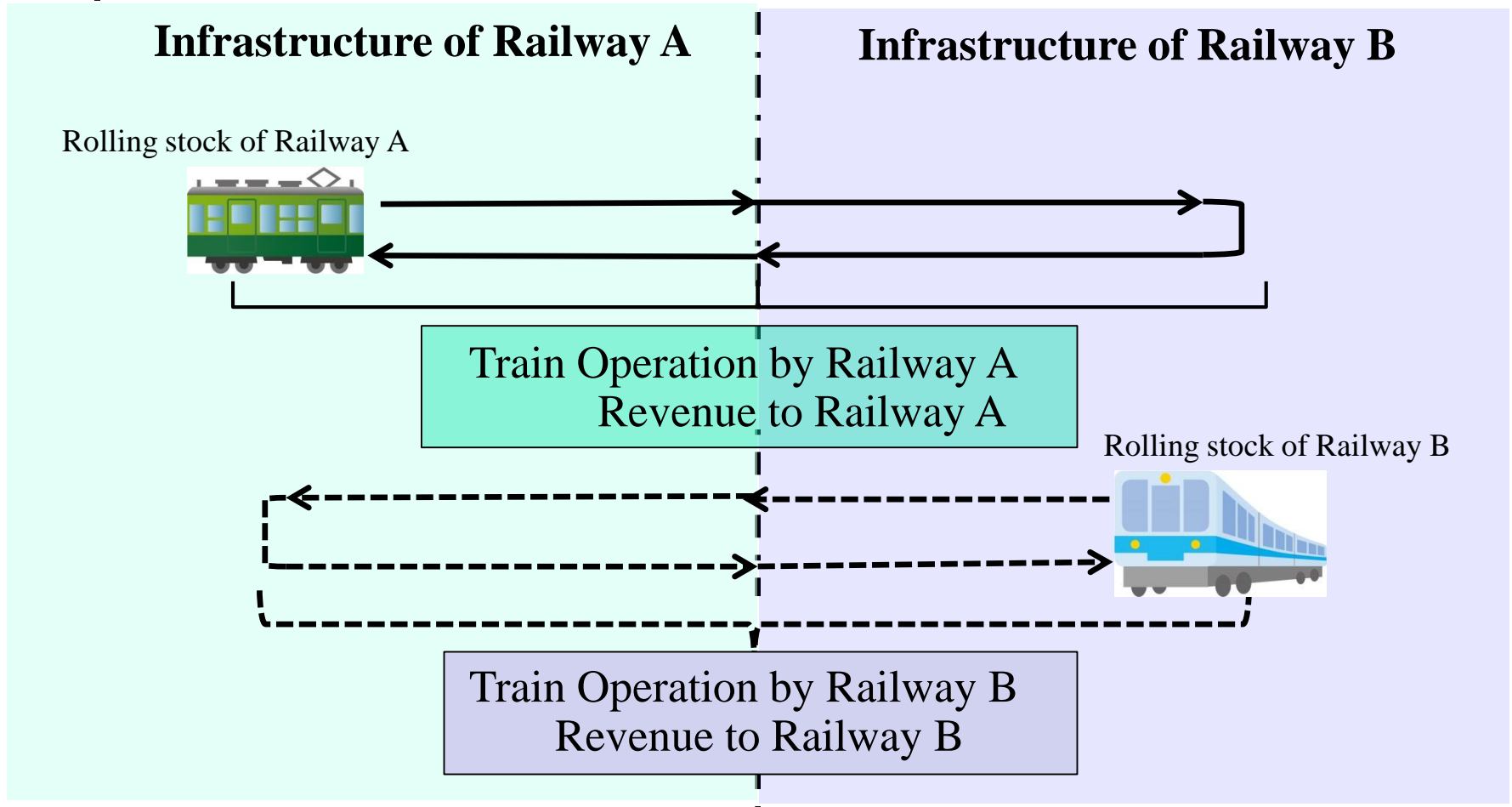


FIGURE. Sections with passenger through-train services (Metropolitan Areas in Japan)

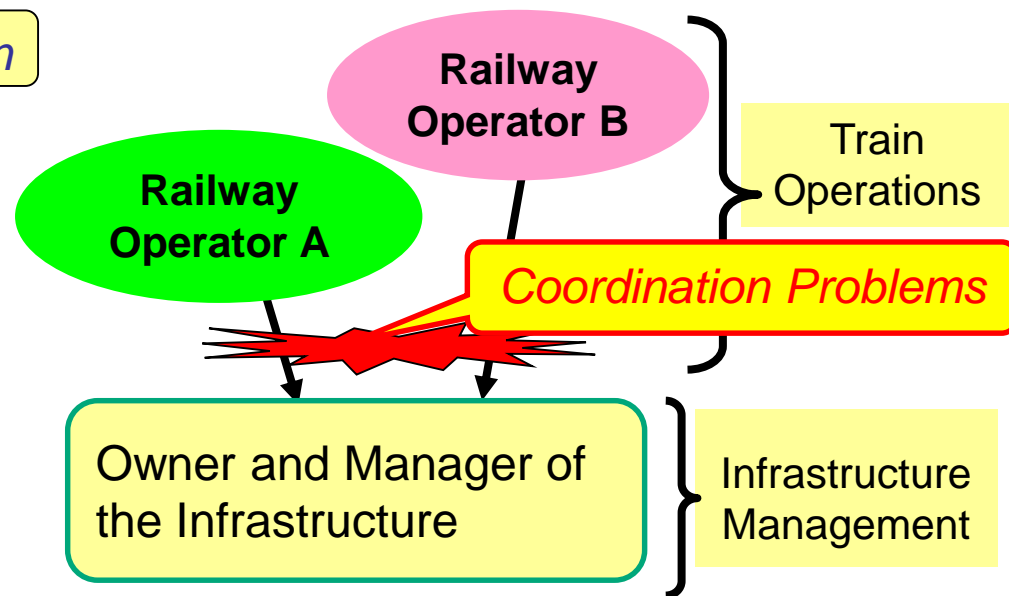
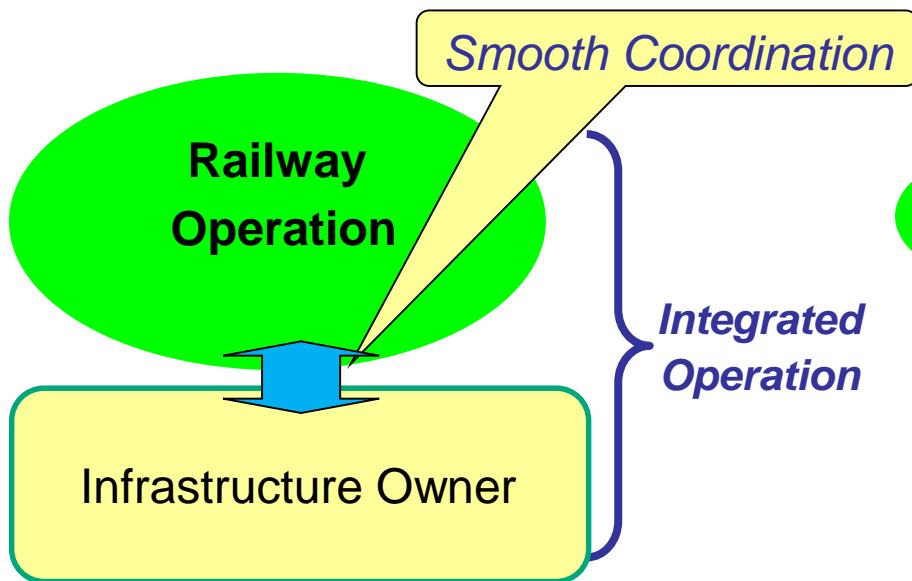
Open Access in EU Countries



Comparison of Railway Operation

Japan (passenger)

Europe & Some Followers?



Vertical Integration

Ownership of infrastructure varies

Vertical Separation

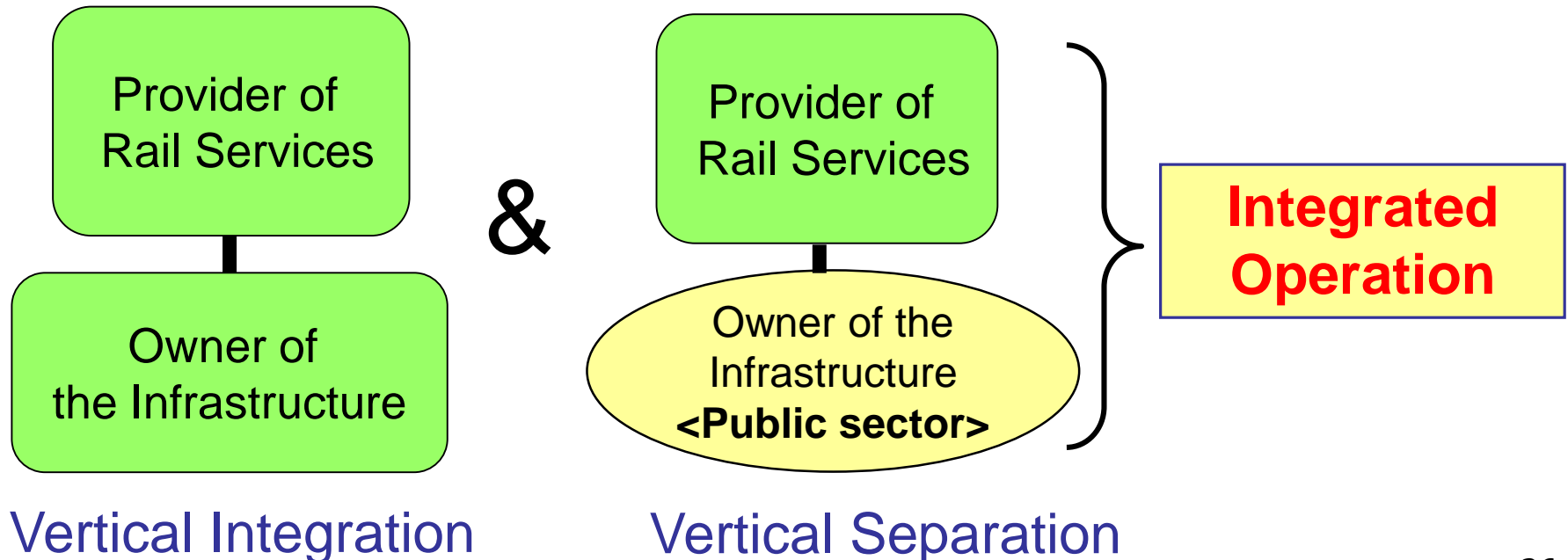
Vertical Separation

Direction aimed by EU policy

Characteristics of Railway Operation in Japan

Vertically Integrated Operation

On each section, a single operator is responsible for the railway operation.





Urban Railway System Development in Japan - *Contribution of the Private Sector-*



Thank you

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