

Roundtable

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Q-1 Reason of Investment for HSR?

- Beginning: **Serious Congestion in Gyungbu EW**
 - Serious Congestion was predicted in National Land Plan(80')
 - Infrastructure Development for Economic Growth
- Change: **Balanced Development and Rail Industry**
 - Securing Original Technology and R&D
 - Growth Pole Developing Strategy under HSR
 - Widening of Station Influential Area

Q-2 Change of Paradigm for Transportation

- **One-day Life Zone: Accessing within 1 day**
 - Gyungbu Expressway 1970's
- **One-day Commuter Zone: Round Trip within 1 day**
 - Gyungbu Railway 1990
- **Get to Everywhere with in 90min.**
 - KTX (HSR) 2010~2020

Q-3 Straw Effect and Development?

- **Apprehension for the Straw Effect in Local**
 - Losing industrial competitiveness in Local
 - Growth Pole Development
- **Facing the Limits to Growth**
 - Needed New Motivation for Growth
- **The Motive Power for Industry, Economy**
 - HSR Industry - Leading the Integrated Industry

Q-4 Route Choice for HSR?

- Beginning: **Focusing on the Demand Forecasting**
 - Tried To Solve the Congestion on the Road
 - Problems for the securing financial resources
- Modification: **Mutual relation and Accompanied Growth**
 - Development as Growth Center in National Land Planning
 - Evolution for Economy Development Model under HSR Station
 - Balanced Development and One-Life Cycle Zone

Connection + Economic Mode

Q-5 The Economic Impact in HSR?

- Improving Accessibility (less 180min, 85% of Land)
- Mode Change (Seoul-Busan)-congestion problems
 - Railway: 27.3%(2003) – 59.7(2007)
 - Auto+bus: 27.6%(2003) – 16.5%(2007)
 - Air: 45.1%(2003) – 23.8%(2007)
- Number of User of Convention Center in HSR Station
 - 4,012 person/year (2005) – 341,534 person/year(2011)
- Ridership of KTX
 - 72.3 Thousand person/day (2004) – 136.7 Thousand person/day(2011)

Q-6 Effort for Accessibility?

- Beginning: **Construction for Straight Line**
 - Focusing on the Minimum Travel Time
 - Minimum Construction Cost
 - Problems for Transfer and Larger Access Time in Local
- Modification: **Intermodal Transportation System**
 - Development of Accessing Mode to Use HRS
 - Complex Transfer Terminal with Economic Effective Area
 - Changing Location of Station to improve accessibility

Q-7 Organization of HRS in Korea

● **HSR Construction Planning Team of MLCT ('94)**

- Establishing and adjusting HSR plan & policies including funding plan
- Supervising High Speed Rail Construction Authority

● **HSR Headquarters of Korean National Railroad ('89)**

- Electrification of existing railway lines, Preparation for operation of HSR

● **HSR Construction Authority of Korean National Railroad ('89)**

- Construction of HSR network including funding plan

● **Social Overhead Capital Construction Implementation Committee ('89)**

- Reviewing and adjusting key policies on the construction of HSR
- Coordination amongst related governmental departments

● **Korea Train Express('92) - independant**

+ Reform and Competition

Q-8 Rail Reform and Competition Operation

- Problems: **Monopolizing Business**
 - Difficulty of Management Transparency
 - Difficulty of Reasonable Fair
 - Limitation of Self-Development for Railway Service
- Improvement: **Rail Reform and Competition Operation**
 - Vertical Separation of Rail Industry ('04)

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2012	2015	
97 operations	158 operations	
KORAIL (97)	KORAIL (107)	Private operator (51)

Q-9 Choice of Technology Partner?

- Beginning: **Application and Use of Skills**
 - Application of High-tech Industries or Traffic Mode
 - Problems of Maintenance
 - Difficulties of Upgrade
- Development: **Technology Transfer and Progress**
 - Effort of Tech-Transfer
 - Research and Development for HSR
 - Progress the Self Technology and HEMU(430km/h)

Q-10 PPP Contact?

- **Project cost for HSR**

- 1st Stage(~'04) : Government (45%), HSR Const. Authority (55%)
- 2nd Stage('02~'10) : Government (50%), HSR Const. Authority (50%)

- **Bonds, foreign loan, and private financing were main sources of funding for HSR Construction Authority**

- **User Pay Principle:**

- **31% of Ticket Price is the Construction Cost**

Q-11 Upgrade vs New Investment?

- **Korea Choose New Investment**
 - **HSR for Passenger**
 - **Existing Rail Line for Logistics and Passenger**

 - **Connection for Passenger was the most important for Balanced Development**

Q-12 Interoperability?

- **HRS should be used for Existing Rail Line**
- **Long Term Development,**
 - **First, Existing Line can be used**
 - **Second, Korea want to make the New Line**
- **TGV was the Interoperable Technique**

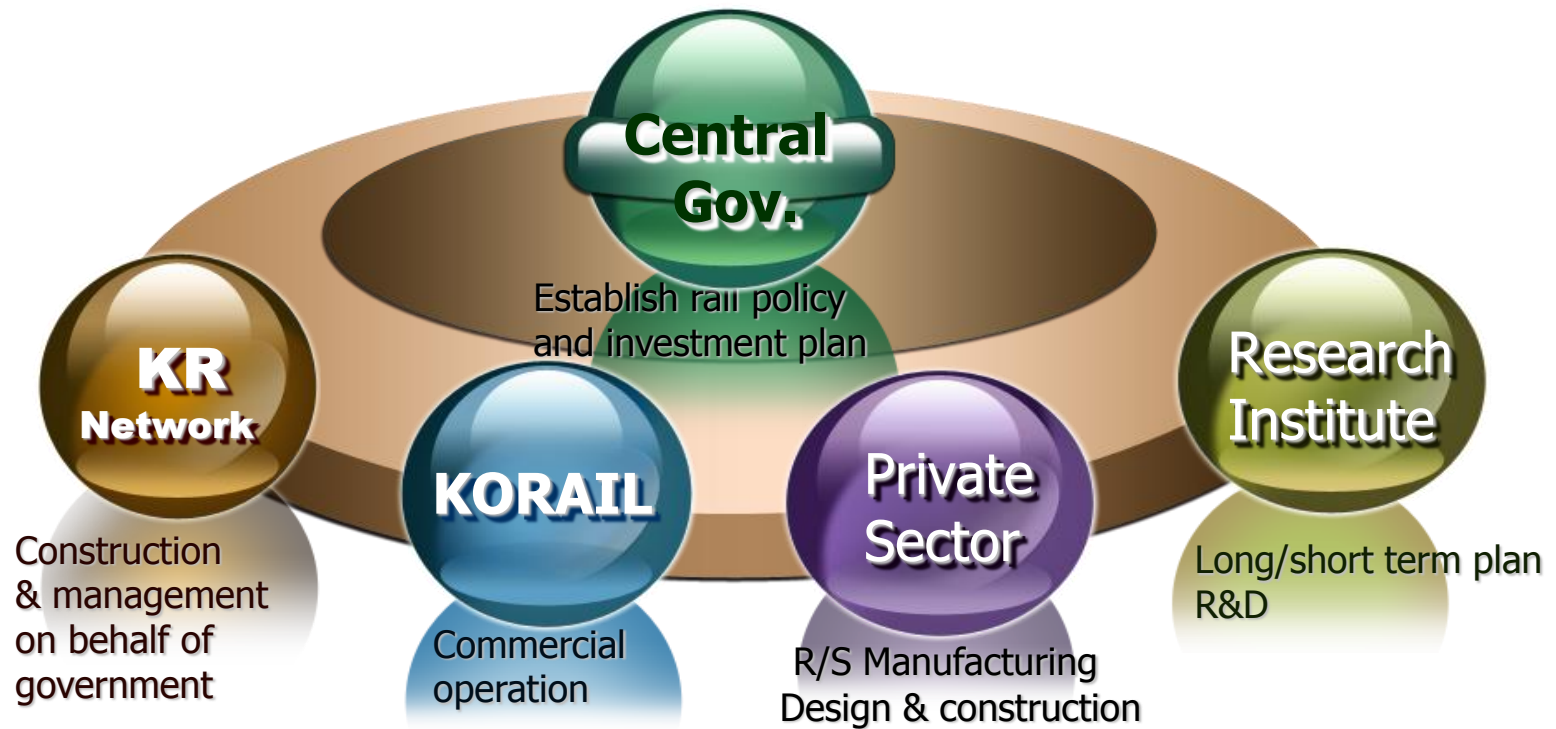
Q-13 Low B/C but Selected?

Decision Making



Economic Validity	Political Validity	Balanced Development
Demand Forecasting	National Treasury	Effects of Local Area
Benefit	Funds Supply	Regional underdevelopment
Cost	Preference	National Plan
Financial Analysis	Environment	

1-0 Organizations of Railway



Local gov. is responsible for construction and operation of local railway (Urban railway)

1-1. Length of Transportation

Infrastructure

	Road (km)	Railway (km)	Airport capacity (1,000 flights)	Port capacity (million tons)
1980	46,951	3,135	1,006	82
1990	56,715	3,091	1,331	224
2000	88,775	3,123	1,882	430
2010	105,565	3,557	2,222	830

Railways

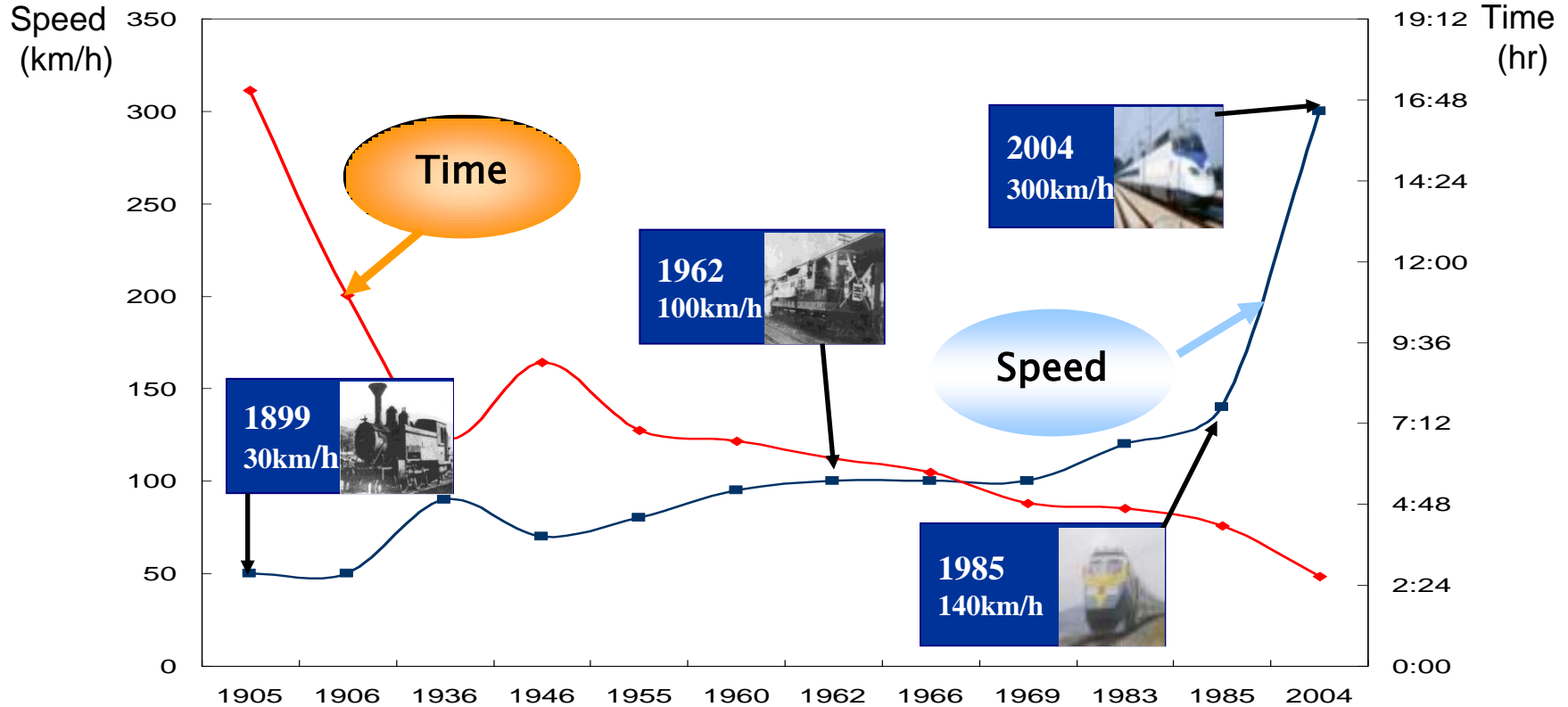
	1980	1990	2000	2004	2010	Remarks
Route Length	3,135	3,091	3,123	3,374	3,557	Track Length : 5,784
Double Track	720 (23%)	847 (27%)	939 (30%)	1,318 (39%)	1,763 (50%)	Japan 40%, Germany 45%, France 50%
Electrification	428 (14%)	522 (17%)	669 (21%)	1,588 (47%)	2,147 (60%)	Japan 60%, Germany 52%, France 48%

<Expressways and Railways(1988)>



1-2 Speed Evolution of Railways

- 1899 30Km/h : First rail service with steam loco on Gyeongin line
- 1950s 100km/h : Diesel locomotive
- 1980s 140km/h : Saemaeul train (Push-Pull Type Diesel)
- 2004 300km/h : KTX(High Speed Train)



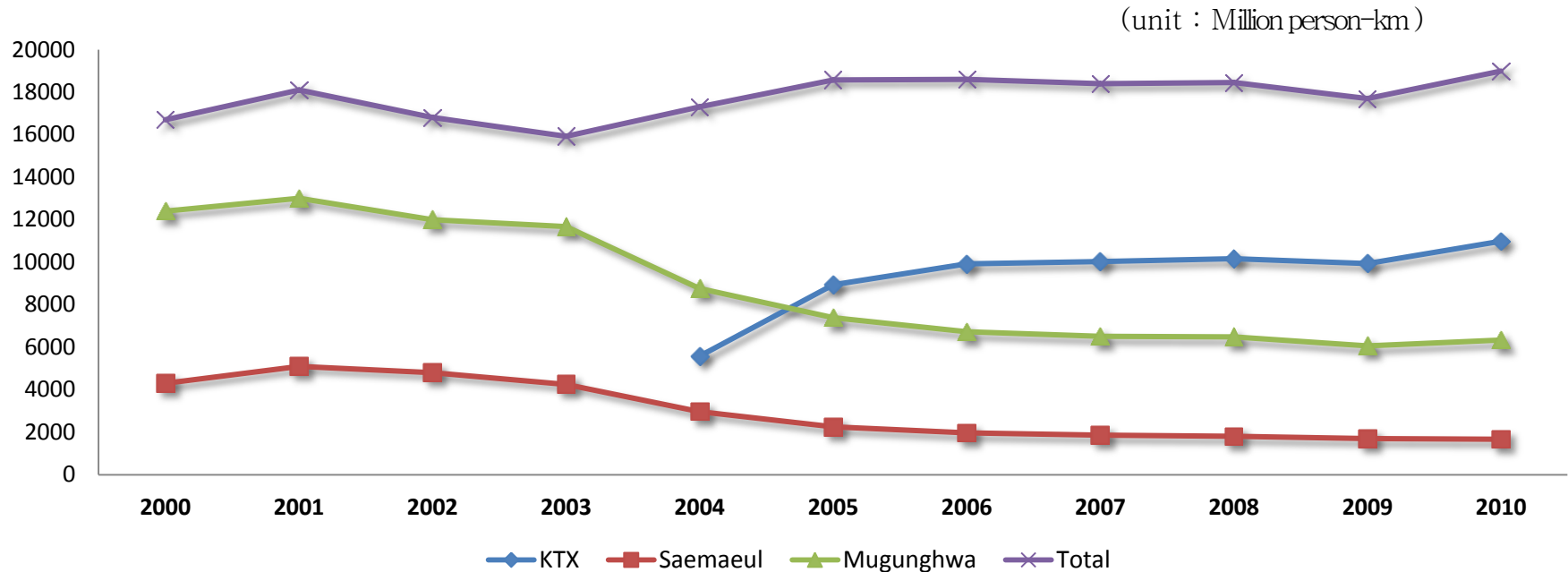
1-3 Rail Passenger (Inter-Regional)

Ridership of KTX

(Thousand person/day)

	2004	2005	2006	2007	2008	2009	2010	2011
G-Line	60.7	73.6	82.7	84.9	86.2	85.0	94.5	107.2(8.5%)
H-Line	11.6	15.1	17.3	17.3	17.7	17.7	18.8	20.1(8.2%)
Total	72.3	88.7	100.0	102.2	103.9	102.7	113.1	136.7(8.4%)

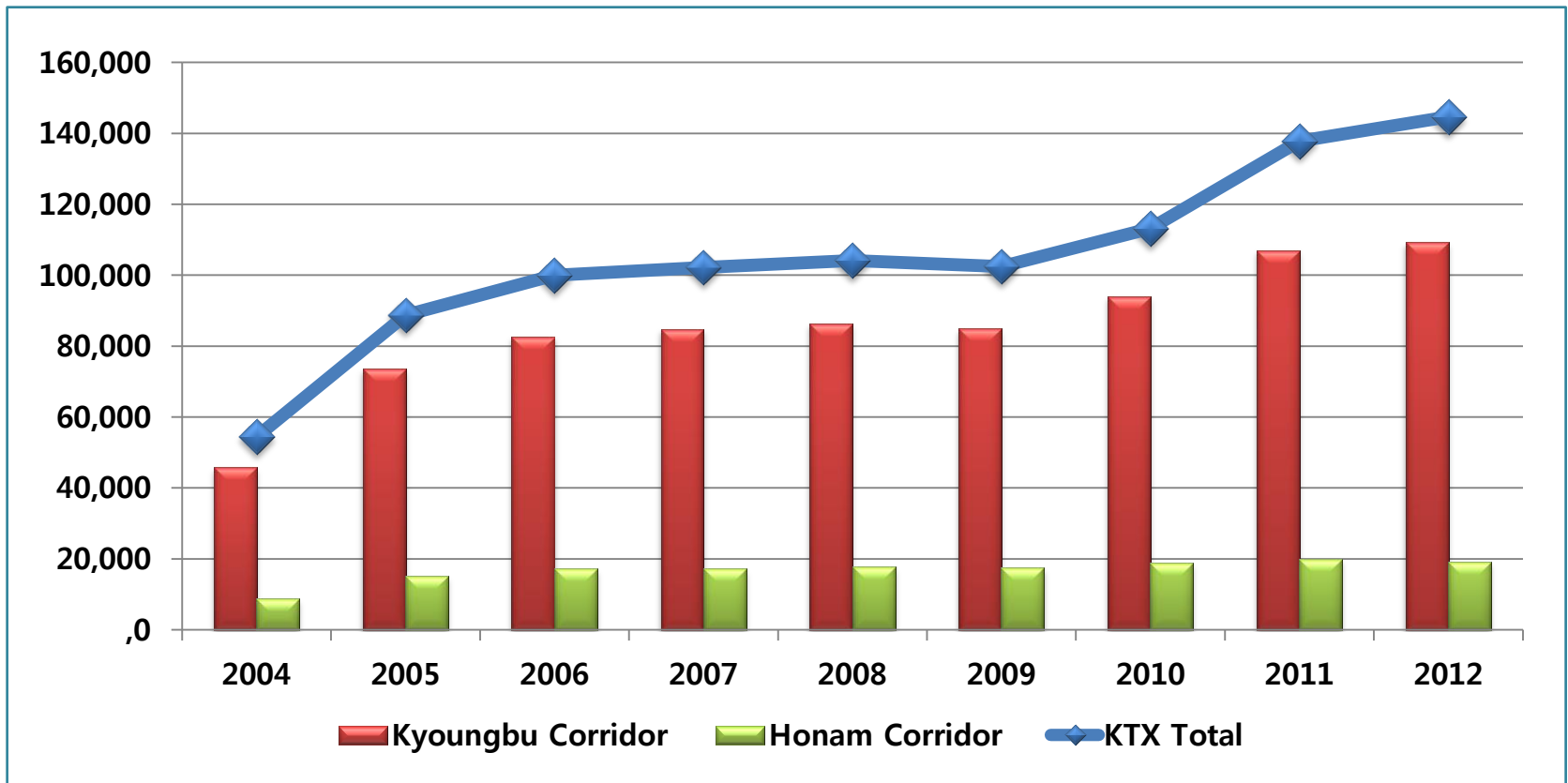
※ () indicates average annual growth rate



1-3 Number of User

■ **Kyoungbu Corridor: 110,000 persons per a day**

Honam Corridor: 20,000 persons per a day

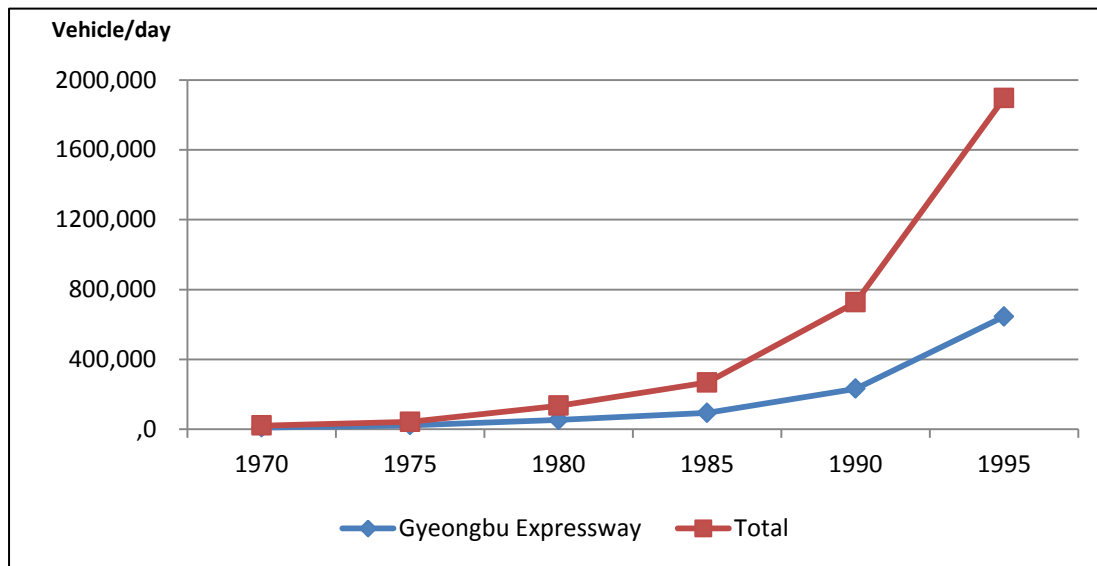


2-2 Congestion in Gyeongbu Express Way

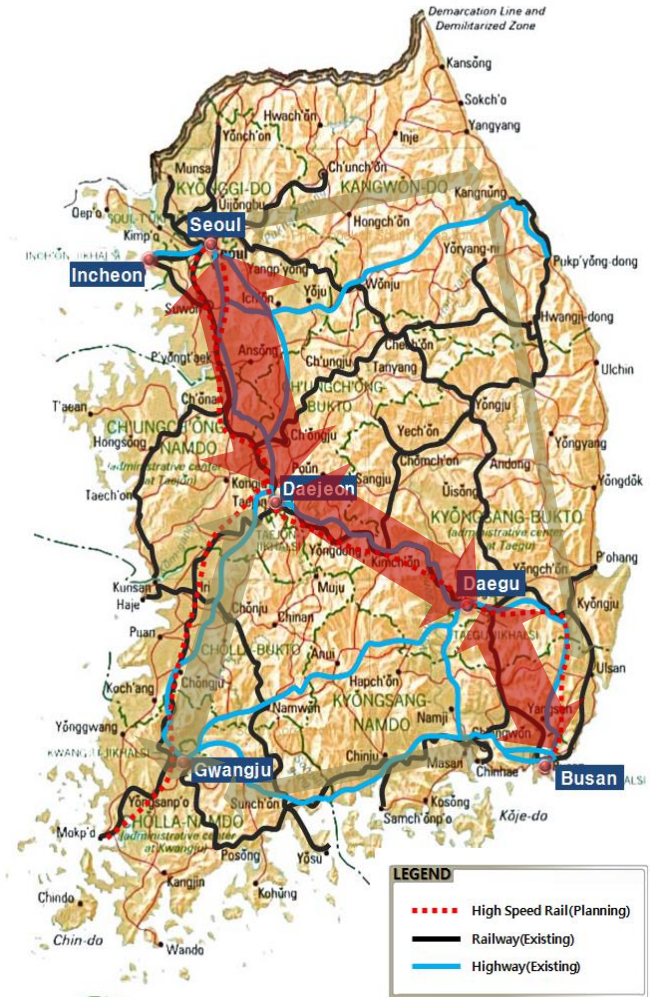
Transport in the late '80s

● Congestion Increase in Gyeongbu Corridor

- Increase in traffic volume in Gyeongbu corridor during 1980s
- Gyeongbu Expressway : 53thous./day('80)
→645thous./day('95)



<Traffic Volume in Expressway>



<Expressways and Railways(1988)>

2-2 Beginning of High Speed Rail Construction

National Land Plan

❖ Congestion in Gyeongbu Railway Line

Section	Capacity	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00
Seoul - Suwon	153	101	108	116	125	133	141	150	159	169	179	189	199	210
Suwon - Cheonan	138(173)	114	123	133	143	152	163	173	185	197	209	222	235	250
Cheonan - Daejeon	134	101	109	117	126	134	143	152	162	173	183	194	206	218
Daejeon - Gimcheon	123	66	71	76	82	87	92	98	104	110	117	124	131	138
Gimcheon - Daegu	132	75	80	85	90	95	100	106	111	117	123	130	136	144
Daegu - Busan	106	60	65	70	75	80	85	90	95	101	107	113	120	127

※ () indicates the rail capacity when 2 double track lines are constructed between Suwon-Chonan

❖ Congestion in Gyeongbu Expressway

Section	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04
Seoul - Suwon	113	122	131	139	148	157	175	192	210	227	245	259	273	286	300	314	328
Suwon - Cheonan	66	68	70	71	73	75	85	95	106	116	126	133	139	145	152	158	165
Cheonan - Daejeon	61	63	64	66	67	69	81	93	106	118	130	135	139	144	148	153	157
Daejeon - Gimcheon	41	43	45	46	48	50	52	54	55	57	59	60	62	63	65	66	67
Gimcheon - Daegu	46	69	53	56	60	63	66	70	73	76	79	82	84	87	89	92	94
Daegu - Busan	49	52	55	58	62	65	67	70	73	76	79	82	85	88	90	93	96

※ Pink Color indicates the congested area when Expressway between Seoul and Daejeon is not expanded to 8 lanes

3-2 Reform and Competition

❖ Rail Reform

● Vertical Separation of Rail Industry ('04)

- Vertical separation of Korean National Railroad into KORAIL (train operator) and KR Network (facility manager)

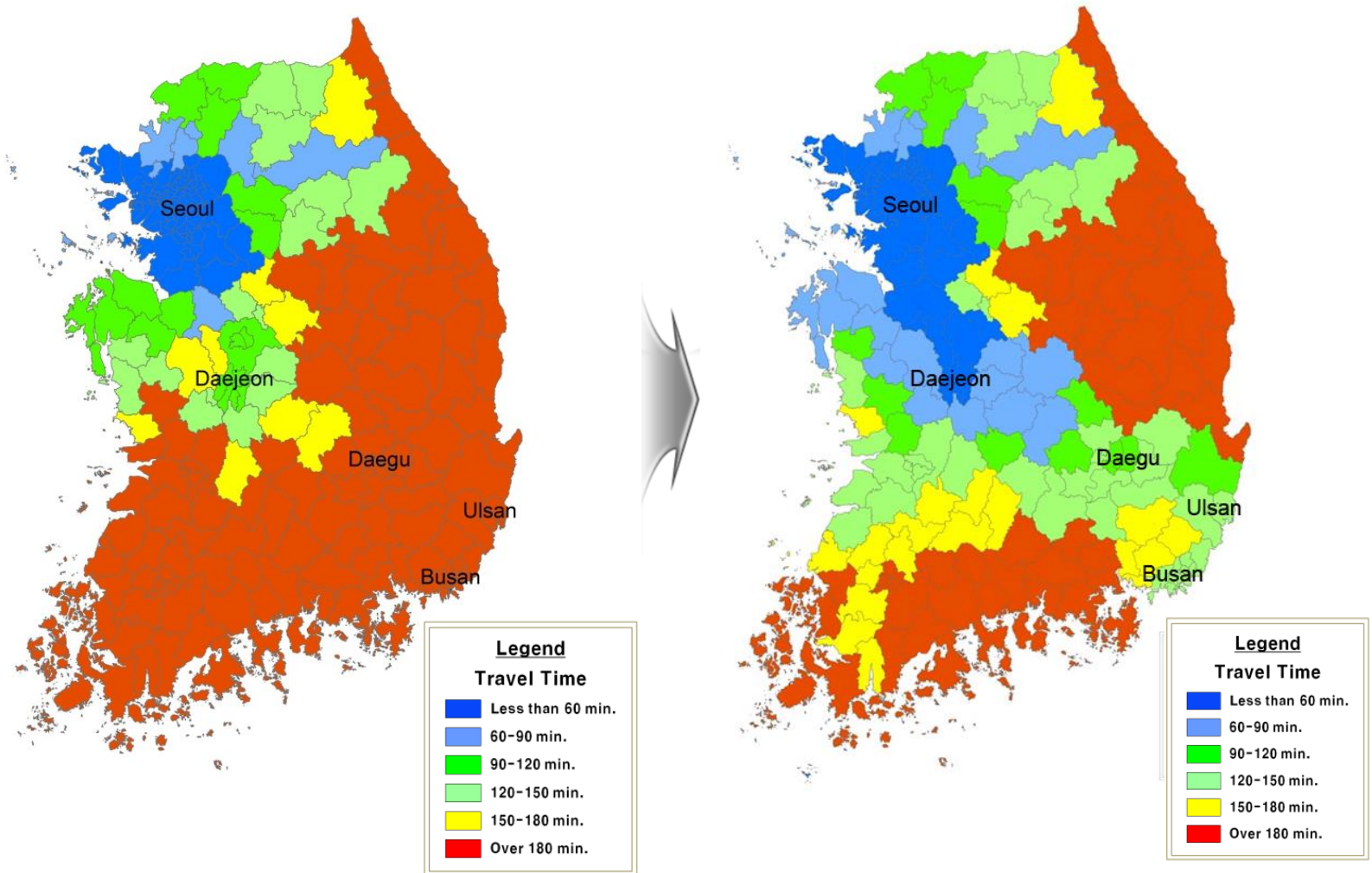
❖ Competition Introduction in Rail Operation

- Suseo-departing Gyeongbu and Honam KTX to be launched in '15
- Lease agreement for 15 yrs of rail operation
 - 5-year-based comprehensive evaluation of safety and service
- Decreased basic fare by over 10% and credit given to bidder offering additional decrease
- Increased track access charge of minimum 40% of revenue (up 9% from KORAIL's 31%)
- Route assignment plan

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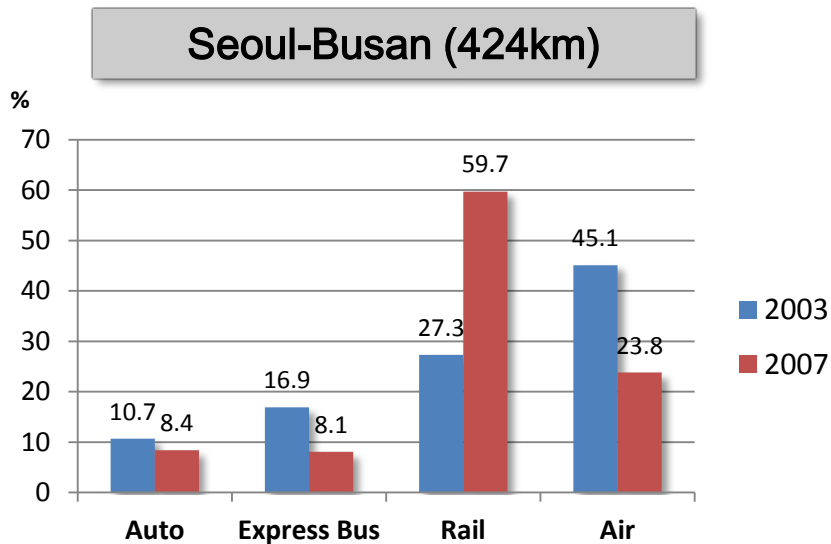
5-1 Improving Accessibility



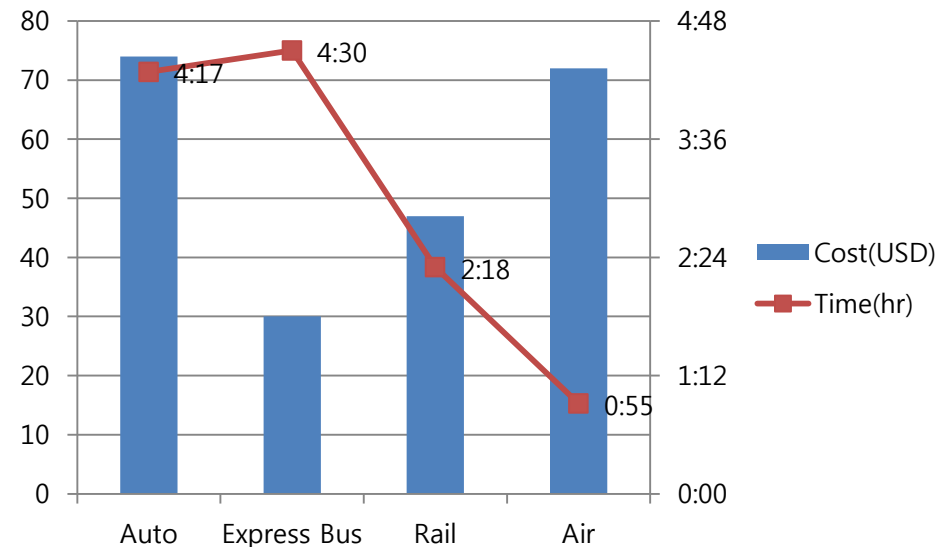
5-2 Mode, Cost and Time

● Intercity rail travel time decrease

- Seoul-Busan(424km) : 250 min → 138 min → 118min



<Mode Share Change>



<Comparison of Cost & Time>

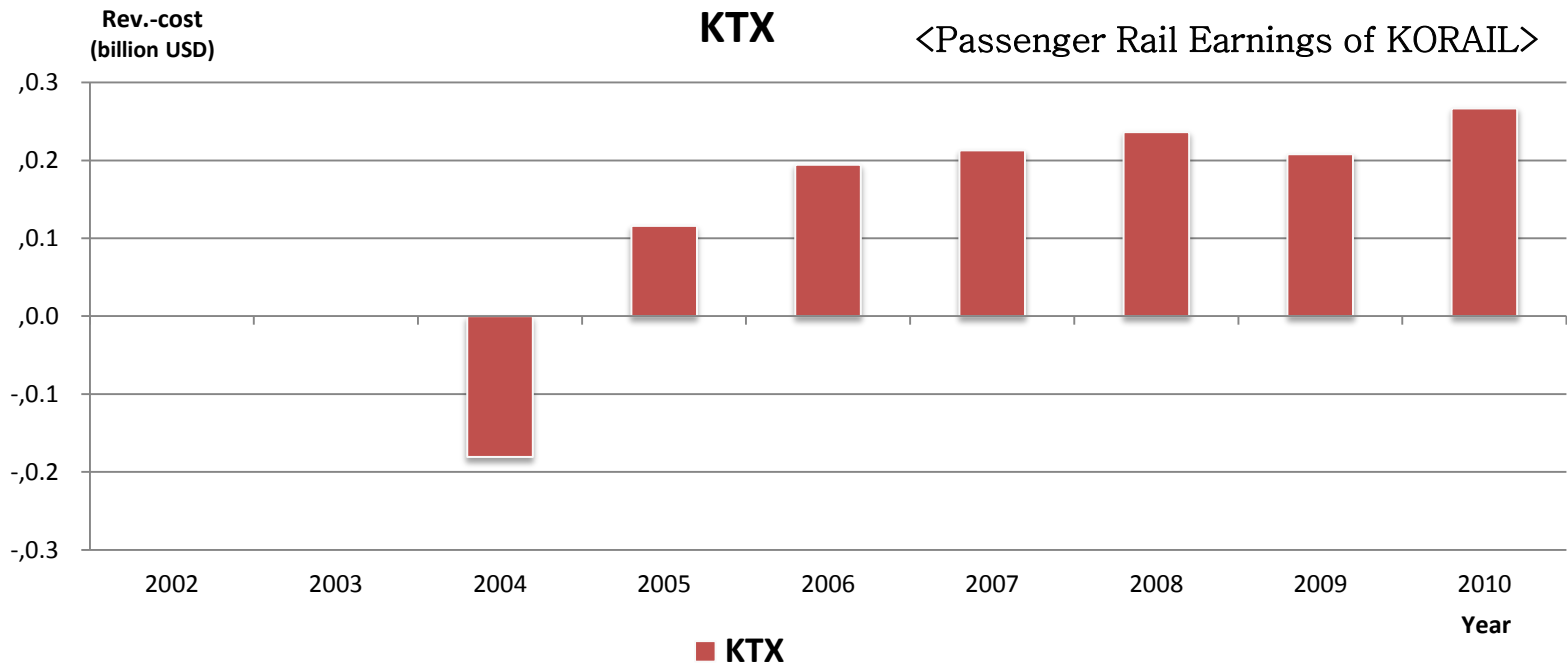
5-4 Ridership and Rev.

Ridership of KTX

(Thousand person/day)

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5-5. Convention Center in KTX Station

