

Korea Transport Database(KTDB) Construction & Application

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Dr. Chongsuk Cho

A small image of a city skyline with several skyscrapers under a blue sky with clouds, located in the top left corner of the slide.

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I. Introduction

1. KTDB

What is it?

- A system that collects and analyzes survey & Big data to establish and manage a transport DB
- To be used **foundational data** for trans. investment and policy making
- To **improve the reliability** on evaluation of national trans. politics and planning

Government's job creation efforts in 1998

- Collect basic trans. data for the establishment of electronic government to investigate the movements of passengers and freights in nation

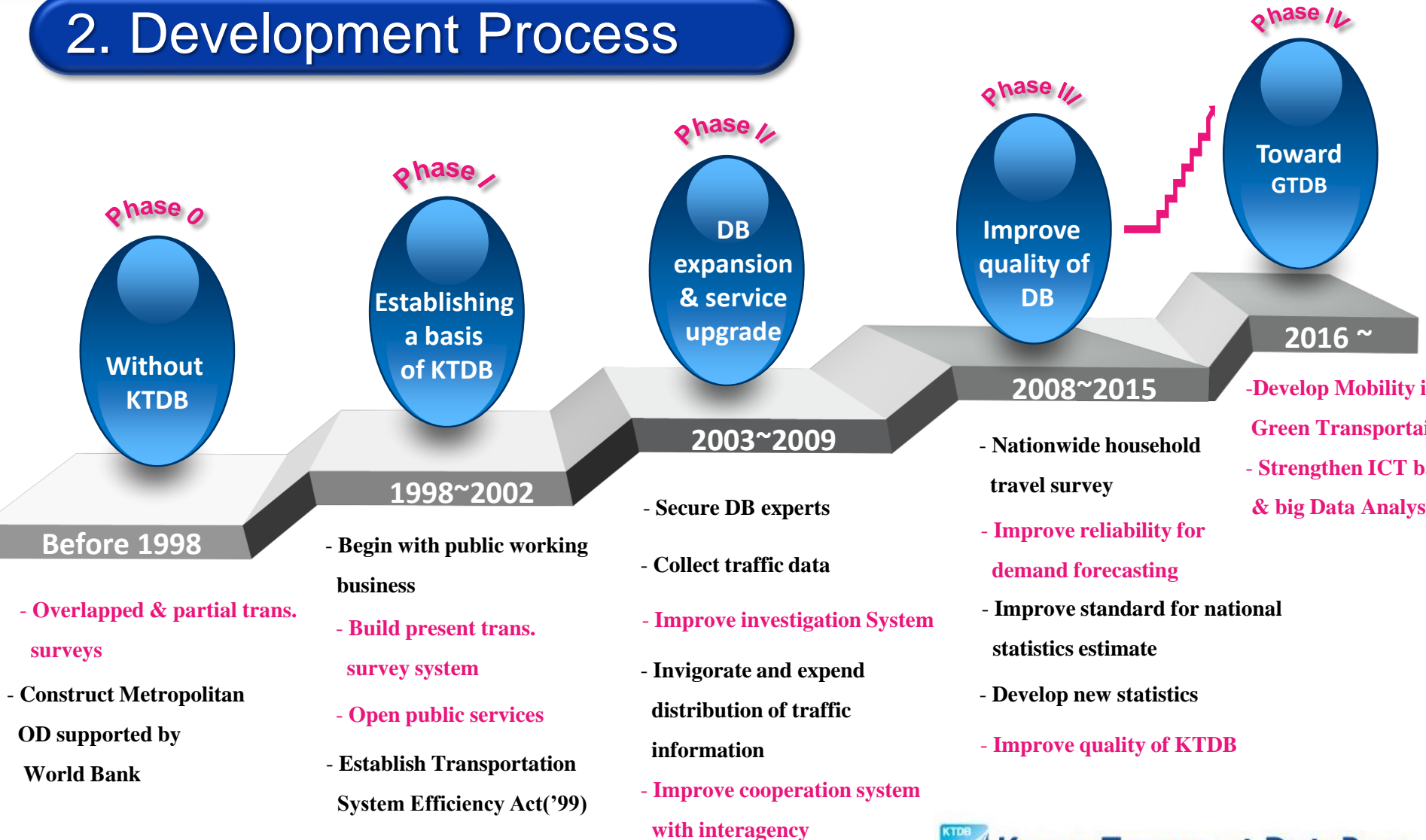
Legal basis for development in 1999

- Announcement of 『**Transportation System Efficiency Act**』 and its enforcement ordinance to adjust comprehensive transportation politics and build efficient transportation system

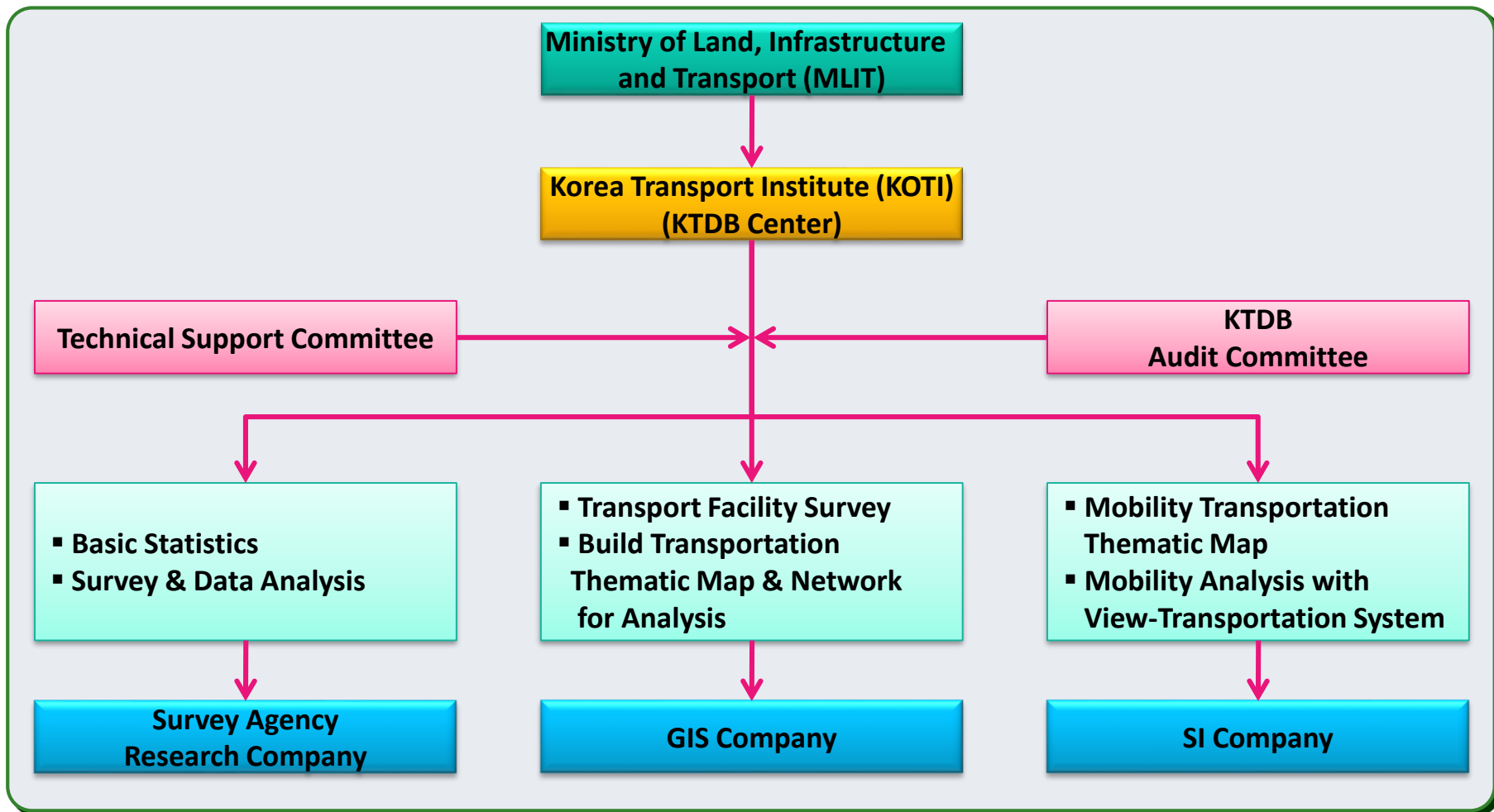
I. Introduction

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2. Development Process



3. Organizations



4. Main Tasks

Statistics & Literature

- Land Use
- Socio-Economic Indexes
- Traffic Facilities/infrastructure
- Trend of Transport Policies, Technologies

Survey & Analysis

- Inter-Regional Passenger & Freight O/D
- Metropolitan Area Passenger O/D
- Travel demands in the Future
- Trip Generation Rate, Mode shares, ton-km by mode

Bigdata & Analysis

- Mobility indicators(Traffic Speed, Congestion time)
- Mobility Analysis with View T

Publications

- 'National Transport Survey', 'Korea Transport Statistics', 'KTDB Trend', 'KTDB Newsletter', etc.

II. KTDB Construction

1. Survey & Analysis

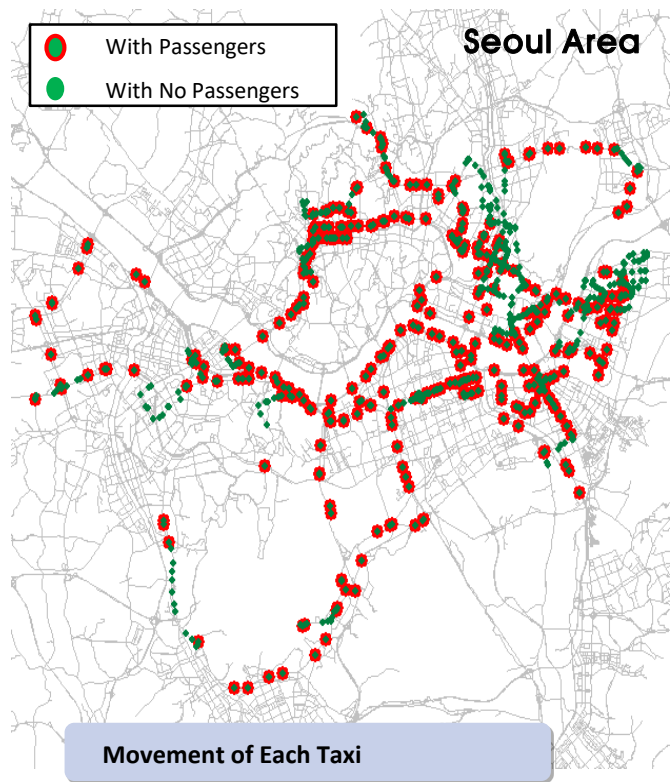
- ❖ **National Transport Survey: to figure out the amounts of movements for both passengers and freights**
- ❖ **Conduct regularly at every five-years**

Class	Area	Year	Survey Type
Passenger	Nationwide & Metropolitan	1998 2005 2010 2016 2021	<ul style="list-style-type: none">• Weekday Trip Diary Survey• Weekend Trip Diary Survey• Traffic Counting & Occupancy• Station & Terminal Survey• Express way survey
Freight	Nationwide	1996 2001 2005 2017 2022	<ul style="list-style-type: none">• Freight Survey for Companies• Truck Diary Survey for Drivers• Inter-modal Terminal Survey• Traffic Counting around Industry Parks• Toll Booth

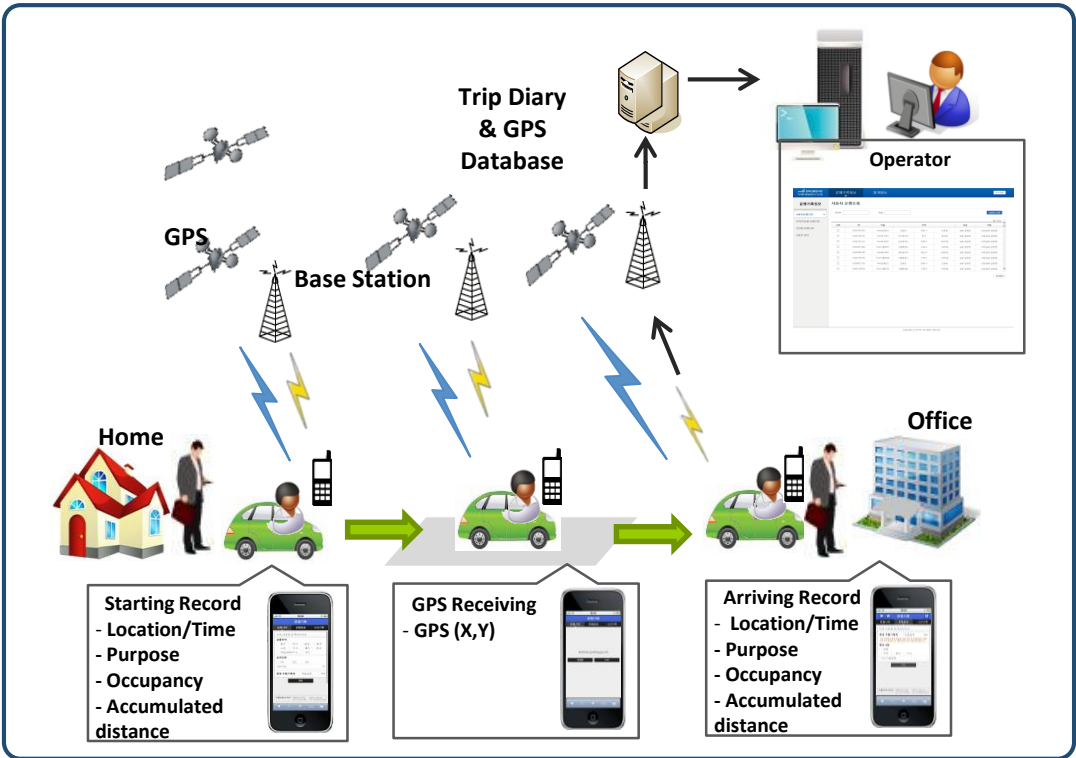
II. KTDB Construction

- Using ICT based Survey

❖ **Collect Taxis GPS data**
- 10,000 veh. of taxis in Seoul



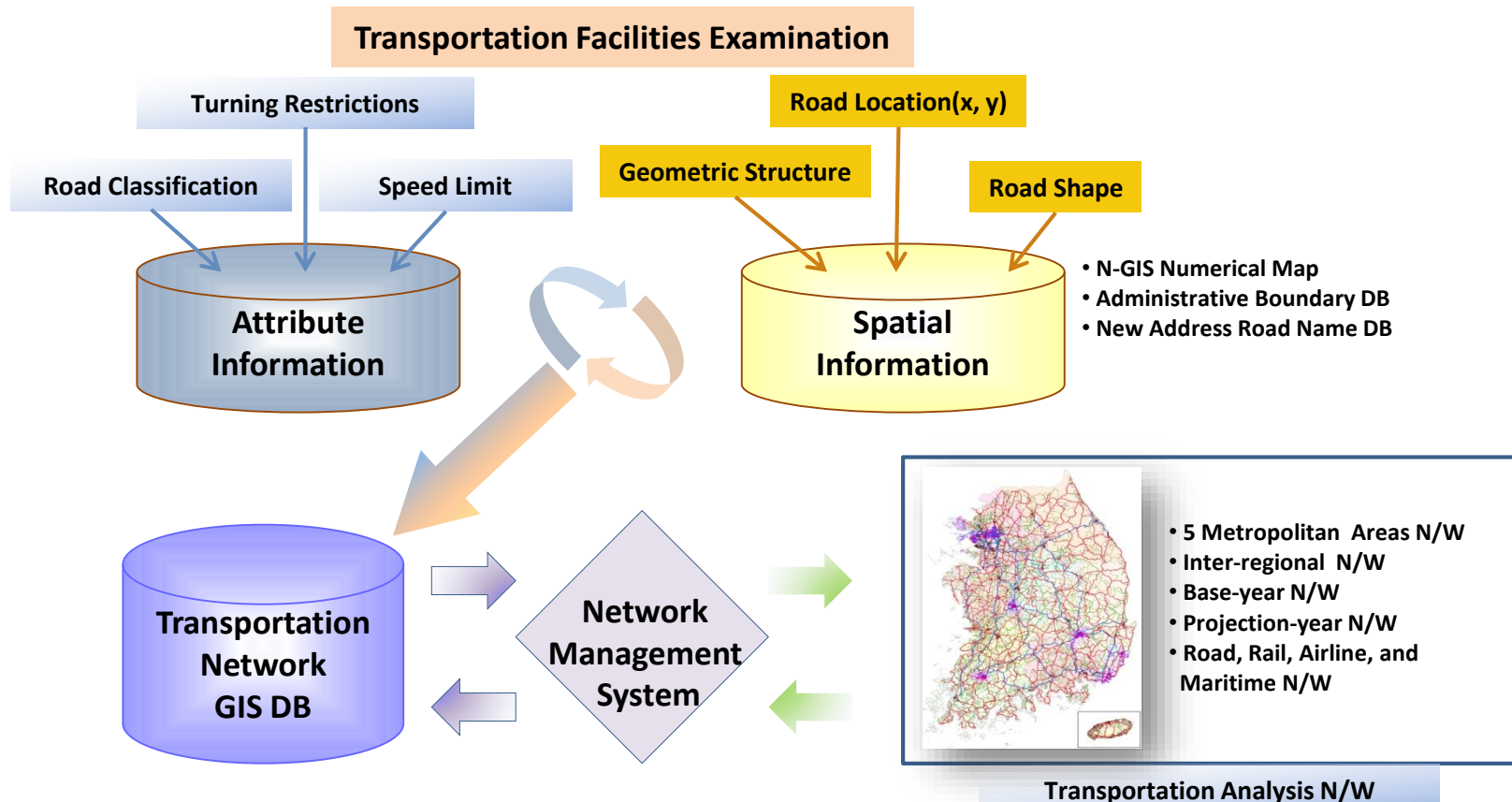
❖ **Using Smart Phone/Navi.**
- Household trip diary survey



II. KTDB Construction

- Analysis Network building

- ❖ Build **road & railway analysis networks** for both current & future
- ❖ Build GIS map with **attribute & spatial information** of transportation facilities



II. KTDB Construction

- Estimate Passenger & Freight Movements

❖ Estimate current & future passenger movements by trip purpose & mode

- Nationwide & Metropolitan Area O/D, Mode shares, Travel time & distance

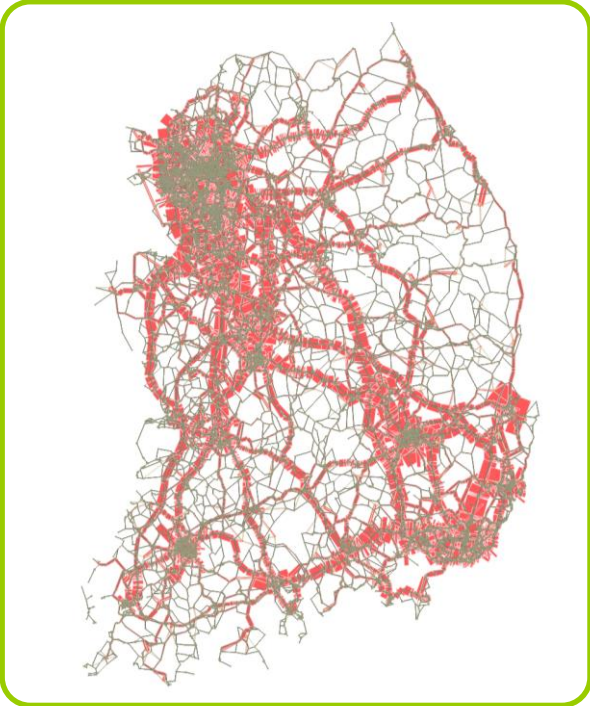
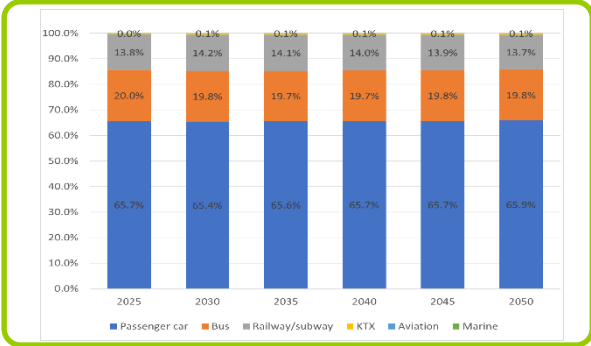
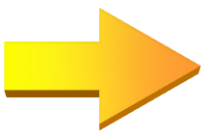
❖ Estimate current & future freight movements by mode

- Nationwide O/D, Tons and Ton-km by mode, commodity movement by commodity type

National
Transport
Survey



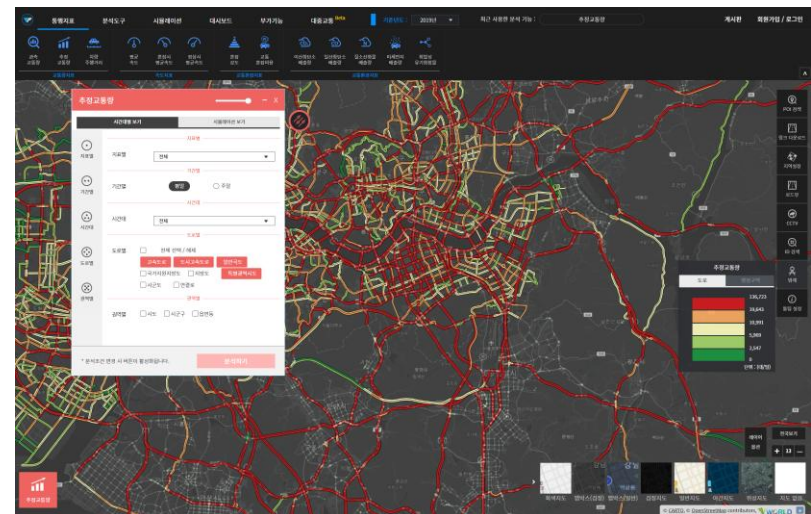
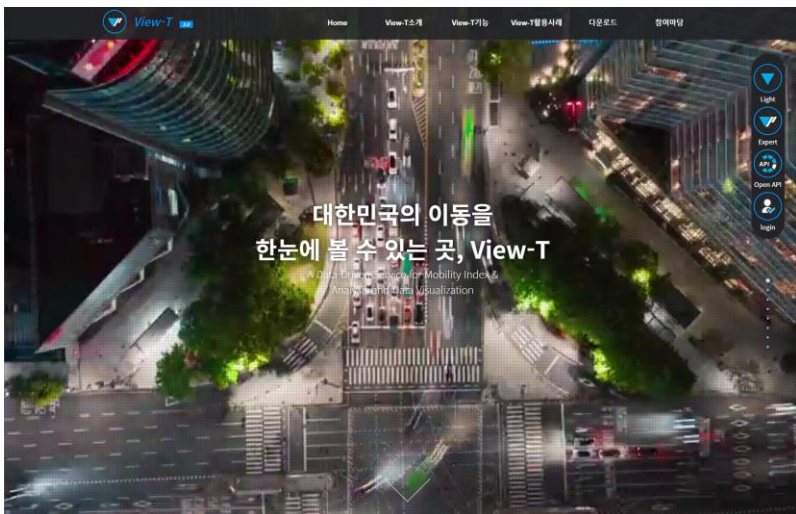
GIS
Network
Travel
Model



II. KTDB Construction

2. Big data Analysis : View-T

❖ View-T provides **nationwide transport indicators and analysis environment** for spatial & temporal analysis of travel behavior and characteristics of objects based on **mobility big data**



II. KTDB Construction

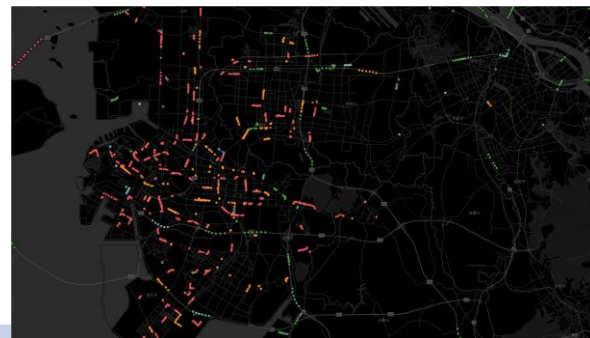
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-Input Data

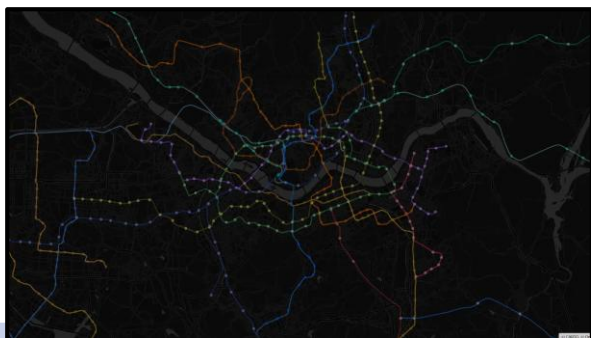
- ❖ Utilizes raw data including trajectories of each object (vehicle/person)



Probe Vehicle GPS Data



Digital Tachograph(DTG) Data



Public Transit Transaction Data

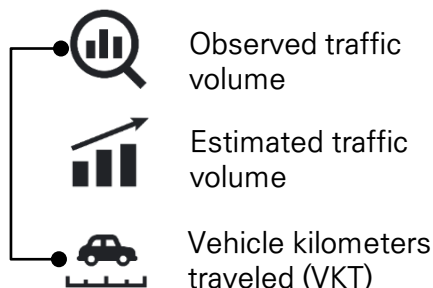


Mobile Phone Signaling Data

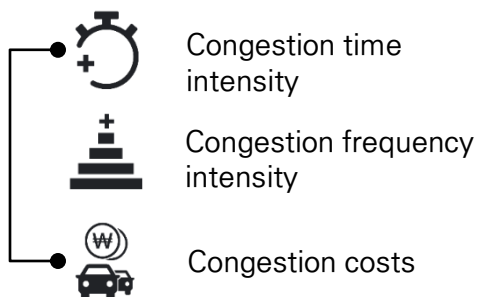
-Transport Indicators

❖ Provides indicators that enable consistent analysis and evaluation of transport network performance across the entire nation

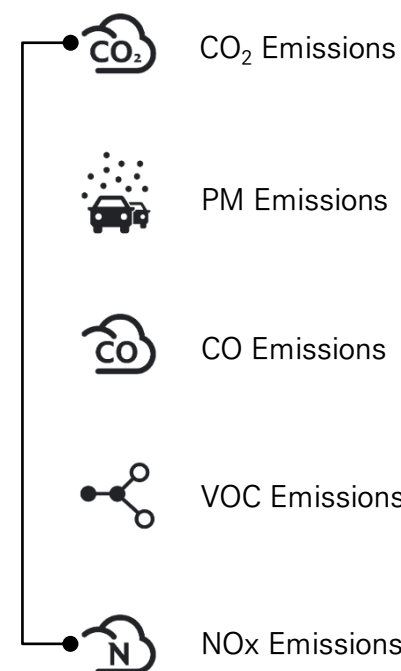
Traffic Volume



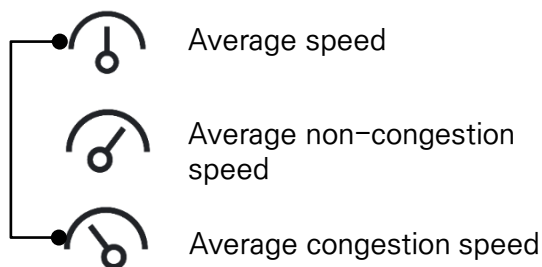
Traffic Congestion



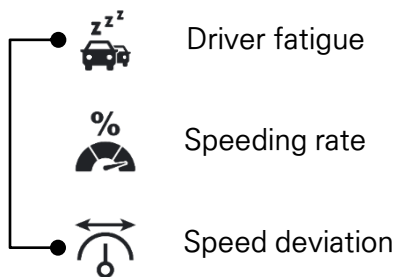
Transport Environment



Travel Speed



Transport Safety



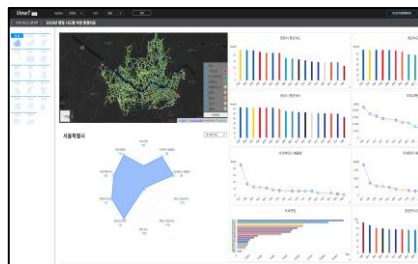
II. KTDB Construction

-Tools for User Convenience

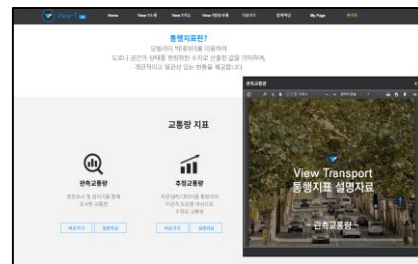
❖ Provides a convenient environment for utilizing and analyzing transport big data



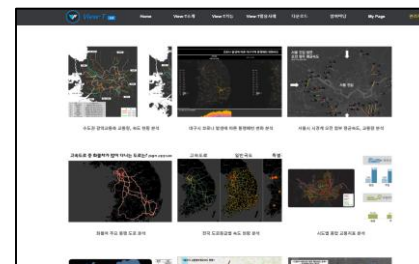
View-T Expert



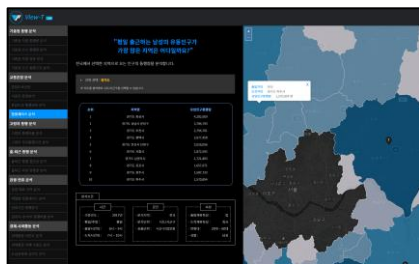
Dashboard



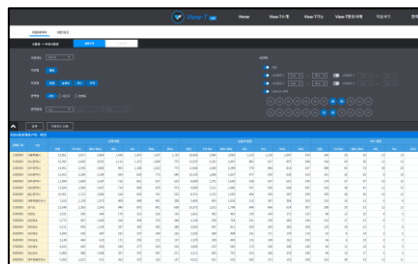
Explanation for Indicators



Use Cases



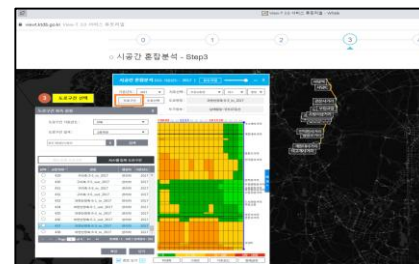
View-T Light



Download/API



Explanation for Data



Tutorials

1. Database Offering

- Passenger : total travel, dis. of travel time, by trip purpose & mode
- Freight : No. of trucks, transport by item, transport by mode

Passenger & Freight O/D

- Maritime land freight O/D
- Patterns of maritime travel
- Transport of maritime travel

Maritime Travel

- Special Transport Travel status survey
- Transport accessibility indices

Other Survey & Analysis

Offering DB

Trans. Analysis N/W

- TAZs
- Facilities
- Administration boundary etc.

Trip Generation rate

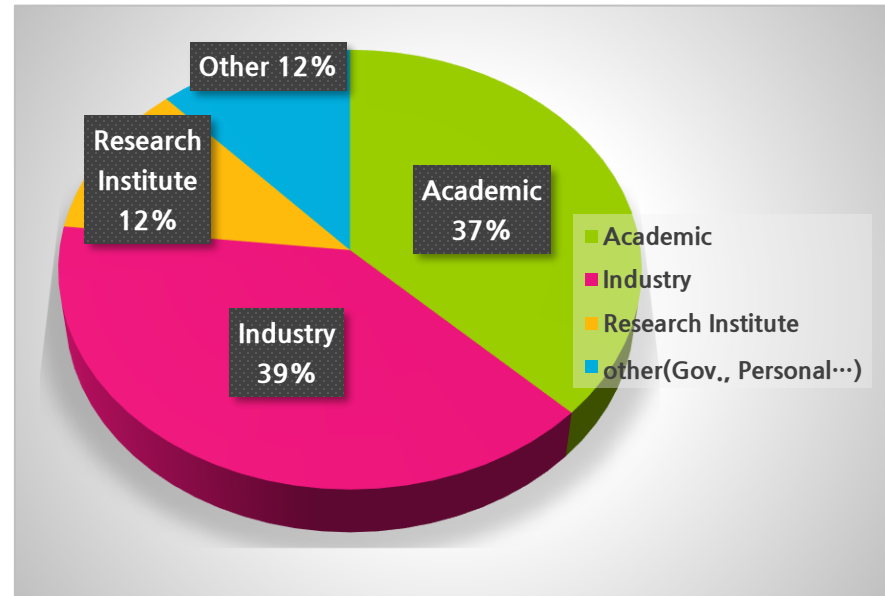
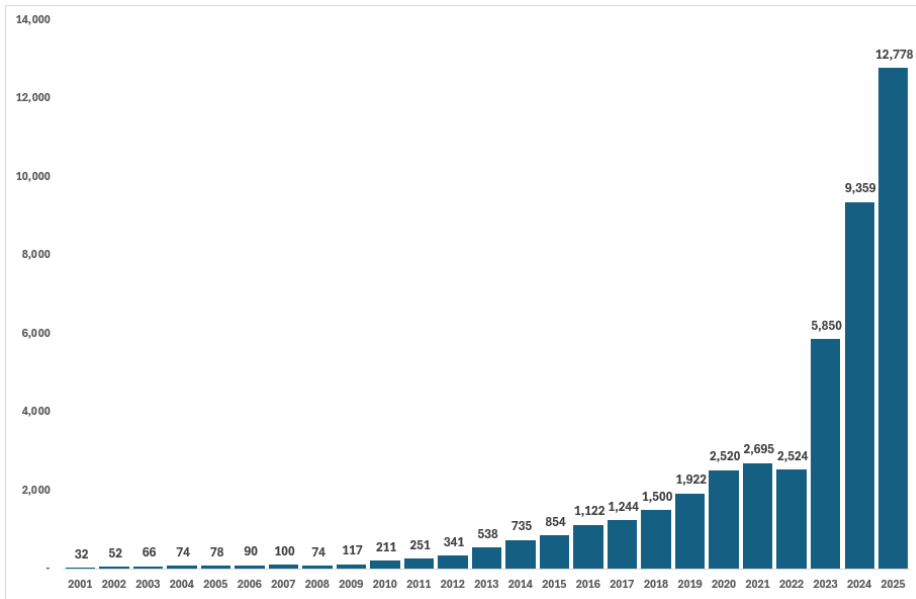
- Facilities
- Units
- Characters of traffic attractiveness

Big Data

- Traffic volume
- Travel speed
- Traffic congestion
- Transport safety

III. KTDB Application

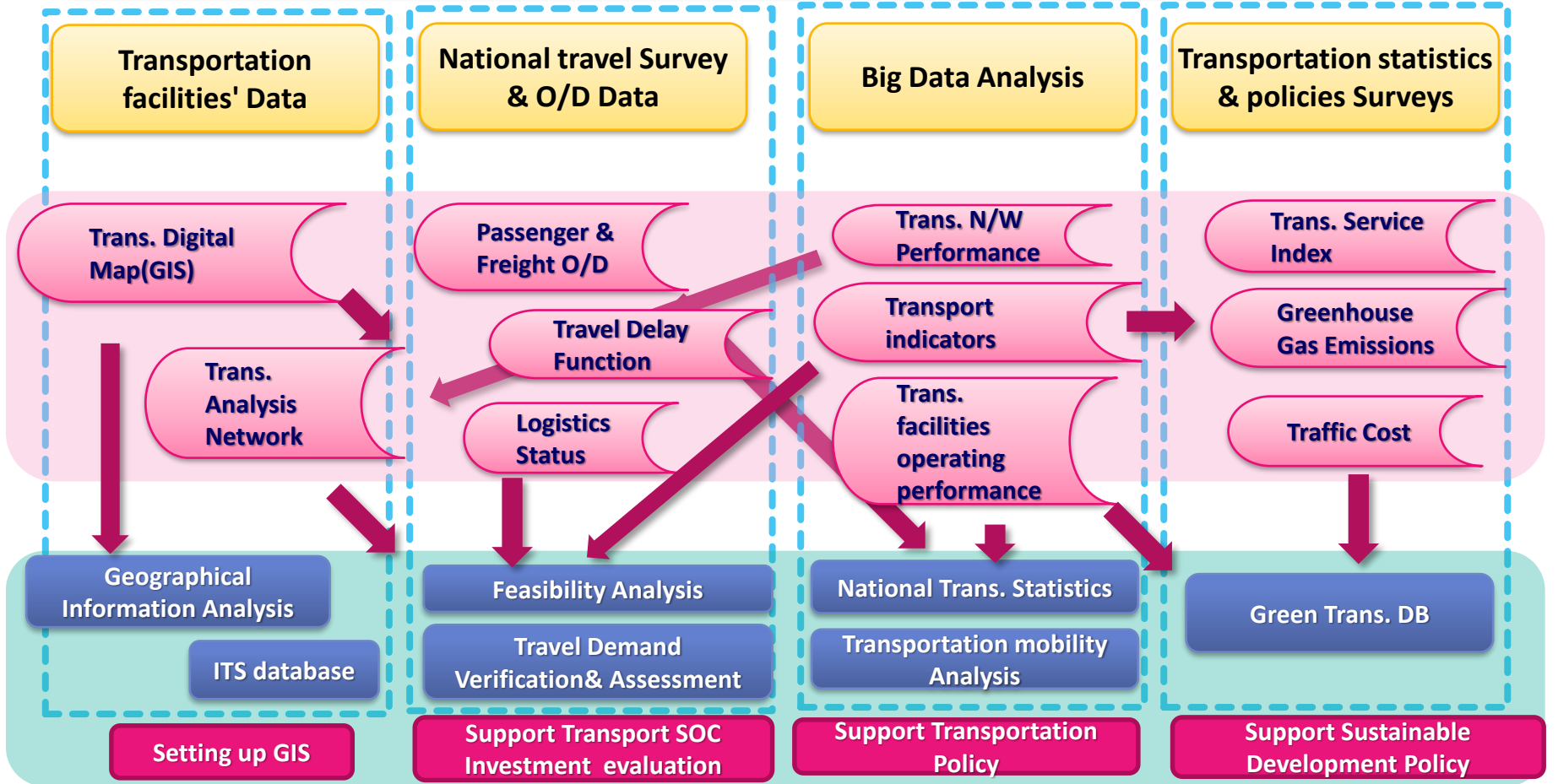
1. Database Offering



Increase external data provided

Provided to various sectors

2. KTDB Application



3. Future Plans

- **Preparation for changing global trends**
 - Provide transport indicators in response to grand transformation of mobility
 - Provide transport statistics in response to global issues (climate change, carbon neutrality)
- **Application & analysis with high tech device**
 - Use high tech. devices to widely trans. Study
 - Advanced transport indicators and demand analysis using big data
- **Data sharing system (Global Transport DB)**
 - Standardize in data collection and management
 - Prepare to cooperate with other countries

THANK YOU

