Development and Prospect of CUTD (China National Urban Transit Database)

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Serious Traffic Congestion and Air Pollution Problems

National Transit Priority Strategies & National Transit Metropolis Pilot Project

- **National Transit Priority Strategies**
  State Council Issued the “Guidance on Urban Transit Priority Development”

- **National Transit Metropolis Pilot Project**
  37 cities were selected as pilot cities

**Aims to solve the traffic congestion and air pollution problem, improve the attractiveness of the transit and non-motorized transport in urban areas**
The State Council, MOT announced that:

Establish the performance evaluation mechanism and system for public transport system, and release the performance evaluation results of cities annually

MOT start the construction of CUTD database project in 2015

This work has got support from VREF and Word bank
**Framework Design of CUTD**

**Strategy Goals of CUTD**

- Improve QoS and Efficiency of PT
- Improve Attractiveness and Share rate of PT
- Promote ease traffic congestion
- Quantify policy: Let data talk more
- Improve comparability of cities
- Strengthen decision support

**Key Components**

- **Users Management**
  - Users Registration
  - Users Permission
  - Operation Logs

- **Data Exchange**
  - Data Modeling Layer
    - Geographical Layer
    - Transport Layer
  - Data Quality Audit
    - Basic Database
    - Business Database
    - Themes Database

- **Application**
  - Comprehensive Monitoring
  - Transit Performance Evaluation of Cities
  - Traffic Performance Evaluation of Cities
  - Service Supervise of Transit Companies
  - Advanced Transit Information System
  - Intelligent Fleet Dispatching
  - Enterprise Resource Management
Data Resource Support for CUTD—National Wide

National Urban\Suburban Passenger Vehicles Fuel Subsidy Database (include new energy buses)

- **Region**: National, City, County, Company
- **Frequency**: Once a year
- **Services**: Bus, Taxi, Suburb Bus
- **Data**: Company, Vehicle, Miles, Energy Consumption info., etc.

National Urban Passenger Transport Statistics System (Database)

- **Region**: National, City, County
- **Frequency**: Once a year
- **Services**: Bus, Taxi, Subway, Ferry
- **Data**: Company, Vehicle, Line, Station, Employee, Safety Info. Etc.

National Urban Passenger lines and stops investigation System (Database)

- **Region**: National, City
- **Frequency**: Just once from 2013 till now
- **Services**: Bus, Subway
- **Data**: Lines, Stations, Spatial information

Three Related Database
Provide national-wide basic and statistic data support for CUTD
Data Resource Support for CUTD-Pilot Cities

- MOT Issued the Guideline on the pilot project of APTS
- The guideline point out build up 3 application platforms
  - Companies——Intelligent Dispatching platform
  - Travelers——Advanced Traveler Information Platform
  - DOT——Management Platform

10 standards
According to Data Flow were issued:
Data Collection
Data Management
Data Application

37 APTS Pilot Cities: Provide city-level quasi-real-time data support for CNTD
Ministry and Province level Platform of CUTD

CORE FUNCTION

Operation monitoring

Comprehensive Analysis

Performance Evaluation

Data Service

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China Academy of Transportation Sciences, MOT
Get comprehensive, accurate and timely first-hand information about the basic condition of PT from national wide.
**Transit Performance Evaluation System**

- **National Standard: Evaluation Index system of transit performance**
- **3 aspects, 21 indicators**

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<th>Indicators Category</th>
<th>Indicators No.</th>
<th>Indicator Name</th>
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<td>Operation Service Category</td>
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<td>Punctuality of metro system</td>
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<td>Responsibility mortality of bus system</td>
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<td></td>
<td>4</td>
<td>Responsibility mortality of metro system</td>
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<td>Operation speed ratio between bus and private cars</td>
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<td>Lines network coverage of public transit</td>
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<td>Average station area of each bus</td>
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<td>Buses number per 10 thousand person</td>
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<td>Ratio of the set of the Bus-only-lin</td>
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<td>Installation ratio of intelligent terminal equipment</td>
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<td>Ratio of operating costs and income for bus</td>
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<td>public transport</td>
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<td>Average daily passengers for each bus</td>
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<td>Ratio of the entrance of buses into the stop</td>
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<td>19</td>
<td>Usage frequency of the IC card system</td>
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<td></td>
<td>20</td>
<td>Unit Energy consumption of transit</td>
</tr>
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Get the transit development condition of pilot cities making cities comparative in each indicator.
Urban Traffic Congestion Performance Evaluation System

National Standards: Urban Traffic Congestion Indicators

Get the traffic congestion condition of cities, make cities comparative.
Making **Analysis and predication for the development condition and trends of PT in the near future from National Wide**
Annual Report National Urban Transit
2010-2015
- Operating Expenditures by Type & Purpose (e.g. Operations, Admin, etc.)
- Infrastructure (Lines, Station, Stops)
- Vehicle Assets
- Service Data (Vehicle Operations, Ridership, etc.)
- Fuel Consumption
- Fuel Subsidy

Annual Report on Fuel Subsidy
National Urban and Suburban Transit: 2010-2015 FY
City level Platform of CUTD
Data Application of CUTD-City Level Platform

Beijing-Time & Spatial Characteristics of Travelers from different dimension

Resident Trip Characteristics Analysis and Demand Forecast based on Big data (IC Card and Cell Phone Signal) analysis
Data Application of CUTD–City Level Platform

Shenzhen-Time & Spatial Characteristics of Subway Passengers

Resident Trip Characteristics Analysis and Demand Forecast based on Big data (IC Card and Cell Phone Signal) analysis
Subway passenger monitoring, forecasting and information service based on Big data (IC Card, cell phone, camera) analysis.
Data Application of CUTD—City Level Platform

Microcosmic-Fine Travel Information Service based on Big data Analysis
**Summary—Prospect of CUTD**

**Recent (2017-2019):** Relying on the Transit Metropolis Pilot Project, establish the CUTD with the core of Urban Transit, supporting the monitoring and evaluating of the development and performance of public transport of Transit Metropolis Cities.

**Future (2019-):** Fully complete the building of China National Transit Database (CNTD) covering the City and Intercity transit modes, providing strength support for the sustainable development of China’s urban transport, especially support for the monitoring, decision making, policy quantitative assessment and related scientific research.
Appreciate for your comments and advices!

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