

**The Science and Technology Meeting of the Executive Yuan
“Conference on Open Data Applications in Taiwan ”**

**Innovative Services and Prospects of **Advanced Travel
Information System (ATIS)****



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SUBMITTED BY INFORMATION MANAGEMENT

CENTER, Ministry of Transportation and Communications

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OUTLINE

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ATIS Developments and Current Conditions

II

Challenges and Opportunities

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Prospects and Developing Strategies in the Future

I. ATIS Developments and Current Conditions

1. ATIS Developments

Road information

Public transportation

Bus information

Tourism data

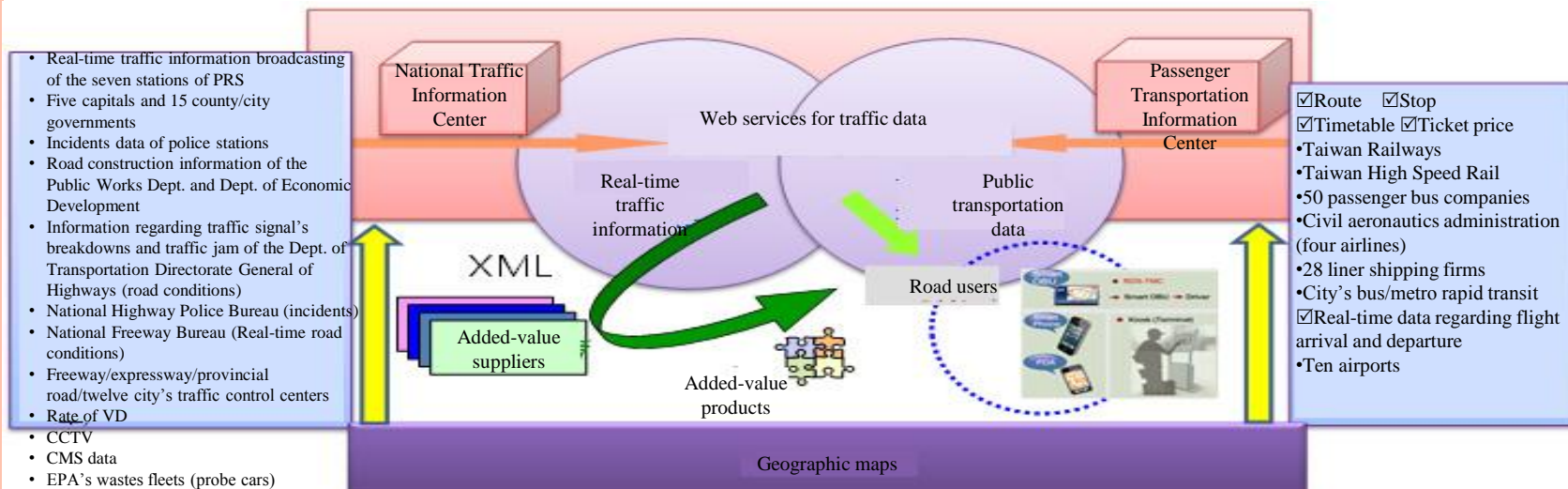
Digital Road Network Maps

○ Digital Road Network Maps (Infrastructure)

- The Institute of Transportation, MOTC has endeavored to build Taiwan's Digital Road Network Maps since 1998 onward, and has published 10 versions till August 2011.
- **Public Sector:** service systems have been constructed, including the systems of traffic management, traffic information, bus information, tourism data, bridge monitoring & management and anti-disaster and so forth.
- **Private Sector:** added-value products, including e-maps., vehicle-based navigation and Taxi dispatches.

○ Web services for traffic data (content of data)

- Since 2003 onwards, the Institute of Transportation, MOTC has begun to promote the integrated traffic data.
- Constructing two websites of "National Traffic Information Center" and "Passenger Transportation Information Center" in order to provide services of real-time traffic information and public transportation data.



I. ATIS Developments and Current Conditions

2. Current Conditions (1/3)

- **Digital Road Network Maps:**
- Target: Constructing the digital road network maps for the government agencies and private sectors to make added-value application so as to decrease the waste of resources used in collecting and updating data.
- Added-value approach: stipulating the “Regulations governing the geographic digital maps of the Institute of Transportation, MOTC” for the government agencies, academic units and industry to develop all types of added-value application.
- **Results: a total of 898 was sold at 12.49 million dollars by December 2011 (purchased by 68 suppliers)**
- **Creating GPS industrial values:**

	2005	2006	2007	2008	2009
Productions	9.5M	16.8M	37.8M	45M	40.7M
Growth Rate	63.04%	74.42%	125.52%	19.21%	-9.48%
Production Value (NTD Billion)	NTD 56.7B	NTD 96.4B	NTD 177.1B	NTD 189.4B	NTD 180 B
Growth Rate	83.68%	70.02%	83.71%	6.95%	-0.05 %

Reference: ITRI, IEK

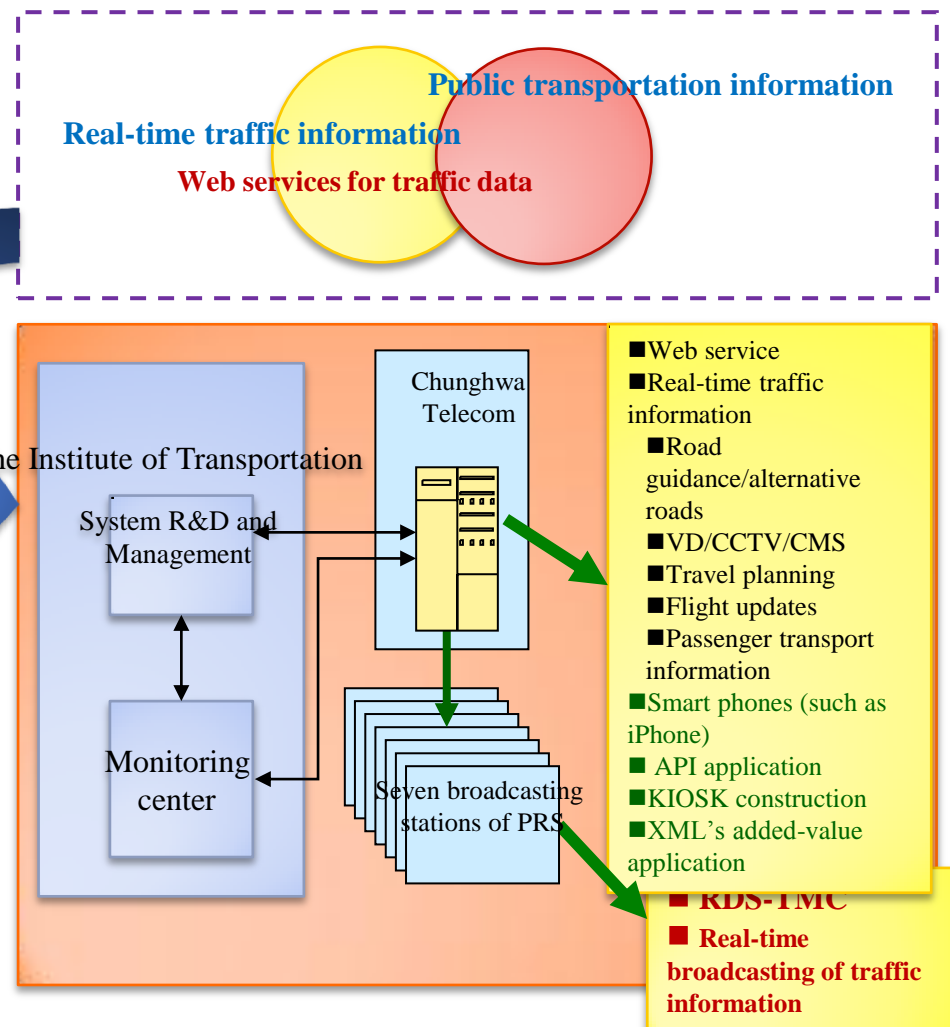
Types 7	Targets	Price for First-time procurement	Price for renewal
Type 1	The first-class units of MOTC and the Ministry of the Interior , all units of the Institute of Transportation and other government agencies which are reciprocal with MOTC.	Free	Free
Type 2	Other government agencies excluded from the type 1, the departments or institutes of universities, and the teaching staff (as an individual)	NTD5,000	NTD5,000
Type 3	Applied units excluded from the type 1& 2	NTD50,000	NTD15,000
Type 4	Applied units that employ the geographic maps to make added-value application	NTD300,000	NTD60,000

Added-value types	Suppliers
Making of e-maps or paper maps	Sunriver Ltd. and the Institute for Information Technology
Navigation software	Garmin, Papago, Anchorpoint, Garmin Mapsource Taiwan City Navigator, Systems & Technology Corp. and Magic e-Map
Fleet management and monitoring system	GTECH , EUPFIN Technology Co., Ltd, Major Taiwan Inc. , Wave GIS Technology Co., Ltd, Courant, AsiaTEK Inc., and E-think System
Device only/ GIS software or platform	SuperGeo and Chunghwa Telecom Laboratories
Acting as an outsource contractor of government in developing GIS	TMS Technologies CO., Ltd.

I. ATIS Developments and Current Conditions

2. Current Conditions (2/3)

- **Web services for traffic data**
 - Constructing **integrated traffic information platform**
 - Integrating the updated traffic information offered by the government units and providing the road-users real-time traffic information.
 - Building public transportation data platform
 - Providing the inquiry service of complex carriers, travel planning and real-time information concerning arrival and departure of flights
 - Building XML Standardized Format
 - The added-value suppliers or research units can use the format to make added-value application and expand the traffic data application.
 - Promote the RDS-TMC service
 - Announce real-time traffic information via broadcasting stations
 - Triggering the various domestic navigation software suppliers to receive RDS-TMC service (including PaPaGO, Road Easy, Garmin, TomTom, MIO and Panasonic)
 - Promoting the stipulation of **RDS-TMC Standardized Format**



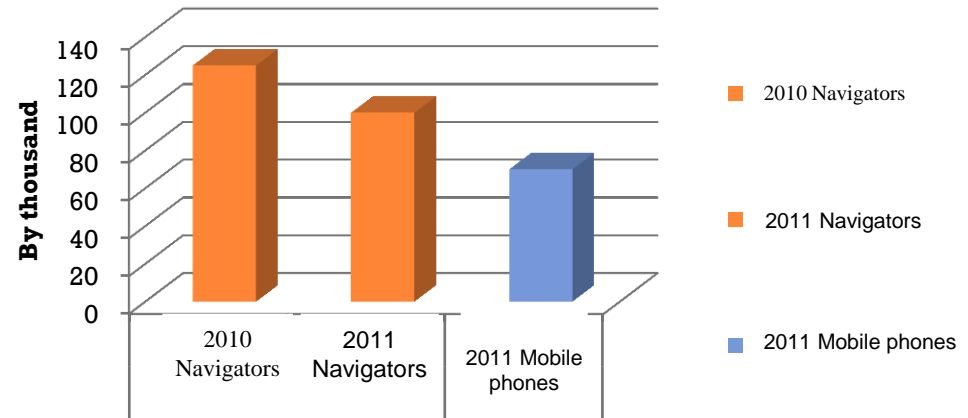
- Editing the **Location Table** in accordance with ISO14819-3
- Editing the **Event Table** in accordance with ISO14819-2

I. ATIS Developments and Current Conditions

2. Current Conditions (3/3)

- **Web services for traffic data:**
- **A total of 191 suppliers applied for added-value application**
 - 44 broadcasting stations and 5 television stations
 - 32 government agencies and 41 research units
 - 69 other added-value suppliers
- **Added-value applications**
 - Academic research: 23
 - WEB: 40, such as e-traffic and UrMap
 - Mobile phone/PDA: 10
 - Television/broadcasting: 9 (such as GTR-9000)
 - Navigation: 7 (such as PAPAGO, Mio and TomTom)
 - WEB, mobile phone or PDA: 3
- **The production values of RDS-TMC**
 - **More than 75 million dollars in 2010**
 - **Nearly 90 million dollars as of 2011**
- Real-time anti-disaster information will be sent to drivers in the future.

The chart of the potential sales of RDS-TMC services



Year	Item	Volume of sales	the cost accrued for TMC's receiving chips products	the revenue produced from TMC
2010	Navigators	125,000	600	75,000,000
2011	Navigators	100,000	600	60,000,000
2011	Mobile phones	70,000	420	29,400,000

the Institute of Transportation

private industries

Taiwan Telematics Industry Association

Telematics Promotion Office

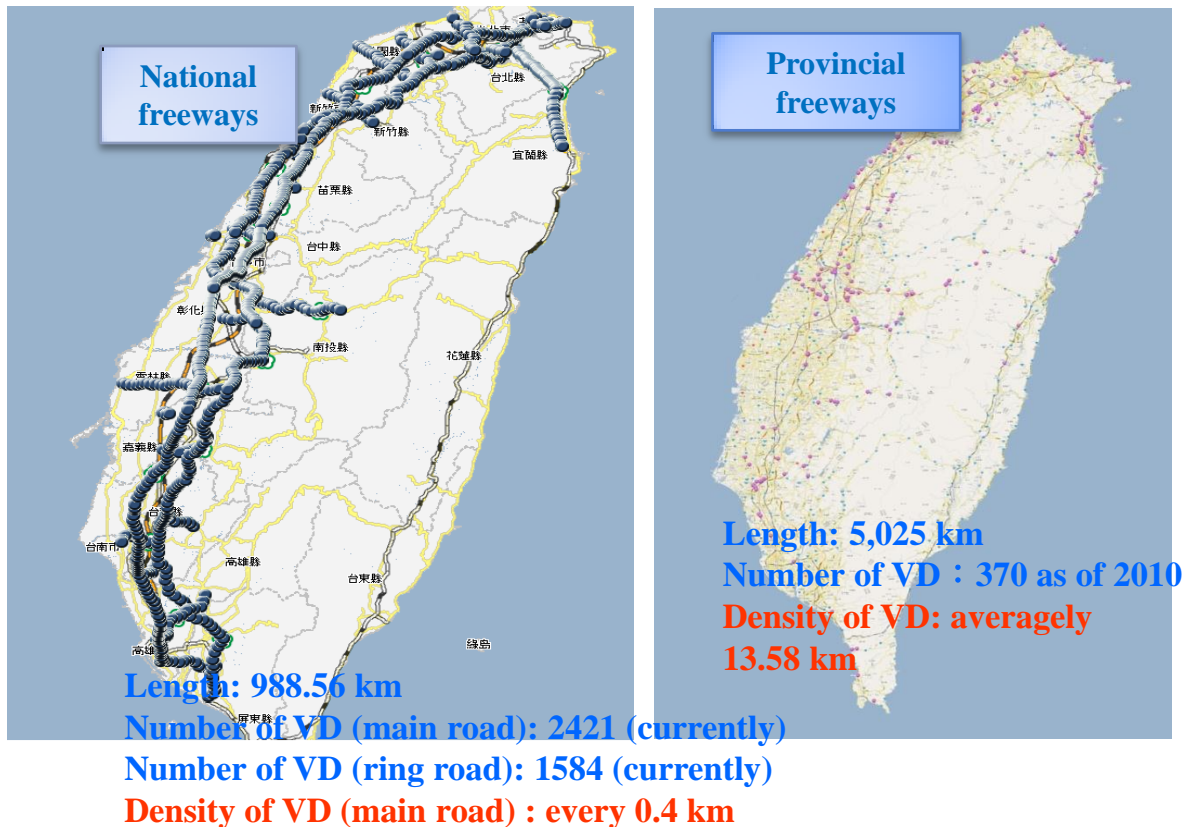
Police Radio Station

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II. CHALLENGES AND OPPORTUNITIES

1. The challenges (1/3)

(1) The coverage for the traffic information is inadequate and cannot satisfy the demands of suppliers and **road users**

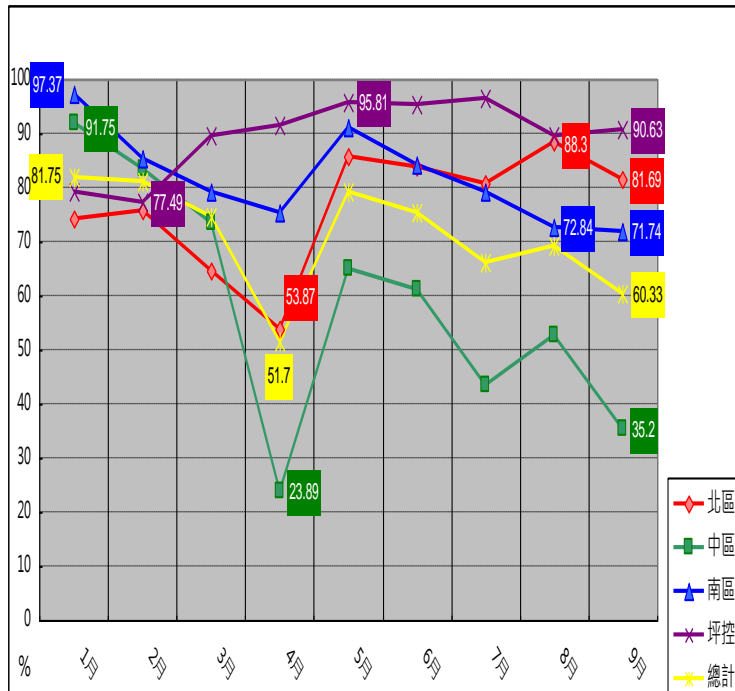


A great number of people used the extended 228 holiday of 2011 to visit Wuling Farm for enjoying the sight of cherry blossoms. Many drivers were stranded in the traffic jam for 7.5 hours, which was more than double the time in common days. The lines of cars stretched to 30 kilometers. This was indeed an ordeal, as drivers could not proceed nor return.

II. CHALLENGES AND OPPORTUNITIES

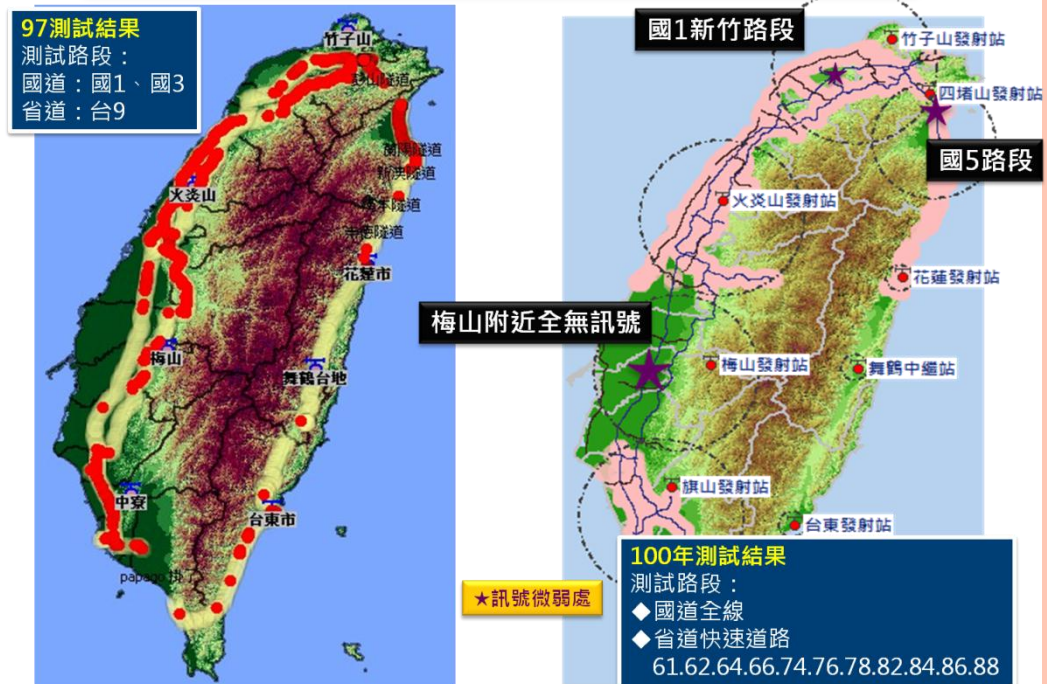
1. The challenges (2/3)

2. The maintenance of traffic information is no easy job.



The graph for the rate of VD of freeways (from Jan. to Sept. 2010)

3. The coverage of RDS-TMC is inadequate



- The coverage of RDS-TMC of PRS is inadequate. PRS shall recruit the power of other broadcasting stations.
- The road incidents informed by users were mostly ineffective due to poor positioning.
- LT (location table) has not yet been certified globally, affecting the willingness of navigators.

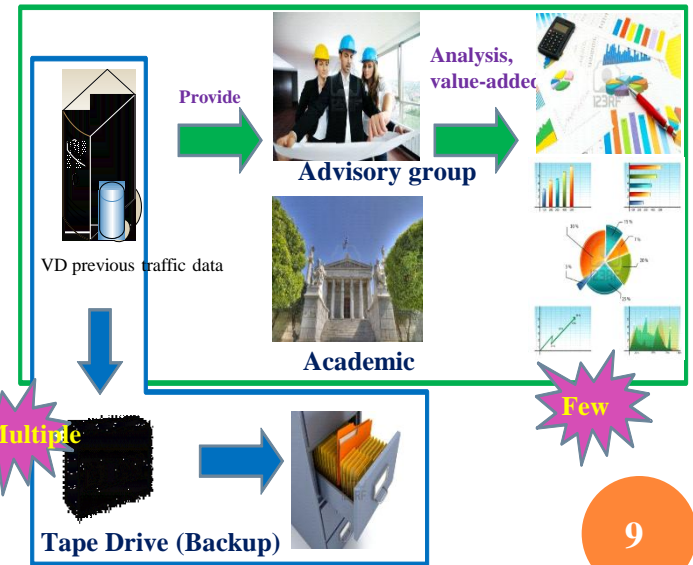
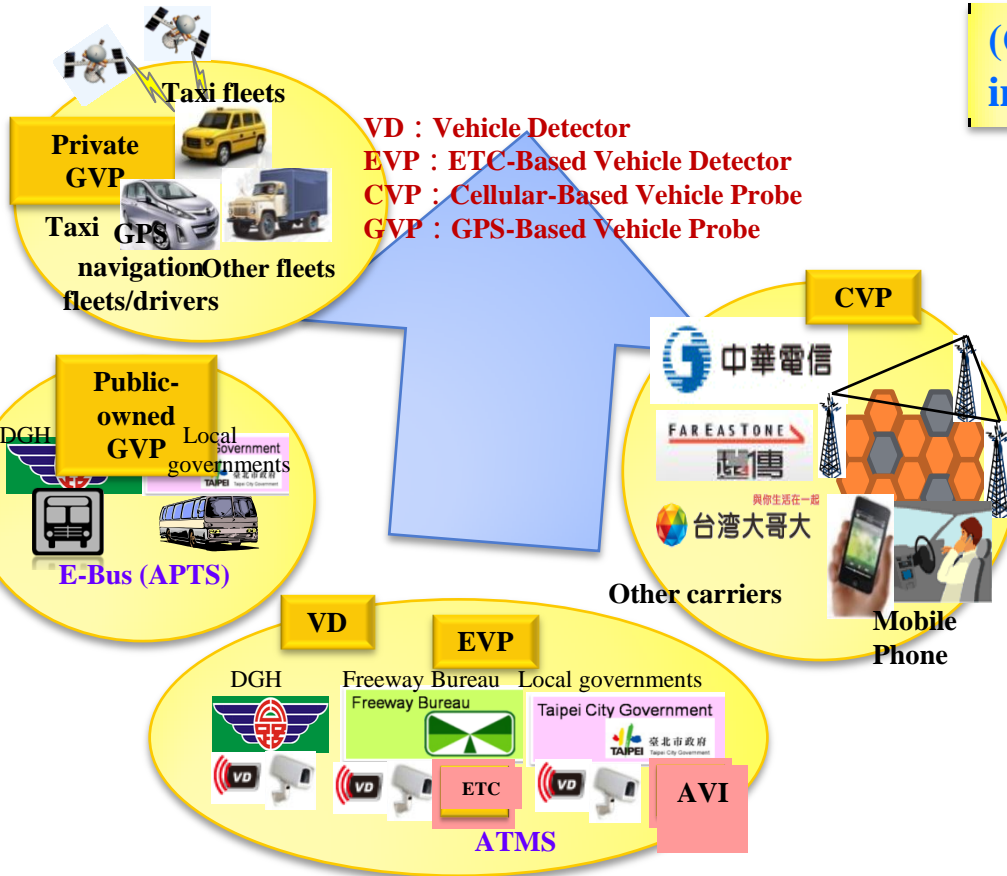
II. CHALLENGES AND OPPORTUNITIES

1. The challenges (3/3)

4. Responding to the future's diversified needs in processing large volumes of real-time traffic information, a stable and scalable platform of management and announcement shall be built.

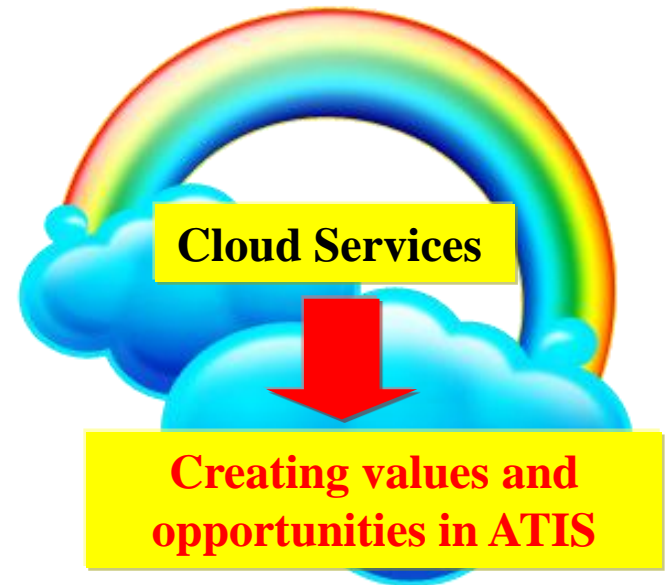
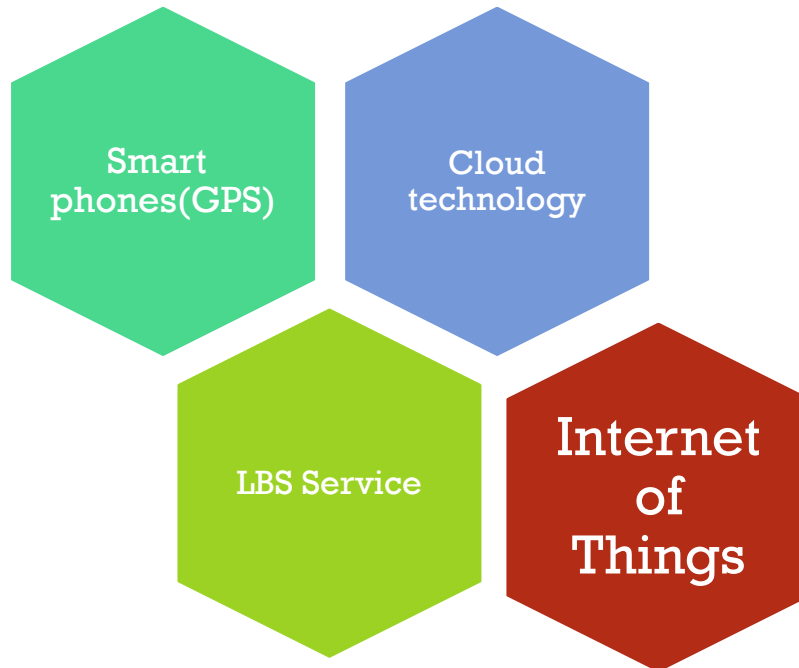
5. Responding to the open added-value application of huge sensor data and previous traffic data, a platform of storage and sharing with colossal previous data shall be constructed.

(Currently only real-time traffic information is available.)



II. CHALLENGES AND OPPORTUNITIES

(2) The Opportunities



III. PROSPECTS AND DEVELOPING STRATEGIES IN THE FUTURE

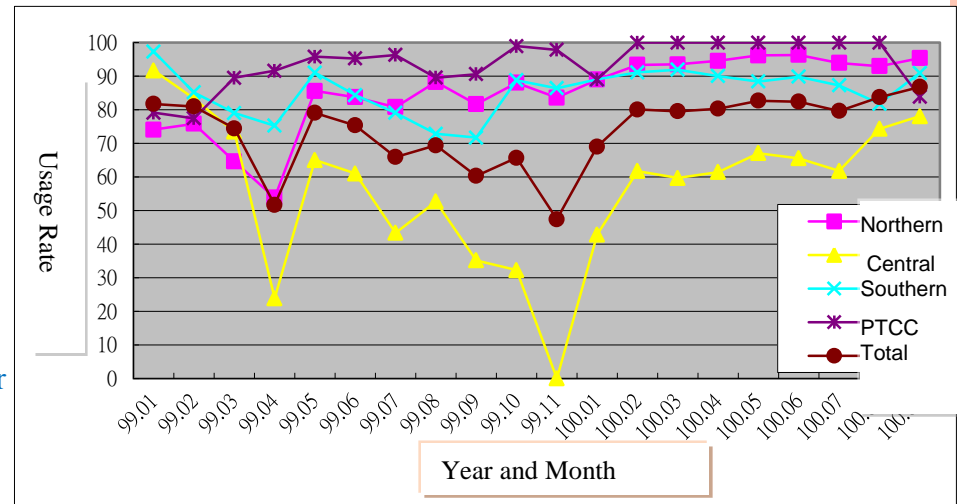
- As to “data standardization”:
 - Continuing with the tasks, such as stipulation, maintenance, expansion, certification of the standardization of “LT” (location table) and “ET” (event table) of RDS-TMC broadcasting service and progressively striving for passing the international certification.
 - Continually stipulating, updating and maintaining the **standard format of collection and announcement of real-time traffic data**
- As to “data collection”:
 - Constructing “diverse real-time traffic data collection system” so as to expand the coverage of data collection.
- As to “announcement”
 - Building the **cross-departmental, coordinated mechanism and strengthening RDS-TMC data service**. It is expected to cooperate with TPO and TTIA in assessing the possibility of RDS-TMC’s business operations.
 - IOT: integrated services of traffic data
 - TPO: the business operational planning and LT certification
 - TTIA : promoting the cooperative model of the industry and broadcasting.
 - Through App of smart phones, the channels for real-time traffic information can be expanded.



III. PROSPECTS AND DEVELOPING STRATEGIES IN THE FUTURE

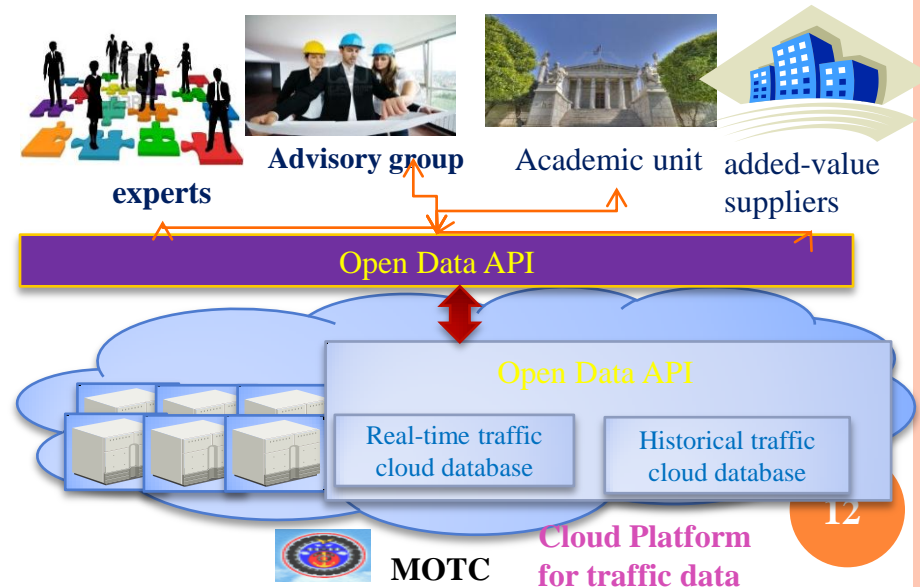
○ As to “data quality”:

- Building “Traffic Data’s Real-time Inspection and Monitoring System”, so as to monitor the quality of traffic data and guarantee the correctness of announcement.
- Cloud computing technology is used to ensure the timeliness and stableness of traffic data.
- **As to “integrated data services”:**
- Building the “Traffic Data’s Cloud Platform” in order to strengthen the integrated traffic data services.
- Building “**Open Data API**” in order to **increase the convenience of data sharing through interfacing**



○ As to “citizens’ perception”:

- Strengthening the collection and announcement of traffic information regarding **major connected roads for sightseeing, connected roads of freeways and highways, and provincial/county’s major roads.**
- Providing real-time traffic data service for road-users who are **on road or planning the trip beforehand** through **diverse channels.**
- **Combining the LBS service and bettering the road-user centered model.**
- Combining the data services of quake-alert and anti-disaster.



We appreciate any
Comment from you.

