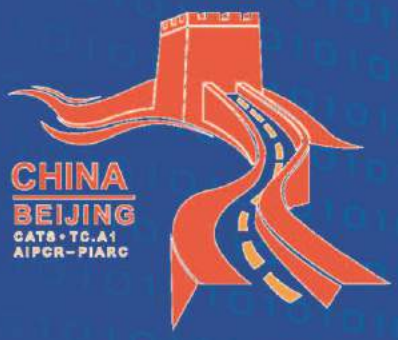


公路及公路运输行政管理效能国际研讨会

International Seminar on Achieving Successful Road Transportation through Effective Management and Organization

研讨会声明和演讲

Seminar Announcements and Presentations

第二册 / Volume 2

Technical Committee TC A.1
Performance of Transport Administrations

交通运输部科学研究院
China Academy of Transportation Sciences

2018 年 4 月 25-26 日
Beijing, China

WORLD ROAD ASSOCIATION
MONDIALE DE LA ROUTE
AIPCR PIARC

SEMINAR PROCEEDINGS REPORT PREPARATION

The Seminar Proceedings Report has been prepared by **(in alphabetical order)**:

LIU Si, Research Assistant, China Academy of Transportation Sciences, TC A.1 Associate Member

XENOPHONTOS Christos Savvas, Assistant Director, Rhode Island Department of Transportation, TC A.1 English Secretary (ORCID: 0000-0002-9627-6209)

With contributions by **(in alphabetical order)**:

BLANCO SEGARRA, José Manuel, Chief Engineer of National Road Administration in Extremadura, Spain, TC A.1 Chair

COLEGATE, Alan, Manager Strategy of Main Roads Western Australia, TC A.1 Member

SHI, Baolin, President, China Academy of Transportation Sciences, TC A.1 Member

SPEAR Jonathan, Director of Transport Policy and Planning, Atkins Acuity, TC A.1 Workgroup Leader

Seminar Presenters and Speakers

Presenters and Speakers listed in Appendix 5

Transport Administrations need to stop defining themselves by the assets that they own, but rather by the service they deliver, the customer's needs and expectations, and how the Transportation Administration's actions could positively impact the quality of life of their customers.

WORLD ROAD ASSOCIATION

PIARC

CHINA ACADEMY OF TRANSPORTATION SCIENCES

MINISTRY OF TRANSPORT

OF THE PEOPLE'S REPUBLIC OF CHINA

First Announcement

International Seminar on Achieving Successful Road Transportation through Effective Management and Organisation

Beijing, China

Wednesday 25 – Thursday 26 April 2018

Technical visit on Friday 27 April 2018

Organised in cooperation with:

China Academy of Transportation Sciences, MOT, PRC

Technical Committee A.1 Performance of Transport Administrations

World Road Association – PIARC

SEMINAR OVERVIEW

The World Road Association in conjunction with the China Academy of Transportation Sciences (CATS), are pleased to announce an International Seminar on Achieving Successful Road Transportation through Effective Management and Organisation.

PIARC Technical Committee A.1 – Performance of Transport Administrations – extends a sincere invitation to you to participate in the upcoming seminar. The primary objective of the seminar is to exchange information on the establishment of tools to measure the performance of transport administrations and best practice for good governance.

The Seminar is open to members of World Road Association-PIARC who are interested in gaining and sharing knowledge on performance measurement and best practice in governance.

SEMINAR TOPICS

The seminar provides an opportunity for speakers to address both technical and management issues broadly based around but not limited to the following:

- Performance management frameworks
- Evolution and transformation of transport administrations
- Fighting corruption in the road and transport sectors, developing a culture of transparency and accountability
- Performance of road and transport administrations: Lessons learnt and shared
- Joint transport sector experience
- Change and disruption in urban transport challenges and solutions
- Sharing economy in transport

SEMINAR VENUE

The seminar will take place from Wednesday 25th to Thursday 26th April 2018 at Beijing Friendship Hotel in the capital of China, Beijing. The Friday 27th April features a technical visit to be arranged around Beijing.

- Meeting website: *http://www.friendshipshotel.com/en/*

ACCOMODATION

Lodging information will be provided in the second announcement which will be sent out four months before the seminar.

LANGUAGES

The official language of the seminar will be English and Chinese with simultaneous translation.

PRELIMINARY PROGRAMME

Seminar contents will be organised according to the following preliminary program:

- **Day 1 (25th April) - China Perspectives on Transport and Mobility**
  - Opening Ceremony and Welcome Remarks
  - Presentation by PIARC
  - Theme 1 (AM) - The Transport Challenge in China- Current State and Future Prospects
  - Presentations
  - Q & A

  Lunch

  - Theme 2 (PM) - Achieving Successful Outcomes through Transport Sector Planning and Reform
  - Presentations
  - Q & A
  - Conclusions from Day 1

  Dinner

- **Day 2 (26th April) - International Perspectives and Transferable Lessons**
  - Introduction to the Activities of Current Technical Committee A.1
  - Theme 3 (AM) - International Perspectives on Transport Governance
  - Presentations
  - Q & A

  Lunch

  - Theme 4 (PM) - China & International Rolling Panels on Joint Transport Sector Experience
  - Summing Up of Key Conclusions from Seminar
  - Closing Ceremony

  Dinner

- **Day 3 (27th April) - Technical Visit**

DELEGATES TO THE SEMINAR

The organizing committee anticipates that there will be good attendance at the seminar with representation from:

- Members of the World Road Association Technical Committees and invited international experts, speakers and representatives from Africa, Asia, the Americas, Europe and China, etc.
- Ministries, organizations and road authorities from across China and international.
- Specialists and scholars from Chinese universities that have a special interest in performance management and good governance.
- Staff members of China Academy of Transportation Sciences.

REGISTRATION

Form and fees will be published in the second Announcement four months before the seminar.

TRAVEL INFORMATION

- **Visa Requirements/Guidelines for obtaining visa for China.**

  All the nationalities need to obtain a visa for China prior to travel. Applicants are advised to apply early to avoid last minute delays.

- **Access:** *Sources: http://wikitravel.org/en/Beijing*

  Beijing is generally served by *Beijing Capital International Airport*, for both domestic and foreign flights.

MEMBERS OF THE ORGANISING COMMITTEE

World Road Association - PIARC

China Academy of Transportation Sciences

SHI Baolin

President of China Academy of Transportation Sciences

LIU Si

Research Associate of China Academy of Transportation Sciences

Technical Committee A.1 Performance of Transport Administrations

BLANCO SEGARRA José Manuel

Chair of Technical Committee A.1

XENOPHONTOS Christos S.

English-speaking Secretary of Technical Committee A.1

DEMARRE Michel

French-speaking Secretary of Technical Committee A.1

SPEAR Jonathan

Director at Atkins Acuity

If you have any questions in regards to this seminar, please address them to the following email:

CONTACT POINT

LIU Si

Research Associate of China Academy of Transportation Sciences

E-mail: 18811051700@163.com

WORLD ROAD ASSOCIATION

PIARC

CHINA ACADEMY OF TRANSPORTATION SCIENCES

MINISTRY OF TRANSPORT

OF THE PEOPLE'S REPUBLIC OF CHINA

Second Announcement

International Seminar on Achieving Successful Road Transportation through Effective Management and Organisation

Beijing Friendship Hotel

Beijing, China

Wednesday 25 – Thursday 26 April 2018

Technical visit on Friday 27 April 2018

Organised in cooperation with:

China Academy of Transportation Sciences, MOT, P.R. China

Technical Committee A.1 Performance of Transport Administrations

World Road Association – PIARC

Supported by:

Ministry of Transport of P.R. China

A SPECIAL INVITATION

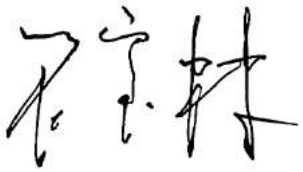
On behalf of the Organising Committee I extend a warm invitation to join us in Beijing and attend the 2018 International Seminar on Achieving Successful Road Transportation through Effective Management and Organisation.

The China Academy of Transportation Sciences (CATS) in conjunction with the World Road Association, are hosting this international seminar at the Beijing Friendship Hotel, Beijing, from the 25th to the 27th of April 2018.

Our primary objective for the seminar is to exchange information on the establishment of tools to measure the performance of transport administrations and best practice for good governance. To that extent we have created a seminar program with strong emphasis on current practical experiences from across the world. The seminar format will feature presentations by national and international speakers with facilitated panel discussions along with daily plenary conclusions and resolutions on the 25th and 26th and a technical visit around Beijing on the 27th of April 2018.

The seminar will bring together road officials from all tiers of government, academia and professionals from both the public and private sector, to assist in supporting good governance and exploring the changing structures and approaches of road and transport agencies.

We look forward to meeting you in Beijing during the 25-27 April 2018 International seminar.



President

China Academy of Transportation Sciences

SEMINAR OVERVIEW

The World Road Association in conjunction with the China Academy of Transportation Sciences (CATS), are pleased to announce an International Seminar on Achieving Successful Road Transportation through Effective Management and Organisation.

The primary objective of the seminar is to exchange information on the establishment of tools to measure the performance of transport administrations and best practice for good governance.

The seminar is open to members of the international road and transport community who are interested in gaining and sharing knowledge on Performance measurement and best practice in governance.

The seminar is expected to be attended by around 100 delegates. Please note that the registration will be closed when the number is full and therefore early registration is strongly encouraged.

SEMINAR TOPIC

The seminar provides an opportunity for speakers to address both technical and management issues broadly based around but not limited to the following:

- Performance management frameworks
- Evolution and transformation of transport administrations
- Fighting corruption in the road and transport sectors, developing a culture of transparency and accountability
- Performance of road and transport administrations: Lessons learnt and shared
- Joint transport sector experience
- Change and disruption in urban transport challenges and solutions
- Sharing economy in transport

LANGUAGES

The official languages of the seminar will be English and Chinese with simultaneous translation in each language.

DELEGATES TO THE SEMINAR

The organizing committee anticipates that there will be good attendance at the seminar with representation from:

- Members of the World Road Association Technical Committees and invited international experts, speakers and representatives from Africa, Asia, the Americas, Europe and China, etc.
- Ministries, organizations and road authorities from across China and international.
- Specialists and scholars from Chinese universities that have a special interest in performance management and good governance.
- Staff members of China Academy of Transportation Sciences.

PIARC SPECIAL FUND

The PIARC Special Fund can cover up to 100% of travel expenses or up to 100% of the accommodation costs of participants from developing countries (lower middle income and low income countries). It can cover the cost of one participant per PIARC member subject to the agreement of the First Delegate. Requests for Special Fund assistance should be made by the First Delegate to the PIARC General Secretariat e-mail: info@piarc.org

PRELIMINARY PROGRAMME

Seminar contents will be organised according to the following preliminary program:

- **Day 1 (25th April) - China Perspectives on Transport and Mobility**

  Morning session

  - Opening Ceremony and Welcome Remarks
  - Presentation by WRA
  - Theme 1 - The Transport Challenge in China- Current State and Future Prospects

    Presentation①: Development of China's Transport

    Presentation②: Multi-mode Urban Passenger Transport System in Beijing-Tianjin-Hebei Region

    Presentation③: G-series High-Speed Train in China

    Presentation④: Development of Urban Transportation in the Context of Shared Economy
  - Q & A

  Lunch

  Afternoon session

  - Theme 2 - Achieving Successful Outcomes through Transport Sector Planning and Reform

    Presentation①: The Regional Experience of Integrated Transportation Management and Innovation(The Case of Shanghai/Shenzhen)

    Presentation②: The Application of Big Data in Integrated Transportation

    Presentation③: The Practice for Intelligent Shared Travel

    Presentation④: Financial Innovation for the Development of Green Transportation

    Presentation⑤: Transportation Infrastructure Investment and Financing
  - Q & A
  - Conclusions from Day 1

  Dinner

- **Day 2 (26th April) - International Perspectives and Transferable Lessons**

Morning session

- Introduction to the Activities of Current Technical Committee A.1
- Theme 3 - International Perspectives on Transport Governance

  Presentation①: Reforming Transport Governance Structures to Deliver Better Outcomes

  Presentation②: The National Experience of Multi-Modal Transport Authorities – The Case of Sweden

  Presentation③: The Role of Performance Management in Tracking and Improving Transport Delivery

  Presentation④: Promoting Institutional Integrity and Implications for China

  Presentation⑤: Disrupting the Transport Sector through Technology and Innovation
- Q & A

Lunch

Afternoon session

- Theme 4 - China & International Rolling Panels on Joint Transport Sector Experience

  Topic①: To what extent are reforms to institutional structures and processes a vital component to planning and delivering successful transport strategies and programmes in China?

  Topic②: Is technology the “magic bullet” to solving problems of congestion, poor air quality and connectivity in China’s cities?

  Topic③: What additional transport policies and investments, which are not current priorities, should be promoted in future national, provincial and city plans in China to achieve sustainable economic development?
- Summing Up of Key Conclusions from Seminar
- Closing Ceremony

Dinner

- **Day 3 (27th April) - Technical Visit**
  - Transportation Operations Coordination Center(TOCC) in Beijing
  - Electronic fence for Shared bikes
  - City Tour

◆ REGISTRATION & FEES

There is no fee for the delegates to attend the seminar; however there is a mandatory registration that must be submitted in time to allow for the required documentation to be processed ahead of the seminar.

To attend the international seminar all participants/delegates are required to fill the registration form (***please see Attachment 1***) and submit by e-mail to the Seminar Secretariat at **Cats1960@163.com** **no later than the 2nd of February 2018.**

Registration to the seminar includes access to the full two days of proceedings, seminar lunches and dinners, and associated technical visit.

Each person attending must submit a separate registration form.

◆ VISA

A China Visa is needed by all foreign passport holders upon entry into China with very few exceptions.

Please note that it is your responsibility to have the right visa for your visit to Beijing. The Seminar Secretariat will assist by providing invitation letters required for visa purposes. Your country may have specific requirements and the following is provided for your information.

If you are interested in participating in the seminar, please submit the filled-in registration form found in Attachment 1 by e-mail to the Seminar Secretariat at **Cats1960@163.com** no later than February 2nd, 2018, then please wait for the confirmation letter access to the seminar from the Seminar Secretariat before proceeding with obtaining your visa. Please do take into consideration the Chinese New Year Spring Festival from the 15th- 21st of February in your plans. Registrations will be processed on a first come first serve basis. With the seminar invitation letter enclosed, you can proceed with visa next.

◆ SEMINAR VENUE AND ACCOMODATION

The seminar will take place from Wednesday 25th to Thursday 26th April 2018 at Beijing Friendship Hotel in the capital of China, Beijing. The 27th features a technical visit to be arranged around Beijing.

Beijing Friendship Hotel, this world-class facility, renowned for its traditional Chinese garden style, features classic Chinese architectural elegance and presents most pleasurable views, has successfully staged some the world's most prestigious and complex events.

Delegates who receives the seminar invitation letter, please *find* ***the attachment 2*** to see the **Hotel Accommodation Form**, fill the form then send the completed form by email to **smd@bjfriendshiphotel.com** for reservation.

More details on the Beijing Friendship Hotel website:

http://www.friendshipshotel.com/en/

TRAVEL INFORMATION

- **Access:**

Beijing is generally served by Beijing Capital International Airport, for both domestic and foreign flights. Beijing Capital International Airport (北京首都国际机场 Běijīng Shǒudū Guójì Jīchǎng) in suburban district Shunyi (approximately 26 km to the northeast of the central districts), is the world's second-busiest (as of 2013 data) and has three terminals. Travel between Terminals 1 and 2 is via a long corridor with travelators. A free shuttle bus runs between Terminal 2 and 3.

A taxi from the airport should cost ¥70-120. Please do join the regular taxi queue and certainly avoid the various touts.

The Airport Express train runs in a one-way loop from T3 to T2, then into the city and Sanyuanqiao Station (connected to Line 10) and Dongzhimen Station (Lines 2, 13). One-way fare is ¥25 and the trip takes about 20 minutes from T2 to Dongzhimen Station, about 30 minutes from T3. Although the last Airport Express train leaves airport to city at around 23:10, the subway lines normally stop operating before 23:00 on weeknights. The Airport Express trains do not accept Credit / Debit cards [Nov 2017], make sure you have cash before your ride.

A slightly cheaper way to get to the city centre is to take the airport shuttle (机场巴士 Jīchǎng Bāshì). Buses for each route leave every 10-30 minutes. There are several lines running to different locations throughout Beijing. ¥16 one-way.

Sources: http://wikitravel.org/en/Beijing

- **About Beijing :**

Beijing (北京 Běijīng) is the capital of the People's Republic of China, with a population of 21.5 million people. It is the political, educational and cultural centre of the country and as such it is rich in historical sites and important government and cultural institutions.

As an ever-changing mega-city rich in history and civilization, Beijing also exemplifies its global influence in sport, art, business & economy, innovation & technology and of course, transportation. It is a major hub for the national highway, expressway, railway, and high-speed rail networks. The Beijing Capital International Airport has been the second busiest in the world by passenger traffic since 2010, and as of 2016, the city's subway network is one of the busiest in the world.

Beijing is marked by its flatness and arid climate. There are only three hills to be found in the city limits (in Jingshan Park to the north of Forbidden City) and mountains surround the capital on three sides. Like the configuration of the Forbidden City, Beijing has concentric "ring roads", which are actually rectangular, that go around the metropolis and serve as good reference points as one attempts to move about the city. Beyond the ring roads are the most-visited portions of the Great Wall of China, which witnesses visitors the world over and Beijing serves as a good headquarters for those who wish to gaze upon one of mankind's more memorable and lasting structures.

Sources: http://wikitravel.org/en/Beijing

- **Climate**

Beijing's climate is a dry, monsoon-influenced humid continental climate, with hot, humid summers and cold, dry winters. Autumn, like spring, sees little rain but is short. Spring is generally accompanied by rapidly warming but in dry conditions.

Climate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily highs (°C)	2	5	12	20	26	30	31	30	26	19	10	4
Nightly lows (°C)	−8	−6	0	8	14	19	22	21	15	8	0	−6
Precipitation (mm)	3	5	8	21	34	78	185	160	46	22	7	3
Daylight (hrs/day)	6.5	6.8	7.8	8.2	9.3	9.1	7.2	7.4	8.1	7.3	6.4	6.0

Humidity is low except during the summer

More details on the average weather data in Beijing visit

https://en.wikipedia.org/wiki/Geography_of_Beijing

Attachment 1

Seminar Registration Form

Please complete this registration form and submit by e-mail to the Seminar Secretariat, Ms. LIU Si, at **Cats1960@163.com** **no later than the 2nd of February 2018.**

Mr. ☐ Mrs. ☐ Ms. ☐ Dr. ☐ Other:	
Surname	
First Name	
Nationality	
Passport No.	
Organisation	
Position	
Mobile	
Email	
Special requirement - dietary	
Copy of passport data information page	*Please attach it to your email*
Brief Work Resume	*Please attach it to your email*

Yes, I will: [please tick appropriate box(es)]

- ☐ participate in the seminar
- ☐ attend the dinner on Wednesday 25 April
- ☐ attend the dinner on Thursday 26 April
- ☐ attend the technical visit on Friday 27 April

☐ Yes, **I will be accompanied by: .....** (relationship)

First Name: ..... Last Name: .....

☐ Yes, my accompanying person will participate in the technical visit

☐ Special requirements - dietary: .....

☐ Special requirements - mobility: .....

PRIVACY

I agree that particulars stated in this form can be displayed in conference documentation:

YES: ☐ NO: ☐

Attachment 2

Hotel Accommodation Form

Achieving Successful Road Transportation through Effective Management and Organisation

公路及公路运输行政管理效能国际研讨会

1. Names:

2. Institution:

3. Nationality:

4. Contact Address:

Phone:

Fax:

E-mail:

Passport number:

5. Category

Hotel	Room type	Room rate (RMB)	Check-in date	Check-out date
Deluxe Suite room in Building.1(5 star)	King size bed	980		
Standard room in Building.1(5 star)	King size bed	800		
Standard room in Building.4(4 star)	Twin or double	550		
Standard room in Building.2(4 star)	Twin or double	480		

- The above rate includes one breakfast, free of service charge.
- The above rate for Building 1 has complementary for swimming and gyms.
- Free use of broadband in the guest room.

Your request in the above format through email may be sent to:

smd@bjfriendshiphotel.com

Many thanks for your reservation.

Sales Department

Beijing Friendship Hotel

THE ORGANISING COMMITTEE

World Road Association - PIARC

China Academy of Transportation Sciences

SHI Baolin, President of China Academy of Transportation Sciences (CATS)

LI Zhongkui, Director of China Academy of Transportation Sciences (CATS)

WANG Yutian, Director of China Academy of Transportation Sciences (CATS)

LIU Leilei, Research Associate of China Academy of Transportation Sciences (CATS)

LIU Si, Research Assistant of China Academy of Transportation Sciences (CATS)

Technical Committee A.1 Performance of Transport Administrations

BLANCO SEGARRA José Manuel, Chair of Technical Committee A.1

XENOPHONTOS Christos Savvas, English-speaking Secretary of Technical Committee A.1

DEMARRE Michel, French-speaking Secretary of Technical Committee A.1

SPEAR Jonathan, Director at Atkins Acuity

If you have any questions in regards to this seminar, please address them to the **Seminar Secretariat Ms. LIU Si,** Research Assistant of China Academy of Transportation Sciences at the following email: Cats1960@163.com

Exchange knowledges and techniques on roads and road transportation

WORLD ROAD ASSOCIATION

www.piarc.org

PRESENTATION OF THE ASSOCIATION

Beijing (P.R. China) 25th April 2018

What is PIARC

Addressing members' expectations

- Non-political, non-profit association established in 1909
- Aim: promote international cooperation on issues related to roads and road transport
- Consultative Status on the Economical and Social Council of United Nations
- With its broad membership and geographic diversity, the vision of the World Road Association is to become:

"The world leader in the exchange of knowledge on roads and road transport policy and practices within the context of integrated, sustainable transport."

- **Recognised for the quality of our outputs**

PIARC's Four key missions

- Be a **leading international forum for analysis and discussion** of the full spectrum of transport issues related to roads and related transport;
- Identify, develop, and disseminate **best practice** and **give better access to international information**;
- Consider within its activities the needs of **developing countries and countries in transition** fully; and
- Design, produce, and promote **efficient tools for decision making** on matters related to roads and related transport.

- The Association mobilizes the expertise of its members through operations guided by a **4-year Strategic Plan**

Extensive membership base

- **121 National governments are members of the Association**

- **Members from a total of 140 countries**
  - **Regional authorities**
  - **Collective members – public or private**
  - **Individual members**

- **More than 1 200 experts are currently mobilised in our working groups**

7 of th evelopment Goal

Knowledge exchange: The core of PIARC

- **PIARC mobilises international road and transport experts through more than 20 groups:**
  - Ad-hoc dialogue among peers
  - Network building
  - Joint work towards commonly-agreed deliverables
- **These deliverables are widely accessible:**
  - Reports
  - Seminars or workshops
  - Online manuals
  - Software and tools
- **PIARC Congresses are world-class focus points for:**
  - Dissemination of these deliverables
  - Further discussions

PIARC reports

Downloadable pdf files

Available for free at www.piarc.org

- Cycle 2012-2015:
  - 40 technical reports were produced by the Technical Committees
- Cycle 2016-2017: 54 new reports

An extensive website: www.piarc.org

Services available:

- Knowledge Base
- Virtual Library
- Online road dictionary
- Congress proceedings
- Detailed information on the Association and its activities
- Etc.

Online road dictionary

- Technical Dictionary of Road Terms
- Mainly: English, French, German, Portuguese, and Spanish
- Plus 32 other languages
- 8th edition
- Online, free of charge

International Seminars

- Exchange of knowledge with and in low- and middle-income countries
- 26 seminars and 7 workshops organised during the 2012-2015 cycle
- Presentations are available online via the PIARC Website
- More than 30 seminars and workshops planned during the 2016-2019 cycle

Opening session with Minister of Highways of India
Reducing carbon footprint in road construction
Joint PIARC/IRC Int seminar. Delhi 17-19 Feb. 2011

Routes / Roads

- Quarterly magazine
- Articles cover emerging road and road transport issues
- English, French and Spanish
- Print and online distribution
- 5,700 copies, readership in more than 140 countries
- Electronic version: routesroadsmag.piarc.org

Online Manuals : Easy access to knowledge

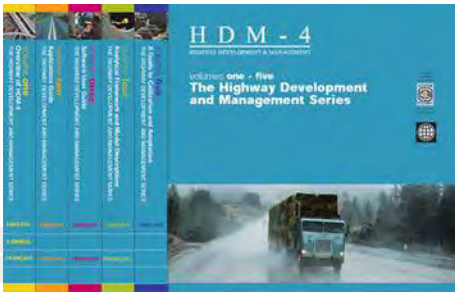
- **Four online manuals have been developed by the Association:**
  - Road Safety
  - Road Network Operations and ITS
  - Road Tunnels
  - Road Asset Management
- **Two more are planned:** Winter Road Service and Disaster Management

- Comprehensive, state-of-the-art international references
- A "living'" tool that can assist all countries meet their objectives

- **Easy and attractive to use:**
  - Free of charge
  - Key principles for each of the topics are included and discussed in the sections
  - Case studies and links to detailed technical material and other references
  - Can be downloaded and printed in chapters

Software

- **HDM-4**
  - The primary tool for the analysis, planning, management and appraisal of road maintenance, improvements and investment decisions
  - Developed with numerous stakeholders
  - Distributed through HDMGlobal
  - www.hdmglobal.com/
- **DG-QRAM**
  - Tool for managing dangerous goods transport in tunnels
  - Distributed by PIARC



International Winter Road Congresses

- Maintenance and roads operations in winter
- 1969 – 1st Congress in Berchtesgaden, Germany
- A congress every four years

Seefeld 1994
Luleå 1998
Sapporo 2002
Turin-Sestrières 2006
Québec 2010
Andorra 2014
Gdańsk 2018
Calgary 2022

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

World Road Congresses

- 1908 – 1st World Road Congress in Paris, France
- A congress every four years
- Share knowledge and experiences on roads and road transportation

Brussels 1987
Marrakech 1991
Montréal 1995
Kuala Lumpur 1999
Durban 2003
Paris 2007
Mexico City 2011
Seoul 2015
Abu Dhabi 2019

PIARC and Low and middle income countries

- One of our key missions is:
  - *Consider within our activities the needs of developing countries and countries in transition fully*
- **This is part of our "DNA"**
- Several processes are implemented:
  - Include possible specific needs of low and middle income countries (LMICs) in the terms of reference of the Association (Strategic Plan)
  - Involve experts from LMICs in the activities of the Technical Committees
  - Organise International PIARC seminars in low and middle income countries (LMICs)
  - Establish regional working groups
- Budget support is available from PIARC

Executive Committee 2017-2020

President	**Claude Van ROOTEN** (Belgium)
Past President	**Oscar de BUEN** (Mexico)
Vice Presidents	**Cheick Oumar Diallo** (Mali) **Shigeru Kikukawa** (Japan) **Miguel Ángel Salvia** (Argentina)
Members	**Ahmed Al Hammadi** (United Arab Emirates), **Mrs Christine Bouchet** (France), **Roy Brannen** (United Kingdom), **Oscar Callejo Silva** (Mexico), **Richard Charpentier** (Canada-Québec), **Mārtiņš Dambergs** (Latvia / BRA), **Mrs Lena Erixon** (Sweden / NRA), **Mayobanex Escoto** (Dominican Republic), **Mrs Diane Gamble** (New Zealand), **Stefan Krause** (Germany), **Bojan Leben** (Slovenia), **Kang-Hoon Lee** (Republic of Korea), **Meor Aziz Bin Osman** (Malaysia), **Mrs Monika Milwicz** (Poland), **José Miguel Ortega** (Chile), **Mrs Marie-Claude Petit** (Canada), **Mrs Mª del Carmen Picón** (Spain), **Massimo Schintu** (Italy), **Alex Van Niekerk** (South Africa), **Walter Waidelich** (USA), **Dejin Wu** (People's Republic of China), **Friedrich Zotter** (Austria)
National Committees' Representative	**Saverio Palchetti** (Italy)

National Committees

Objectives:

- Facilitate national exchanges on roads and road transport
- Promote the work of PIARC
- Liaise with national experts and issues

40 countries

(Oct. 2016)

- Algeria, Argentina, Australia (*Austroads)*,
- Austria, Belgium, Benin, Burkina Faso,
- Cameroon, Canada, Canada-Quebec, Chile, Congo, Czech Republic,
- Dominican Republic,
- Ecuador,
- France,
- Germany, Greece, Hungary,
- India, Ireland, Italy, Japan,
- Madagascar, Malaysia, Mali, Mexico, Mongolia, Morocco,
- New Zealand (*Austroads)*,
- Paraguay, Poland, Portugal, Romania,
- Senegal, Slovak Republic, Slovenia, South Korea, Spain, Switzerland,
- United Kingdom, United States, Uruguay

Our Expert structures

- **Technical Committees**
  - Constituted for the full four years
- **« Task Forces »**:
  - Are allowed more flexibility; 2-year activity cycles; cover new topics and analyze their future relevance for roads; reasonably small groups
- **« Special Projects »**:
  - Outsourced by the SG; development of high-level, short documents that are not within the near-term capacity of the Technical Committees or Task Forces to complete
- **« Regional Task Forces »**:
  - Address topics of particular interest to certain regions, especially those with many developing countries

Strategic Plan for 2016-2019

- The Association's activities are guided by a **4-year Strategic Plan**
- The new Plan covers the period 2016-2019
- It has been prepared through **an in-depth process** under the leadership of the Strategic Planning Commission
- It was **formally approved** by the Association's Council in Seoul in November 2015

2016-2019 Themes

- **5 Strategic Themes**
  - **A. Management and Finance**
  - **B. Access and Mobility**
  - **C. Safety**
  - **D. Infrastructure**
  - **E. Climate Change, Environment and Disasters**
- Continuation of several lines of traditional work
- With an elevation of environment-related issues

- **18 Technical Committees** and **4 Task Forces**
  - Including the Terminology Committee
- In each case the Strategic Plan establishes functions, topics to be addressed and expected results

2016 – 2019 Strategic plan

A. Management and finance	B. Access and mobility	C. Safety	D. Infrastructure	E. CC-En Disasters
A.1 Performance of transport administrations A.2 Road transport system economics and social development A.3 Risk management	B.1 Road Network Operations / ITS B.2 Winter services B.3 Sustainable multimodality in urban areas B.4 Freight	C.1 National road safety policies and programs C.2 Design and operations of safer road infrastructure	D.1 Asset management D.2 Pavements D.3 Bridges D.4 Rural roads and earthworks D.5 Road tunnels operations	E.1 Adaptation strategies / Resilience E.2 Environment considerations in road projects and operations E.3 Disaster management
A.1 Innovative financing A.2 Coordinating National and Subnational adm.	B.1 Road design & infrastructure for innovative solutions	C.1 Infrastructure security		

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

Strategic Theme Coordinators and Technical Advisors

A. Management and finance	B. Access and mobility	C. Safety	D. Infrastructure	E. Climate Change Environment & Disasters
Coordinator: Mr Ernesto BARRERA **Technical Advisor:** Mr Hyunseok KIM	**Coordinator:** Mr Shigeru KIKUKAWA **Technical Advisor:** Mr Yuya NAMIKI	**Coordinator:** Mr Jean-François CORTÉ **Technical Advisor:** Ms Kirsten GRAF LANDMANN	**Coordinator:** Mr Óscar GUTIÉRREZ **Technical Director:** Ms Claudine TREMBLAY	**Coordinator:** Mr Roberto AGUERREBERE **Technical Advisor:** Ms Verónica ARIAS ESPEJEL
Secretary General Mr Patrick MALLEJACQ				
Technical Director Mr Miguel CASO FLÓREZ				

PIARC CONGRESSES

- **Save the dates!**
- **16th International Winter Road Congress**
  - Calgary, Canada
  - 8-11 February 2022
- **26th World Road Congress**
  - Abu Dhabi, United Arab Emirates
  - 6 – 10 October 2019

感谢您的关注

Thank you for your attention

on behalf of:

www.piarc.org

info@piarc.org

Patrick Malléjacq
PIARC General Secretary
patrick.mallejacq@piarc.org

TC A1 OVERVIEW

Now, lets talk about

PIARC TC A1
« Performance of Transport Administrations »
and its products, speakers and attendees in the Seminar

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

TC A1 OVERVIEW

Main Goals of Strategic Theme A (ST A) « Management and Finance » entrust to TC A1, TC A2 and TC A3 are:

- **Development of policies and strategies that result in transport administrations that perform well, do the measurement of the performance**, and incorporate innovative financing mechanisms to meet the ever changing needs of the road transportation community.

- It is intented to **provide examples of good governance, performance management and evaluation methods**.

TC A1 OVERVIEW

The three Issues of the current TC A. 1 are:

- Framework on measuring effectiveness and efficiency of transport administrations (« **Measuring the Performance ») TC A1 WG1**

TC A1 WG 1 Co-Leaders:

Ilaria Coppa (Italy)

(Manager of Operation Directorate, ANAS)

(Due to last minute problems is not Attendee in the Seminar) (Host in future TCA1 meeting)

Francine Shaw-Whitson (USA)

(Team Leader of Transportation Performance Management Programs, FHWA)

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

TC A1 OVERVIEW

- Evaluating the transformation of transport administration **(« The Challenge of Change »)** TC A1 WG2

TC A1 WG 2 Co-Leaders:

Jonathan Spear (Singapore)

(Director, Atkins Acuity)

(Speaker in the Seminar)

Alexander Walcher (Austria)

(Managing Director, ASFINAG BAU MANAGEMENT)

(Speaker in the Seminar)

TC A1 OVERVIEW

- Promotion of a culture of **transparency and accountability TC A1 WG3**

TC A1 WG 3 Co-Leaders:

Michel Démarre (France)

(General-Director, SEFI/FNTP

SEFI: French Association of International Contractors)

(Speaker in the Seminar)

Logashri Sewnarain (South Africa)

(Previous Regional Manager, SANRAL – Eastern Region) South Africa

(SMEC SA: Functional General Manager Roads and Highways) (Attendee in the Seminar)

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

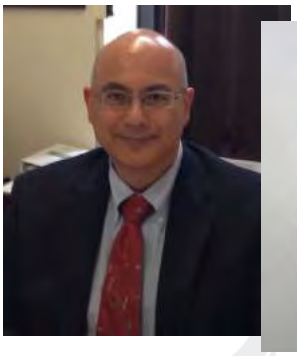
TC A1 OVERVIEW

Three Secretaries (English, French and Spanish languages):

Christos Xenophontos (USA)

(Assitant Director, RIDOT « Rhode Island Department of Transportation »)
(Vice-Chair of AASHTO COPM « Commitee on Performance Based Management »)

(Speaker in the Seminar)
(Host TC A1 in April 2017)



Michel Démarre (France)

(General-Director, SEFI/FNTP) (Speaker in the Seminar)

Sergio Vargas (Chile) (engineer in Dirección General de Vialidad) (Attendee in the Seminar)

TC A1 OVERVIEW

Shi Baolin (P.R. China)

(President, China Academy of Transportation Sciences, CATS)

(Host & speaker in the Seminar)

LIU Si (PR China)

(Research Assistant, CATS)
(Host & attendee in the Seminar)

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

TC A1 OVERVIEW

Anna Wildt-Persson (Sweden)

(Chief Strategist, Trafikverket, Swedish Transport Administration)

(Speaker in the Seminar)
(Host TC A1 in Sept 2017)

Alan Colegate (Australia)

(Manager Strategy, Main Roads, Western Australia)
(Speaker in the Seminar)

TC A1 OVERVIEW

Anne-Séverine Poupeleer (Belgium)

(Head of Division of Planning & Coordination, Agency for Roads and Traffic, MOW-AWV in Flanders / Belgium)
(Speaker in the Seminar)

Niels Tørsløv (Denmark)

(Director of Operations, Vejdirektoratet, Danish Road Directorate)

(Attendee in the Seminar)
(Speaker TC A1 in September 2017)

TC A1 OVERVIEW

Nataliya Forsyuk (Ukraine)

(CoST Ukraine country manager)
(CoST: Infrastructure Sector Transparency Initiative)

(Speaker in the Seminar)
(Host next Seminar to be held in Kiev
with the collaboration of Kievavtodor, Kiev city Road Agency which is a new member of PIARC)

Oleksander Gustieliev (Ukraine),

Director of the mentioned Kievavtodor,
Kiev city Road Agency is attendee in the Seminar

TC A1 OVERVIEW

Meeting of PIARC TC A1 in November 2016 in Madrid (Spain)

TC A1 OVERVIEW

Meeting of PIARC TC A1 in September 2017 in Copehagen (Denmark) and Malmö (Sweden)

TC A1 OVERVIEW

Coordinator of Strategic Theme A (ST A):

Ernesto Barrera Fajardo (Chile)

(Director of Maintenance, Dirección General de Vialidad,

Chile General-Directorate for Roads)

(is attending PIARC SPC, Strategic Planning Commission in Mexico)

Succesor of Alberto Bull Simpfendorfer (Chile)

(sadly passed away in 2017)

TC A1 OVERVIEW

The TC was created in 1996 and called « Performance of Road Administrations » up to the end of 2007 and « Good Governance of Road Administrations » up to the end of 2011.

The current work of TC A. 1 is based on the former TC 1.1 (2012-2015), chaired by Brendan Nugent (Australia)

TC A1 OVERVIEW

The TC 1.1 Issues were three:

- Evolution of structures and missions of the administrations (Trends and outcomes of **multi-modal governance** in the road and transport sector)
- Assessment of performance of the administration (The importance of **good performance information**)
- Good governance and anti-corruption measures (**influence of media in creating perceptions related to institutional integrity**) (application of **WRA Integrity Toolkit**)

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

TC A1 OVERVIEW

For its part, the work of mentioned TC 1.1 (cycle 2012-2015) was based on the **TC B.1 (cycle 2008-2011) "Good Governance in Road Administrations"** chaired by Paul Van der Kroon (Netherlands)

and

TC 1.1 (cycle 2004-2007) "Performance of Road Administrations"

TC 15 (cycle 2000 – 2003) "Perfomance of Road Administrations"

TC 15 (cycle 1996-1999) "Performance of Road Administrations"

Products since creation of TC in 1996:

https://www.piarc.org/en/Technical-Committees-World-Road-Association/Strategic-Theme-Management-Finance/Technical-Committee-Road-Transport-Administrations/#tab-s81971EuH1

PRODUCTS OF CYCLE 2011 – 2015

During former Cycle 2011-2015 the **TC 1.1 WG1"Evolution of the Mission and Structure of Transport Administrations"** drafted the report *(2016R23EN)*:

"TRENDS AND OUTCOMES OF MULTI-MODAL GOVERNENCE IN THE ROAD AND TRANSPORT SECTOR"

(57 pages plus Appendix and a Toolkit for Multi- Modal Collaboration)

Among the authors were the following Speakers:

Alexander Walcher (Joint Chair of TC 1.1 WG1)
Jonathan Spear (Joint Chair of TC 1.1 WG1)
Alan Colegate (Joint Chair of TC 1.1 WG2)

PRODUCTS OF CYCLE 2011 – 2015

In brief: A particular **trend – since the 1990s** – has been the creation of **large multi-modal transport organisations** that are responsable for several modes of transport. The former road agencies are integrated in the new organisations.

The rationale provided for reform is not always supported by clear evidence or confirmed by subsequent monitoring; a full analysis is needed on wether these aims have been achieved.

But there are **still many road-focused agencies which have undergone less radical structural changes** using policies and actions to coordinate different modes of transport.

PRODUCTS OF CYCLE 2011 – 2015

Users want to be conveniently and easily on the move, with flexibility and convenience to switch between modes and networks.

The TC 1.1 WG1 has developed a **Toolkit for Multi-Modal Collaboration** within the framework of the **Conceptual Model of Multi-Modal Collaboration** with four groups of issues and functions that the transport agencies has to fulfil to improving multi-modal mobility:

- Objectives and strategy
- Processes and systems
- People, values and behaviour
- Structures

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

The Toolkit has been developed to make it possible for every organisation: to develop and implement individual packages of actions to improve multi-modal mobility based on the current situations and the organisational framweork conditions.

Subject Areas	Actions	Description of actions	detailed description of actions as planned/implemented within the organisation	Responsibility	Implementation: Fully implemented	Partially implemented	Not implemented	To be introduced	To be developed further
Objectives and Strategy									
Theory: Different organisations agree and operate to deliver and monitor against a single vision, strategy and plan for the transport sector as a whole, even if specific functions, roles and responsibilities within the overall delivery chain are									
	Frame work / Master plan	Agreeing on objectives for the next (e.g. 5 or 10) years regarding projects that need to be implemented and focuses, including agreeing budgets with the politically responsible level							
	Contractual agreements	Contractual agreements with other transport providers to implement multi-modal actions at project level							
	Programme to implement multi-modal actions	Initiating a separate programme to develop, plan, and implement multi-modal actions, including defining accountabilities (programme managers and programme team), the programme's budget, individual project planning, programme controlling including cost-effectiveness analysis							
	Shared KPIs and targets	Cross-modal definition of key performance indicators with objectives for the respective transport providers that are pursued and reported on in the organisation.							
	Collaborative objectives	The objectives for cooperating with different transport providers							

PRODUCTS OF CYCLE 2011 – 2015

Irrespective of the combination of actions initially proposed, **customer satisfactions**, with the significant parameters of **efficiency and effectiveness, should always take priority** over defining the way forward.

The report of TC 1.1 WG1 includes:

- **7 High-level conclusions and recommendations in respect of overall multimodal challenges and decisión-making.**
- **8 Conclusions in specific considerations of multi-modal structures and the case for structural re-organisation.**

PRODUCTS OF CYCLE 2011 – 2015

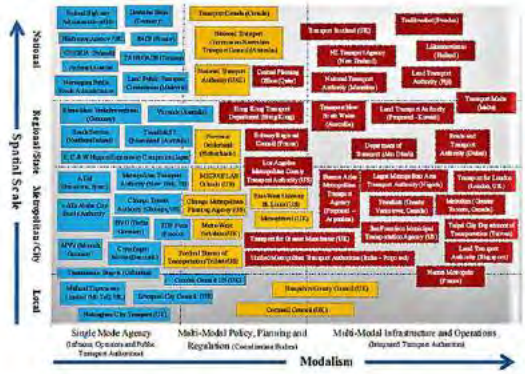


Illustration 3: Longevity of current organisational forms

Illustration 16 : cadre théorique pour la multimodalité

PRODUCTS OF CYCLE 2011 – 2015

TC 1.1 WG2 "Assessment of performance of the Administration" drafted the report *(2016R22EN)*:

"GUIDE TO GOOD PRACTICE PERFORMANCE FRAMEWORKS"

*(26 pages plus Appendix of 105 pages which includes a **Best Practice Toolkit,** a Case Stydy Overview and the Detailed Case Studies)*

Among the **authors**, the following Speakers or Attendees:

Alan Colegate (Joint Chair of TC 1.1 WG2)

Anne-Séverine Poupeleer

Ilaria Coppa (now Co-Leader TC A1 WG1)

And lets mention Mara Campbell (Joint Chair of TC 1.1 WG2 and current Chair of TRB ABC30 Committee on Performance Management (she joined us in the 3rd TCA1 meeting in Rhode Island)

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

The mentioned **Best Practice Toolkit** (4 pages) has been **designed to assist organisations in conducting and assessment of their own approaches against what is regarded as a good practice approach to performance measurement** and cover the phases of Plan and Policy, Framework, Measures and Reporting.

Good performance information is an essential part of good management.

It assists in ensuring accountability (not just "compliance"), transparency and aids decision making by road and transport administrations.

PRODUCTS OF CYCLE 2011 – 2015

There is no correct answer on what should be mesured by any road authority but one good answer is:

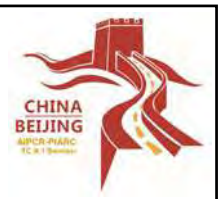
"What we measure shapes what we collectively strive to pursue, and what we pursue determines what we measure"

(Australian Commission on the Measurement of Ecomomic Performance and Social Progress)

Among road and transport agencies there is an increasing emphasis on **improving the quality of performance indicators** to explain what road and transport providers do and why.

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

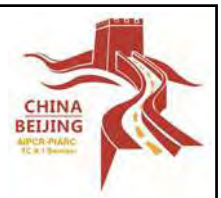


Good performance information it's a key element of the accountability and transparency. Regular **reporting** of good performance information tells Government and public about the work agencies do. It should also help agencies make decisions.

IMPORTANT: "The PUBLIC VALUE":

Concept explored during the previous cycle 2007-2010 by TC B.1 "Good performance for road administrations" which developed the **"Public Value Chain"**.(*see report 2012R07-EN "Improved Services For Customers")*

PRODUCTS OF CYCLE 2011 – 2015



And the "Public Value Chain" depicts that road agencies, together with their partners and co-producers, take **inputs** and process them through the filter of **user / customer satisfaction** to deliver their intended outcomes.

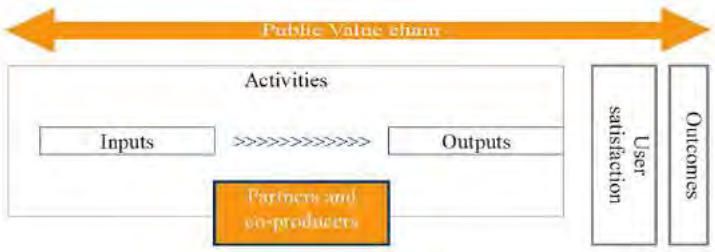


Illustration 1 – Public Value Chain

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

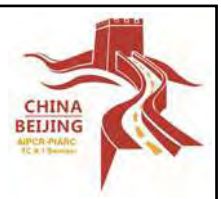


FIGURE 2 - STEPS OF CUSTOMER COOPERATION

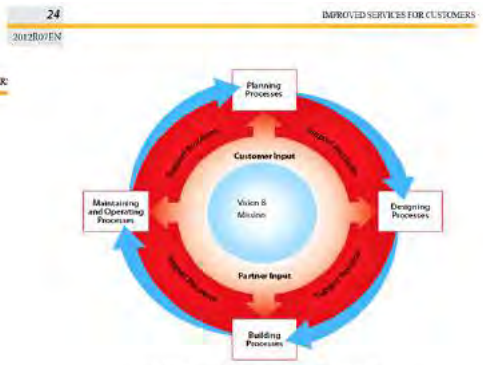
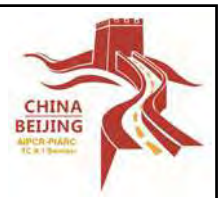


FIGURE 3 - INCORPORATING CUSTOMERS NEEDS

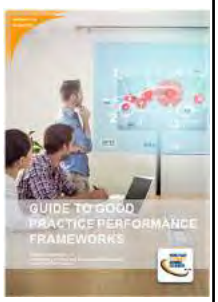
PRODUCTS OF CYCLE 2011 – 2015



Performance reporting: has a role to play in all phases of the management and accountability cycle and should aim to provide timely, credible and relevant information for management.

The TC 1.1 WG2 report *(2016R22EN)* does not seek to identify specific performance measures or indicators but **to identify the frameworks and constructs that will measure the success of the approach taken in:**

- developing a **performance mesaurement framework**
- and assist in **comunicating** those results to the community

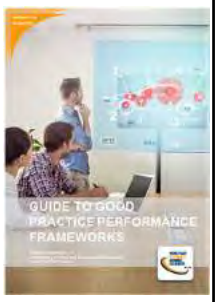


Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

External reporting of performance has a role to play in all phases of the "management and accountability cycle" and provides an opportunity for agencies to demonstrate and promote their achievements and explain any variance from expectetions or reference points.

Illustration 5 – - Management and accountability cycle Australian National Audit Office



PRODUCTS OF CYCLE 2011 – 2015

When developing a performance measurement framework:

The first step is identify a program of works; and the next step is to identify measures or key indicators that align with each part of the program bearing in mind the **Performance Measurement Hierarchy** (useful in complex organisations)

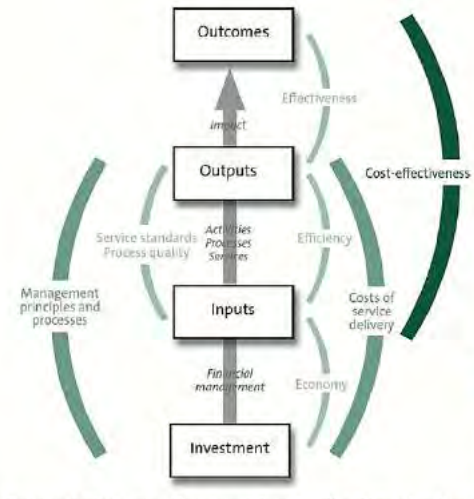


Illustration 6 – Performance Measurement Hierarchy Office of the Auditor General

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

Stablishing a clear "line of sight":

One of the most important concepts in performance measurement.

Refers to the ability of employees to see how their work and measures relates to the work and performance of others and ultimately organisational success which is to achieve the "ultimate aim": **the "overall outcome".**

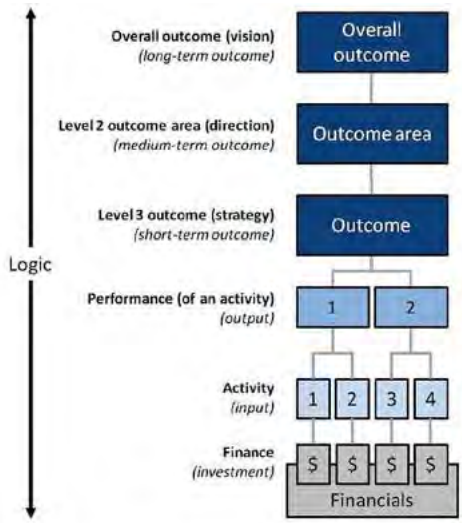


Illustration 8 - Structure of outcome based hierarchy

PRODUCTS OF CYCLE 2011 – 2015

Among other conclusions, the report sets out:

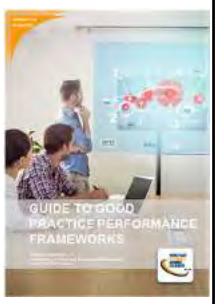
5 recurring Themes arising regardless of the level of jurisdictional administration or the complexity of the road and transport network

6 maturity attributes regarding performance measurement reporting (best performers have gone beyond simple "compliance")

A Table which shows the checkpoints developed

Elements of Best Practice to be considered

Reflections on future directions



Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

Finally, during Cycle 2011-2015 the **TC 1.1 WG3 "Good Governance and Anti-Corruption Measures"** drafted the report *(2016R21EN)*:

"GOOD GOVERNANCE AND ANTI-CORRUPTION MEASURES"

(25 pages plus 34 pages for three Appendixes including Case Studies on influence of media, on Good Governance and Anti-Corruption Measures, and a Integrity Toolkit Questionnaire)

Among the authors were the following Speaker:

Michel Démarre (now Co-Leader of TC A1 WG3)

And among the responsable for the quality control was the Speaker:

Alan Colegate (Joint Chair of TC 1.1 WG2)

Another author is Mara Campbell (USA) Joint Chair in TC 1.1 WG 2)

PRODUCTS OF CYCLE 2011 – 2015

TC 1.1 WG3 has focused its activities on two main elements of integrity:

- The influence of the **media** in creating perceptions relating to institutional integrity
- The practical application of the **PIARC Integrity Toolkit** and level of knowledge

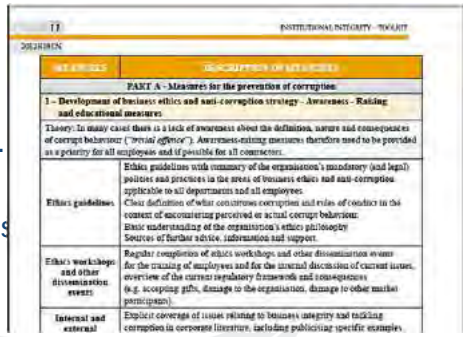
The ***Integrity Toolkit (2012R18EN) published in October 2012*** was developed in the former cycle 2008-2011 by **TC B1 WG1 "Best Practices for Good Governance"** Co-Chaired by the Speakers Jonathan Spear and Alexander Walcher, and also was member of it the now correspondent member of TC A1 André Bernard (France).

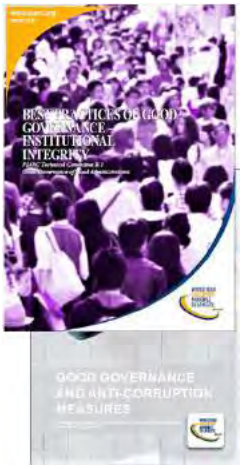
Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

The mentioned TC B1 WG3 drafted the *report "Best Practices of Good Governance – Institutional Integrity" 21012REN* (87 pages plus References, a *Integrity Survey* and the *Integrity Toolkit* itself).

The overarching goal was to identify the existing situation governing business ethics for road administrations worldwide.





Among the **key outputs** as key definitions terminology, a Survey, and Case Studies It should be noted:

PRODUCTS OF CYCLE 2011 – 2015

The ***conceptual model "Cycle of Integrity"***

CYCLICAL MODEL OF INTEGRITY

The associated Integrity Toolkit of measures to prevent, indentify and enforce against bad behaviour and practices.

Analysis of societal (macro level) and Project/Programme (micro level) implications of the "Cycle of Integrity" and the Toolkit.

And the overall analysis in the Report and set of recommendations from above.

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

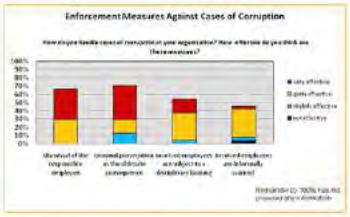


FIGURE 16 – ENFORCEMENT MEASURES AGAINST CASES OF CORRUPTION

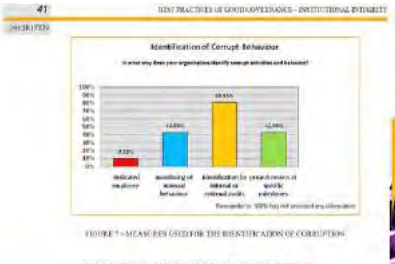
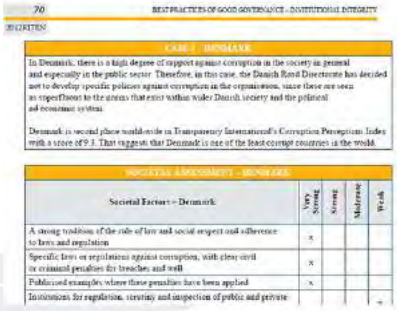


FIGURE 7 – MEASURES USED FOR THE IDENTIFICATION OF CORRUPTION



PRODUCTS OF CYCLE 2011 – 2015

Coming back to the **TC 1.1 WG3** report ***"GOODS GOVERNANCE AND ANTI-CORRUPTION MEASURES"*** *(2016R21EN)* the purpose is three-fold to:

- Current situations with a focus on the **influence of the media in creating perceptions relating to Institutional Integrity** (Road projects spark public interest and media attention).

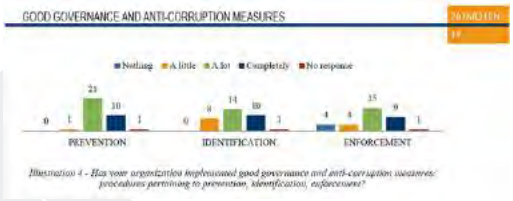
External stakeholders can be reached through media announcements and advertisements on television, print media etc., social media feeds or public participation forums, some of which are described below (see *illustration 2*)

Illustration 2

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

PRODUCTS OF CYCLE 2011 – 2015

- Provide a **snapshot** of the effective benchmarks of integrity laws, policies and measures including **implications of increased scrutiny by the media.**



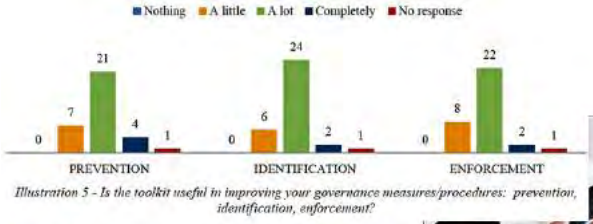


Illustration 5 - Is the toolkit useful in improving your governance measures/procedures: prevention, identification, enforcement?

- Showcase the ***"Well-Prepared Projects"*** concept which holds that *"the better a Project is prepared, the smaller the risks"*, emerged from discussions involving Multilateral Development Banks and contractor's and international consultants' associations as CICA and FIDIC.

PRODUCTS OF CYCLE 2011 – 2015

- All the Conclusions of the TC A1 WGs were presented in the 25th World Road Congress in Seoul (November 2015)

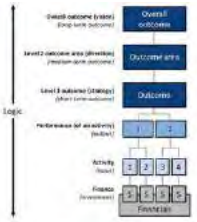
SEOUL WORLD ROAD CONGRESS 2015

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

CHINA BEIJING AIPCR-PIARC

PRODUCTS OF CYCLE 2011 – 2015



Developing A Conceptual Model

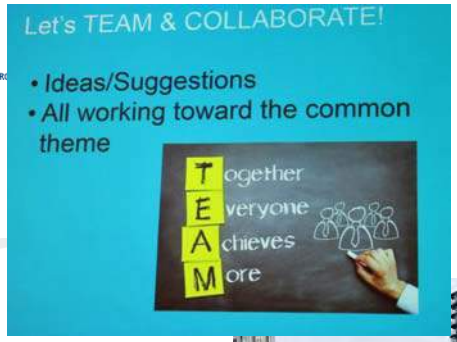
Management Messaging PM³ Performance Measurements

LEADERSHIP

CUSTOMERS / USERS

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

CHINA BEIJING AIPCR-PIARC



Echanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

感谢您的关注

Thank you for your attention!

Merci de votre attention!

¡Gracias por su atención!

José Manuel Blanco Segarra (Spain) (西班牙)

TC A1 Chair

Chief Engineer of National Road Administration in the Region of Extremadura (Spain)

jmblanco@fomento.es

jblaseg@ciccp.es

当前时段
现代综合交通运输体系之发展

The development of modern and integrated transportation system in China

2018.4

一、形势要求和交通发展阶段
The development phase and demands of transportation in China

（一）交通运输业在经济社会发展中的定位：

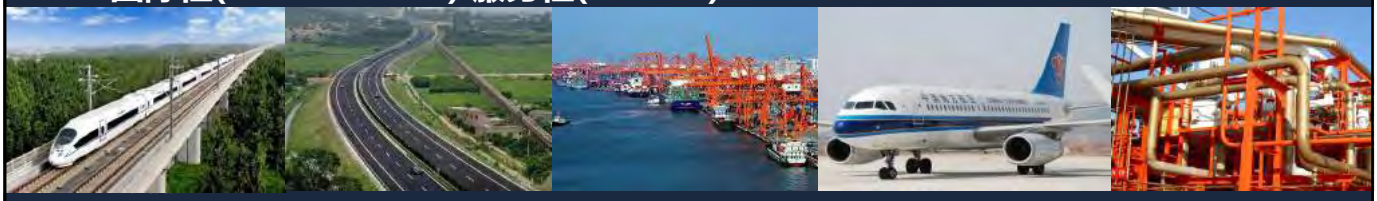
Positioning of transportation in economic and social development

1、基础性(foundation) 服务性(service)

2、基础性(foundation) 先导性(guide) 服务性(service)

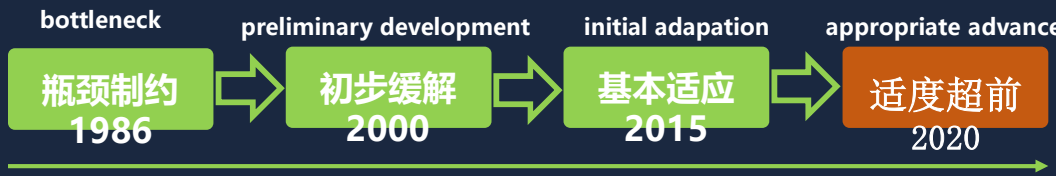
3、基础性(foundation) 先导性(guide) 战略性产业(strategic industry)
重要的服务性行业(important service)

4、最新研究提出：基础性(foundation) 先导性(guide) 战略性(strategic)
国际性(international) 服务性(service)



（二）交通发展的历史阶段

historical stage of transportation development



1986年，中国科协组织100位专家上书国务院，提出交通瓶颈制约问题

“十三五”期，我国交通运输处于
由“基本适应”向“适度超前”过渡的阶段

交通由长期”跟跑型”向全面“领跑型”转变，需求特征及发展方式、视野、动力等都将发生深刻变化

（三）国家发展的形势要求
national development demands

中国特色社会主义进入新阶段
我国社会主要矛盾转化为人民日益增长的美好生活需要和不平衡不充分的发展之间的矛盾
The main social contradiction of China is the contradiction between the needs of the people and the unbalance of the development.

（四）交通发展的阶段性特征
periodical characteristic of transportaiton development

综合交通基础设施加快成网 Integrated transportation infrastructure

各种运输方式融合发展 Multi-modal transportation

客运快速化和货运物流化需求凸显 Passenger and freight transportation

交通运输新模式新业态不断涌现 New transportation mode

交通在国家战略实施中地位更加突出 Support national strategy

1、综合交通基础设施加快成网
Integrated transportation infrastructure

By 2020年

- 铁路建成与在建总里程约17.5万公里，为规划目标的88%。其中，高铁4万多公里。175,000 km railway (including constructed or under construction), 88%of the planned mileage. Including 40,000 high-speed railway.
- 公路总里程达到540万公里。高速公路建成约16万公里，其中国家高速公路建成12万公里，为规划目标的88%。5.4 million km highway, 160,000 km expressway, including built 120,000km expressway, 88% of the planned mileage.
- 内河高等级航道达标里程达到85%（受制于环境保护），high-grade inland river mileage: 85% of the planning
- 民航运输机场建成270个，剩余机场多为支线机场，机队从2650架发展到4200多架。270 airports, 4200 airplanes.

2、各种运输方式融合发展
Multi-modal transportation

- 交通从瓶颈制约到初步缓解再到基本适应的发展阶段，各种运输方式从短缺到规模迅速扩张，以各自发展为主。新的历史时期进入到由大到强的新的发展阶段，各种运输方式的内生动力需要融合统筹协调，充分发挥各种运输方式的比较优势和组合效率，进入到综合运输发展的新阶段。

  China has entered the era of integrated transportation, and the comparative advantage and combination efficiency of various modes of transportation have been highlighted.

2018/6/4

3、客运快速化和货运物流化需求凸显
Passenger and freight transportation

- 高铁、高速公路、民航所拥有的规模和数量，使得长距离出行实现了快速化。

The scale and quantity of high-speed railways, highways and civil aviation make long-distance travel efficient.

- 货物运输进入到多式联运和物流链运输的新阶段（18部委18条）。

Freight transportation has entered the era of multi-modal transportation and logistics chain transportation.

4、交通运输新模式新业态不断涌现
New transportation mode

- 以“互联网+”为主要特征的交通运输新模式、新业态不断涌现：交通+观光农业、交通+旅游、交通+产业、交通+城市、交通+枢纽经济（临空临港高铁）

Internet plus mode: transportation+tourism, transportation+industry, transportation+city, transportation+tourism agriculture

- 线上线下联动的公路港网络，无车承运人 freight forwarder

- 带动交通组织模式、管理模式、法律法规的新变化

New change of organization mode, management mode, laws and regulations.

5、交通在国家战略实施中地位更加突出 Support national strategy

- 交通是京津冀协同发展的骨骼系统，是率先发展领域 Beijing-Tianjin-Hebei transport coordination development
- ”一带一路”五通当中交通联通为首 One Belt One Road Initiative
- 长江经济带发展纲要唯一的附件：长江经济带立体交通走廊 Yangtze River economic zone development
- 交通基础设施是贫困地区脱贫致富的首要条件。Infrastructure construction in poverty zone

2018/6/4

当前时段，我国交通运输发展处于支撑全面建成小康社会的攻坚期、优化网络布局的关键期、提质增效升级的转型期、进入现代化建设新阶段，要准确把握新形势、新要求、新任务，推动交通质量变革、效率变革、动力变革，切实转变发展思路、方式和路径，开创发展新格局。

China transportation development has entered an key era of network layout optimization and service qualityimprovement.

二、当前时段的主要任务
Current main task

建设安全便捷、经济高效、绿色智慧、开放融合的现代化综合交通运输体系

Safe and convenient, economical and efficient, green and intelligent, open and integration transportation system.

2018/6/4

（一）基本原则和发展导向

Basic principles and development orientation

基本原则 Basic principles

先行引导 适度超前	Appropriate advance
衔接协调 统筹发展	Coordination
服务为本 提质增效	Service oriented
创新驱动 安全绿色	Innovation driven

（一）基本原则和发展导向

Basic principles and development orientation

发展导向 development orientation

以网络化布局为基础	Network layout optimization
以一体化服务为根本	Integrated service
以智能化技术为牵引	Intelligent technology
以绿色化发展为方向	Green development

（二）完善基础设施网络化布局

Infrastructure network layout optimization

1、完善多向连通综合运输通道 Integrated channel

遵循国家战略发展需要，按照拓展区域发展新空间的要求，综合考虑国土空间开发、城市群轴带布局、产业布局以及客货运输需求变化等因素，论证梳理“八纵八横”高速铁路网布局、“71118”高速公路网布局、水运主通道相衔接，提出建设横贯东西、纵贯南北、内畅外通的“十纵十横”综合运输大通道

According to the demands of national strategy, regional development, homeland use, and industry agglomeration, China plans to construct 10 longitudinal and 10 transverse integrated channels for passenger and freight transportation.

“十纵十横”综合运输大通道布局
10 longitudinal and 10 transverse channels

（一）纵向综合运输通道
10 longitudinal channels

1.沿海 2.北京至上海 3.北京至港澳台 4.黑河至港澳 5.二连浩特至湛江 6.包头至防城港 7.临河至磨憨 8.北京至昆明 9.额济纳至广州 10.烟台至重庆

（二）横向综合运输通道
10 transverse channels

1.绥芬河至满洲里 2.珲春至二连浩特 3.西北北部 4.青岛至拉萨 5.陆桥 6.沿江 7.上海至瑞丽 8.汕头至昆明 9.福州至银川 10.厦门至喀什

2、提出基础设施“三张网” 布局
3 networks of infrastructure

构建高品质的快速交通网	High quality expressway network
强化高效率的普通干线网	High efficiency arterial way network
拓展广覆盖的基础服务网	High coverage basic road network

3、完善综合交通枢纽空间布局
Integrated transportation hub layout optimization

国际性综合交通枢纽由北、上、广扩展为15个城市

15 international integrated transportation hubs

- 重点打造北京-天津、上海、广州-深圳、成都-重庆国际性综合交通枢纽
- 建设昆明、乌鲁木齐、哈尔滨、西安、郑州、武汉、大连、厦门等国际性综合交通枢纽

全国性综合交通枢纽根据筛选原则与标准，最终确定67个节点城市

67 national integrated transportation hubs

（三）强化交通的战略支撑作用
Support the national strategy

1、京津冀协同发展战略
Beijing-Tianjin-Hebei coordination development

构建京津冀协调发展的一体化网络，形成以“四纵四横一环”综合运输大通道为主骨架、多节点、网格状区域交通新格局，打造“轨道上的京津冀”（2020年前实施9个项目，总里程约1100公里）Beijing-Tianjin-Hebei on Metro (9 projects by 2020, 1100 km in total)。

为北京非首都功能疏解和打造世界级城市群发挥支撑引领作用。Weaken the non-capital function of Beijing and build the world-class urban agglomeration.

（三）强化交通的战略支撑作用
Support the national strategy

2、建设长江经济带综合立体交通走廊
Integrated transportation corridor of Yangtze River Economic Zone

（高效的多式联运体系，降低物流成本，支持产业梯度转移）
(efficient multi-modal transportation,
reducing the logistics cost,
supporting industrial gradient transfer.)

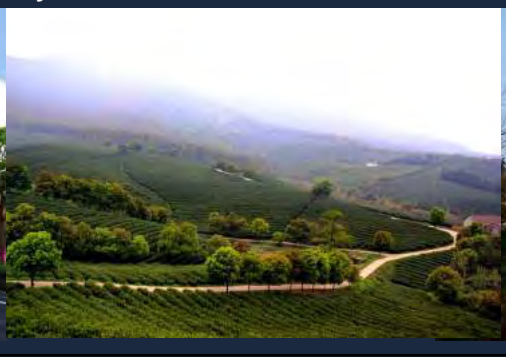
打造长江黄金水道　　构建立体交通走廊
Golden waterway and integrated transportation corridor

（三）强化交通的战略支撑作用
Support the national strategy

3、发挥交通扶贫脱贫攻坚基础支撑作用 Poverty governance

强化贫困地区骨干通道建设
arterial way construction of poverty area.
夯实贫困地区农村公路基础设施
rural highway construction of poverty area.

推进康庄大道路 幸福小康路
平安放心路 特色致富路建设
实施四优先三放宽一提高政策


（四）加快运输服务一体化进程
Integration of transport service

1、提升客运服务安全便捷水平
Improve the safety and convenience of passenger service, and build the multi-modal passenger transportation and one-stop service.

推进跨运输方式的客运联程系统建设，完善枢纽站场联运服务功能，统筹运输方式间运力、班次对接，鼓励开展多种形式的联程运输服务，推动航空与城市轨道、高铁等方式“一票到底”和“行李直挂”。推广普及电子客票、联网售票、实名制购票，推动旅客“一站购票”、“一票出行”。

Build the multi-modal passenger transportation system
Optimize the multi-modal service function of hubs
Coordinate the transport capacity of different modals
Provide the one-stop ticketing service, one-ticket travel and luggage check through service.

（四）加快运输服务一体化进程
Integration of transport service

2、促进货运服务集约高效发展
Promote the efficient and intensive freight service.

大力发展以集装箱和箱式半挂车为运载单元的铁、公、水、空多种组合形式的多式联运 multimodal transport
推动无车承运人发展 freight forwarder
推进跨区域甩挂、企业联盟甩挂、网络型甩挂、干线运输与城市配送衔接甩挂等模式发展 regional trailer, enterprise alliance, urban freight
大力发展江海联运
制定多式联运规则和多式联运经营人管理制度 regulations on operators
加强信息互联、流程统一、标准对接 information connection, unified process and conformed standard

（四）加快运输服务一体化进程
Integration of transport service

3、发展先进适用的技术装备 advanced technology and equipment

（1）推进先进技术装备自主化 localization

提升先进装备的技术水平和应用规模
发展多式联运成套技术装备（重点是运载单元）
multi-modal transport equipment
积极发展公路专用运输车辆 special road transport vehicles
积极发展支线飞机、全货机（没有适合高原的）和通用航空器 general aviation

（2）促进技术装备标准化发展 standardization

加快推进铁路多式联运专用装备和机具技术标准体系建设
railway multi-modal transport equipment
加快推进内河运输船舶标准化 inland waterway transport vessels
推广应用集装化和单元化装载技术 assemble loading technology
建立共享服务平台标准化网络接口和单证自动转换标准格式
network interface of sharing and service platform

（五）提升交通发展智能化水平
Improve the intelligence level of transportation

1、夯实交通发展智能化基础 Lay the foundation

打造泛在的交通运输物联网 Internet of Things
推进云计算与大数据应用 cloud computing and big data application
构建新一代交通信息基础网络 transport information network
保障交通网络信息安全 information safety

2、促进交通产业智能化变革 Promote the transform

实施“互联网+”行动计划 培育壮大智能交通产业 internet plus plan
加快实施云计算、大数据、物联网、移动通信技术与交通运输深度融合
Transportation industry plus advanced technology
推动基础设施和载运工具数字化、网络化，运营运行智能化
Digitalization of transportation infrastructure
试点示范新一代国家交通控制网和智慧公路、北斗高精度定位、全自动码头
National control network, intelligent highway, Beidou high precision positioning, fully automatic wharf.

（五）提升交通发展智能化水平
Improve the intelligence level of transportation

3、优化交通运行和管理控制
Optimization of traffic operation and management control

建立高效运转的管理控制系统，提升铁路、公路、港口、航空运行控制和生产调度的智能化水平

推进部门间、运输方式间的交通管理在线协同和应急联动

coordination of multi-modal management, control, emergency disposal and response.

推广车路协同技术，提升装备和载运工具智能化和自动化水平 V2V and V2I technology

4、健全智能决策支持与监管
Improvement of intelligent decision-making support and supervisior

充分利用政府和企业的数据资源，建立健全大数据科学辅助决策机制 Public and private data fusion

推动在线行政许可“一站式”服务 one-stop administrative service

推动许可证件和执法案件数字化及异地互认 nationwide mutual recognition of administrative permission

（六）促进交通运输绿色化发展
Promote green development of transportation

1、结构优化是绿色发展的根本 Development structure optimization

京津城际Beijing-Tianjin HSR

●京津城际一列车载客1000多人，相当于27量大巴的载客量，一天的客运量相当于1000辆大巴。相对于占用公路资源多、安全舒适性低、排放量大的大巴具有明显优势

1000 people per one carriage

●京津城际CRH3型“和谐号”动车组一个单程人均耗电仅1.5度,单位能耗是波音747飞机的3%、是私人汽车的20%。low cost ,3% of B747, 20% of vehicle.

（六）促进交通运输绿色化发展

Promote green development of transportation

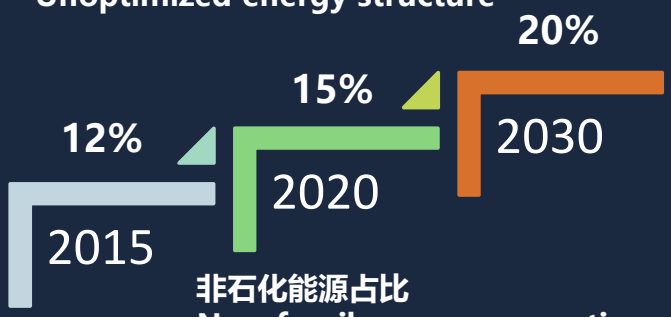
2、技术进步 Advances in technology

特高压是指±800千伏及以上的直流电和1000千伏及以上交流电

新能源 new energy

•能源消费结构不合理，煤炭占终端能源消费比重过高，弃水、弃风、弃光现象严重

Unoptimized energy structure



非石化能源占比
Non-fossil energy proportion

（六）促进交通运输绿色化发展

Promote green development of transportation

2、技术进步 Advances in technology

新能源载运工具 new energy carriers

•火车、汽车、船舶、飞机

•主要把污染远离城市和人群集聚地方

Keep pollution away from city and people

中国动车组 CRH

纯电动汽车electric vehicle

清洁能源汽车 clean energy vehicle

LNG船 LNG boat

（六）促进交通运输绿色化发展

Promote green development of transportation

3、加强生态保护和污染治理

Ecological environment protection and pollution control

加强基础设施全过程全周期生态保护 full cycle ecological protection of infrastructure construction

实施长三角珠三角环渤海船舶排放控制区 ship discharge

推动船舶靠泊使用岸电工程 shore power engineering

大力推进新能源公交车出租车 new energy transit

强化港口和船舶污染防治 port pollution control

加强环境影响监测 environment monitoring

（七）加强平安交通建设 transportation safety

1、加强安全生产管理 — Safety management of production

2、加快安全监管能力建设 — Safety supervision ability

3、推进应急体系建设 — Safety emergency system

（八）拓展交通运输新领域新业态
Explore new transportation mode

1、积极引导交通运输新消费
(transportation+tourism)

汽车营地　房车　通用航空　邮轮　定制公交。80、90后自驾车出行旅游占到40%，通用航空增幅超过两位数，邮轮旅游蓬勃发展

car camping, loose pulley, general aviation, motor homes

2、大力发展交通运输新经济
（transportation+hub economy）

培育壮大高铁经济、临空经济。高铁建设投资带动关联产业的乘数效应超过三倍，各大国际性枢纽机场均大力发展临空经济区，北京新机场临空经济区超过150平方公里，辐射半径达到200公里以上

HSR economy, airport economy.

（八）拓展交通运输新领域新业态
Explore new transportation mode

3、打造交通物流融合新模式
（transportation+logistics）

提出打通全链条、构建大平台、创建新模式、促进交通物流融合发展。建设智能物流配送体系，打造全国智能化的线上线下联动的公路港网络，积极发展无车承运人；全国300万营运货车实时位置实现跟踪定位

Online and offline road network, real positioning of freight vehicles.

4、推进交通空间综合开发利用
（transportation+city development）

鼓励交通基础设施与地上、地下周边空间综合利用，推动交通枢纽站场、立体停车设施与周边空间的联动开发，统筹规划布局地下交通基础设施与地下综合管廊

Exploitation of transport infrastructure including hub, parking lot.

（九）全面深化交通运输改革 Deepen reform

1、深化交通运输管理体制机制改革 management institution reform

大部制体制机制制度改革，应形成统一政策与方针、统一战略与规划、统一财政与行政、统一标准与法规、统一服务与监管的一体化交通行政管理新局面

Build the big transportation ministry and department in every level of administration

2、推进交通市场化改革 market reform

交通运输市场 价格机制 铁路客货运输（区域分割） 公路养护 民航运输市场化 出租汽车行业改革 新业态新领域的监管政策 诚信体系

Price，Passenger and freight transportation，highway maintenance，faith system，etc.

3、加快交通投融资改革 investment and financing reform

财政事权和支出责任 PPP模式 交通发展基金—包括政府性基金和企业性基金

Financial governance, PPP model, transportation development funding

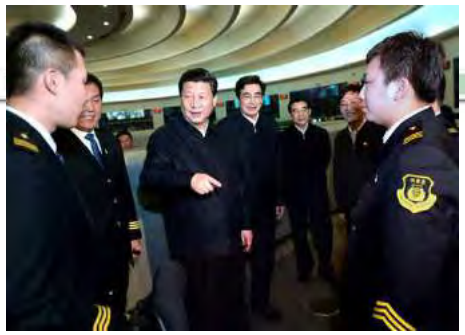
Transport integration in the coordinated development of Beijing-Tianjin-Hebei region

Beijing Municipal Commission of Transport

Zhao Yang

April, 2018

Contents



Xi Jinping, the General Secretary of China, gave a keynote speech on February 26, 2014 when he inspected Beijing city and provided important instructions in terms of the coordinated development of Beijing-Tianjin-Hebei region.

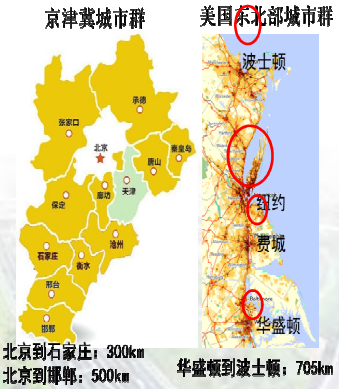
- Decentralizing functions unrelated to its status as the national capital
- Regarding transport integration as the pioneer field in the coordinated development of Beijing-Tianjin-Hebei region
- Facilitating the construction of a fast, convenient, high-efficient, safe, high-capacity, and low-cost interconnected comprehensive transportation network

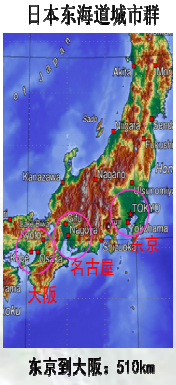
1. Development status of transport integration in Beijing-Tianjin-Hebei region

北京交通

Located in the important area at and around the capital city and its environs, Beijing-Tianjin-Hebei region is close to Bohai, situated in front of Taiyue Mountain, and connects northern, northeastern, and northwestern China. Having a critical strategic position, Beijing, Tianjin, and Hebei in the region are close in geographic locations and people there are intimate. With close geographic location and same cultural inheritance, Beijing, Tianjin, and Heibei have a long history and appropriate communication radius, so they are able to integrate with each other and realize coordinated development.

2016:
Area: 2.16×10^5 km^2
Population: 1.1×10^8
GDP: 7.4×10^{12} yuan, accounting for 10% of the total country
Beijing which only occupies 2.3% of the total area of the country carries 8% of the total population





1. Development status of transport integration in Beijing-Tianjin-Hebei region

After years of development, the transportation construction in Beijing-Tianjin-Hebei region has gained a considerable progress. A comprehensive transportation system comprising multiple transportation modes including aviation, railway, port, and highway transports has been basically formed. The transportation infrastructure in the region are comparable to those in the Yangtze and Pearl River Deltas in terms of the development level at present, which lays a solid basis for the coordinated development of the region.

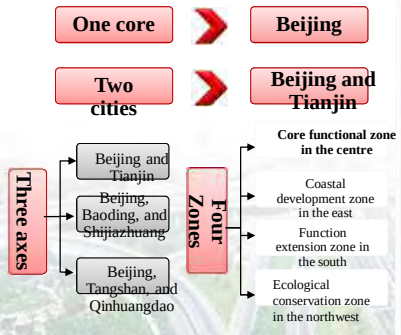
General development situation of transportation infrastructure in Beijing-Tianjin-Hebei region (2016)

Region	Area ($\times 10^4$ km^2)	Airport		Railway		Port	Highway	
		Number	Density ($/\times 10^4$ km^2)	Length (km)	Density (km/$\times 10^4$ km^2)	Capacity ($\times 10^8$ ton)	Length ($\times 10^4$ km)	Density (km/$\times 10^4$ km^2)
Beijing-Tianjin-Hehei	21.6	8	0.37	8496	3.9	11.8	21.2 (8005)	98.0 (3.5)
The Yangtze Delta	21	18	0.85	4997	2.4	23.8	28.4 (9045)	134.8 (4.3)
Pearl River Delta	18	7	0.39	3398	1.9	10.5	20.3 (5703)	112.9 (3.2)

Note: 1. The Yangtze Delta in the table represent Jiangsu province, Zhejiang province, and Shanghai, and Pearl River Delta represents Guangdong province;
2. Data in the "()" denote the length of expressways (km).

1. Development status of transport integration in Beijing-Tianjin-Hebei region

The contents are proposed to take one core, two cities, three axes, four zones, and multiple joints as the framework to promote the orderly decentralization of the functions of Beijing unrelated to its status as the capital



1. Development status of transport integration in Beijing-Tianjin-Hebei region

Constructing a broad comprehensive transportation channel and highlighting the building of the Beijing-Tianjin-Hebei highway network system consisting of four transverse and four longitudinal transportation lines as well as a transportation line surrounding Beijing, so as to facilitate the interconnection of the region.

1. Development status of transport integration in Beijing-Tianjin-Hebei region

Institution mechanism of transport integration (at four levels)

Organizational structure

National level	• Leading group for the coordinated development of Beijing-Tianjin-Hebei region (the State Council, June, 2014) • Leading group for the transport integration in Beijing-Tianjin-Hebei region (Ministry of Transport, July, 2014)
Beijing municipal level	• Leading group for facilitating the coordinated development of Beijing-Tianjin-Hebei region in Beijing
Transport commission level	• Leading group for the transport integration in the coordinated development of Beijing-Tianjin-Hebei region (August, 2014)
Beijing and Tianjin cities as well as Hebei province	• Coordinating group for the transport integration in Beijing-Tianjin-Hebei region (May, 2015)

Contents

2. Key points of transport integration in Beijing-Tianjin-Hebei region

Transport integration builds the framework and is the pioneer field in the coordinated development of Beijing-Tianjin-Hebei region. The aim of transport integration is to build a multi-node, network, and region-wide transportation network with rail transport as the backbone and to construct a unified and open regional transportation market structure.

Transport integration can be divided into the following eight aspects:

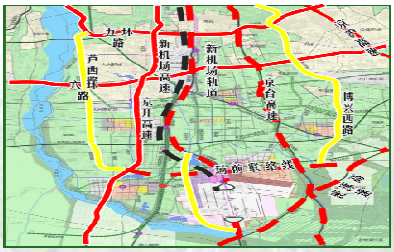
1. Building a high-efficient and dense rail transport network
2. Improving a convenient and unblocked highway transport network
3. Constructing modern port clusters
4. Building world-class aviation hubs
5. Developing urban transportation giving priority to public transit
6. Improving intelligent management level of transportation
7. Improving service level for the regional integrated transport
8. Developing safe, low-carbon, and sustainable transportation

Contents

3. Main achievements of transport integration in Beijing city

1) Beijing-Daxing International Airport

Beijing-Daxing International Airport is a key project of the country and the Ministry of Transport in the 13th Five-Year Plan. The construction of the airport has significant importance for satisfying the aviation transport demand in Beijing and its surrounding area and more favorably serving the integrated and coordinated development of Beijing-Tianjin-Hebei region. Beijing Municipal Commission of Transport is responsible for the construction of periphery transportation infrastructure of the new airport, including the construction of the expressways and rail transport in the transportation network consisting of five longitudinal and two transverse transportation lines. In addition to this, it is also supposed to guarantee the transportation service during the construction of the new airport.



3. Main achievements of transport integration in Beijing city

2) Subsidiary centers of Beijing

According to the urban strategic positioning of the central government for the capital of China, subsidiary centers of Beijing are supposed to be built to demonstration areas for the coordinated development of Beijing-Tianjin-Hebei region. Beijing Municipal Commission of Transport has clarified the key emphases in the construction of transportation infrastructure and formulated construction tasks for transportation infrastructure in subsidiary centers by the end of 2020. It is estimated that the Beijing-Qinhuangdao expressway and the ring expressway around Beijing (Tongzhou–Daxing section) will be completed and opened to traffic in the year of 2018. At that time, Beijing will accomplish all the missions for connecting dead-end highways assigned by the government.

3. Main achievements of transport integration in Beijing city

3) 2022 Olympic Winter Games

2022 Olympic Winter Games will be the top-level and most influential international sports event after the 2008 Olympic Games in Beijing. It also will become an opportunity for the integrated development of transportation in Beijing-Tianjin-Hebei region. Based on key projects, relevant departments in Beijing strengthen planning and communication and facilitate the interconnection of regional highway network. By the end of 2018, the plain section of Yanqing–Chongli expressway and Xingyan expressway will be completed and opened to traffic.

3. Main achievements of transport integration in Beijing city

4) Xiong'an New Area

Xiong'an New Area is a new supporting point in the coordinated development of Beijing-Tianjin-Hebei region. Beijing is now actively promoting the preliminary work in the construction of Beijing-Xiong'an expressway and signing the connection contract. Beijing and Hebei will simultaneously begin to build the expressway.

3. Main achievements of transport integration in Beijing city

In addition to this, many breakthroughs have been made in terms of industry development.

■ Transportation standardization

Beijing, Tianjin, and Hebei have jointly issued the first transportation standard ***Technical Specification for Application of Road Side Unit in Electronic Toll Collection System*** (DB11/T 3001-2015) in Beijing-Tianjin-Hebei region in 2015.
In 2016, Beijing took the lead to launch three transportation standards: ***Management Specification for Road Freight Terminal***, ***The Rules for the Highway Service Department***, and ***Naming and Numbering Rules of Provincial or Municipal Expressway Network***.

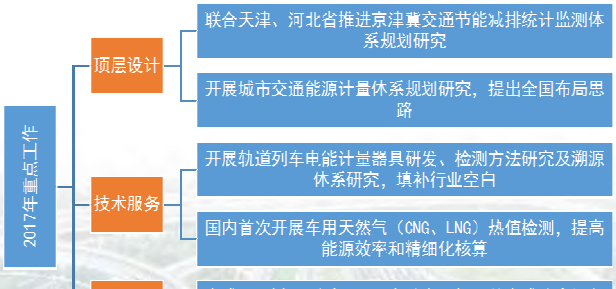
■ Interconnection construction of China T-union

A total of 139 bus routes have been built in 2015.
By the end of 2016, 876 urban bus routes and 122 suburban bus routes have been constructed.
The China T-union has been started using by the end of 2017.
The travel mode of traveling the whole Beijing-Tianjin-Hebei region with a single China T-union.

3. Main achievements of transport integration in Beijing city

■ Establishing the National Urban Energy Measurement Center (urban transportation)

Proposed by the Ministry of Transport, the first industrial energy measurement center was approved to be built by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China in May, 2017. Ever since the establishment, the center has provided supports for facilitating the construction of the statistical and monitoring system for energy conservation and emission reduction of transportation sector in Beijing-Tianjin-Hebei region from aspects including top-level design, technical services, and standard support of the energy measurement.



3. Main achievements of transport integration in Beijing city

■ Joint administration of illegal overloading of vehicles in Beijing-Tianjin-Hebei region

It is expected to improve the integrated consultation mechanism in Beijing-Tianjin-Hebei region. For this purpose, a series of administrative provisions and local standards have been issued. Relevant departments in Beijing have negotiated with those in Hebei concerning the outline agreement about stations jointly constructed in Beijing and Hebei, amendment suggestions for the transfer of illegal overloading cases, and the justification standard for evidences of offsite punishment of illegal overloading cases.

Contents

4. Development prospects

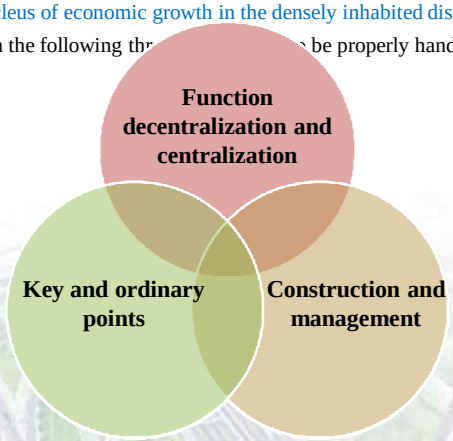
The overall functional orientation and industrial distribution of the region more tightly bond cities in the urban agglomeration together. Beijing, Tianjin, and Hebei should deal well with the relationships between government and market, function decentralization and undertaking, individual and system, and human and nature.

***Planning Summary of Coordinated Development of Beijing-Tianjin-Hebei Region*–functional orientation**

- Beijing: National political and cultural centers, international communication center, and scientific and technological innovation center
- Tianjin: National research and development base for advanced manufacturing, core area of international shipping in northern China, demonstration plot for the innovative operation in financial domain, and pilot area for the reform and opening-up
- Hebei: Important national base for modern commercial logistics, pilot site for industrial reform and upgrading, demonstration plot for the new-type urbanization and urban-rural integration, and ecological and environmental support area for Beijing-Tianjin-Hebei region

4. Development prospects

To realize the coordinated development of Beijing-Tianjin-Hebei region, the priority has to be given to transport integration. The fundamental objectives are to more favorably decentralizing the functions of Beijing unrelated to its status as the national capital, more preferably support the coordinated development of the region, and meet the demand for forming a new nucleus of economic growth in the densely inhabited district. In the process, the relationships in the following th… … be properly handled:



4. Development prospects

Short-term prospects (2017-2020)

In the short term, regional transport integration is expected to make a great progress and spread the passenger transport lines to all cities at prefecture level and above, so as to build the transportation circle in which any place in Beijing, Tianjin, and Baoding is reachable in one hour. It is supposed to connect dead-end highways in the national expressway network, fundamentally improve the transportation condition in poverty-stricken area around Beijing and Tianjin, cover the whole region with high-grade highways, and effectively ease the traffic through Beijing. In addition to this, it is supposed to greatly improve the collaborative effect between ports and airports and upgrade the collecting and distributing conditions in ports and airports. Moreover, it is expected to make a leap development in the intelligence degree of transportation and basically form the integrative service structure.

Long-term prospects (2020-2030)

It is expected to form a networked comprehensive transportation system and an integrated service structure. In the period, the main framework of the inter-city railways should be basically constructed and the highway network should to be improved and more unimpeded. The overall service level of port and airport clusters, intelligence level of transportation, and operation and management capacity are supposed to reach international advanced level, accompanying with the construction of a safe, reliable, convenient, high-efficient, affordable, and environmental friendly comprehensive transportation system.

Welcome to learn latest trends in Beijing transportation through WeChat official account of Beijing transportation, official website and official micro-blog of Beijing Municipal Commission of Transport. With regard to complaints about transportation service, please contact via the 24-h telephone: 12328.

A team with top quality and speed in China

Thank you for your attention!

1

Development and prospect of high-speed railways in China

China Railway Economic and Planning Research Institute

Lin Zhonghong

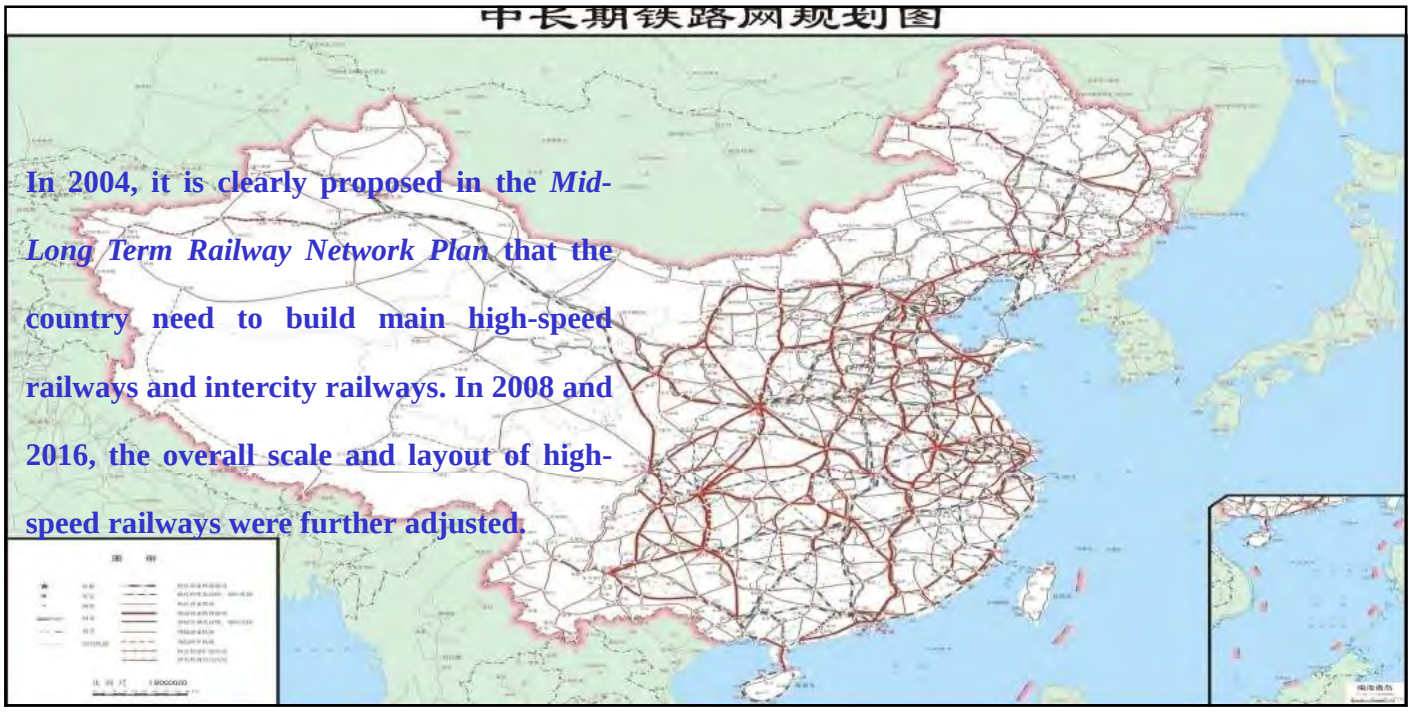
2

1. Reviews on the development of high-speed railways

2. Prospects on the development of high-speed railways

3

1. Reviews on the development of high-speed railways

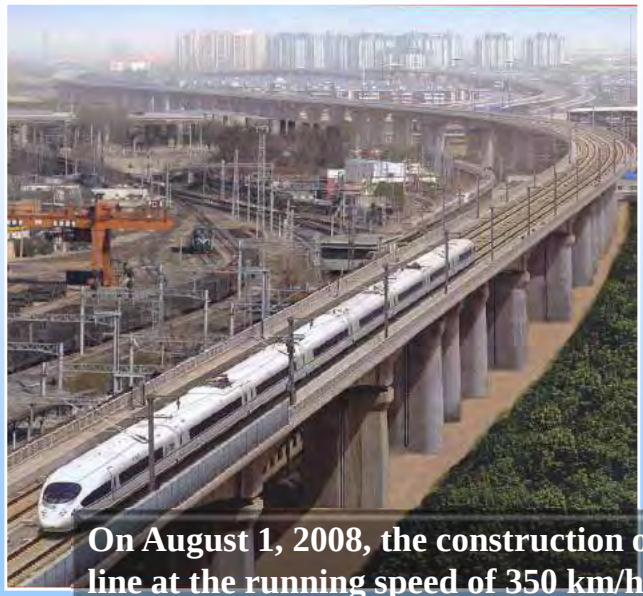


In 2004, it is clearly proposed in the *Mid-Long Term Railway Network Plan* that the country need to build main high-speed railways and intercity railways. In 2008 and 2016, the overall scale and layout of high-speed railways were further adjusted.

2

The development of high-speed railways in China

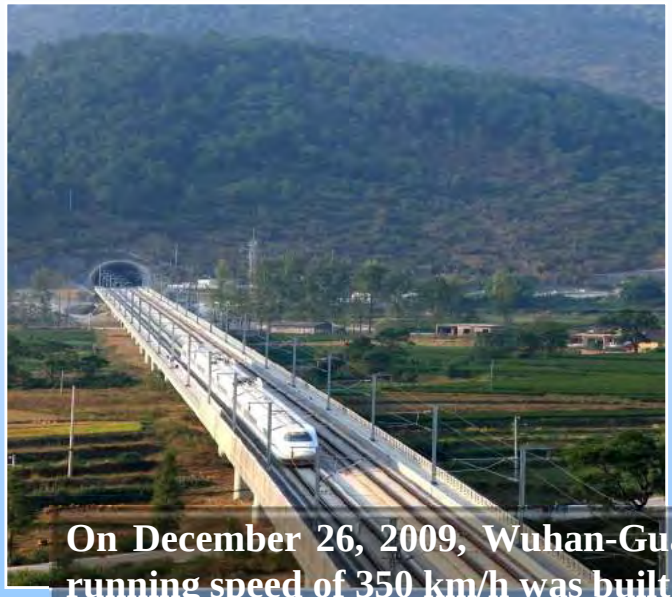
5



On August 1, 2008, the construction of the Beijing-Tianjin intercity railway line at the running speed of 350 km/h was completed.

The development of high-speed railways in China

6



On December 26, 2009, Wuhan-Guangzhou high-speed railway line at the running speed of 350 km/h was built and open to traffic.

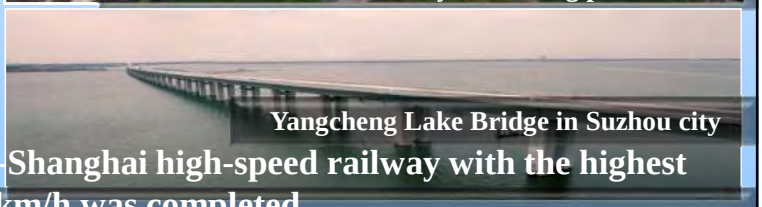
The development of high-speed railways in China

7

Huaihe River Grand Bridge in Beijing-Shanghai high-speed railway

Dashengguan Bridge in Nanjing city

Xikema Tunnel in Ji'nan city, Shandong province



Yangcheng Lake Bridge in Suzhou city

On June 30, 2011, construction of Beijing-Shanghai high-speed railway with the highest standard and at the running speed of 350 km/h was completed.

The development of high-speed railways in China

8

On December 1, 2012, Harbin-Dalian high-speed railway line was constructed and

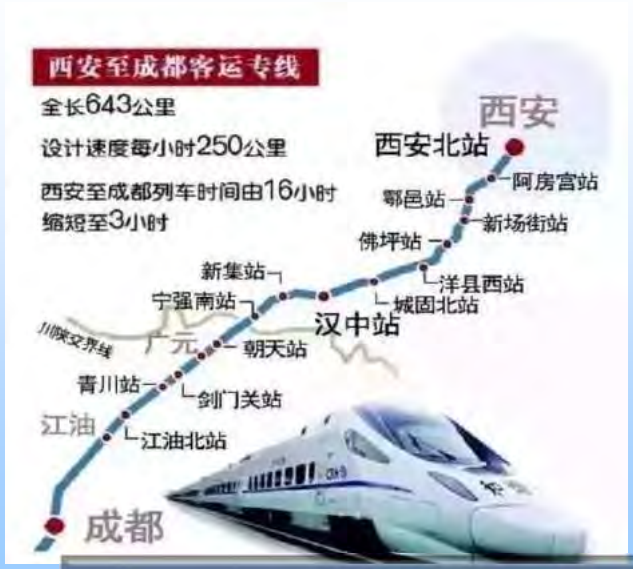
The development of high-speed railways in China

9

On December 26, 2014, Lanzhou-Xinjiang high-speed railway line was built.

The development of high-speed railways in China

10



On December 6, 2017, the construction of the high-speed railway line from Xi'an to Chengdu

Main characteristics of the development of high-speed railways in China

11

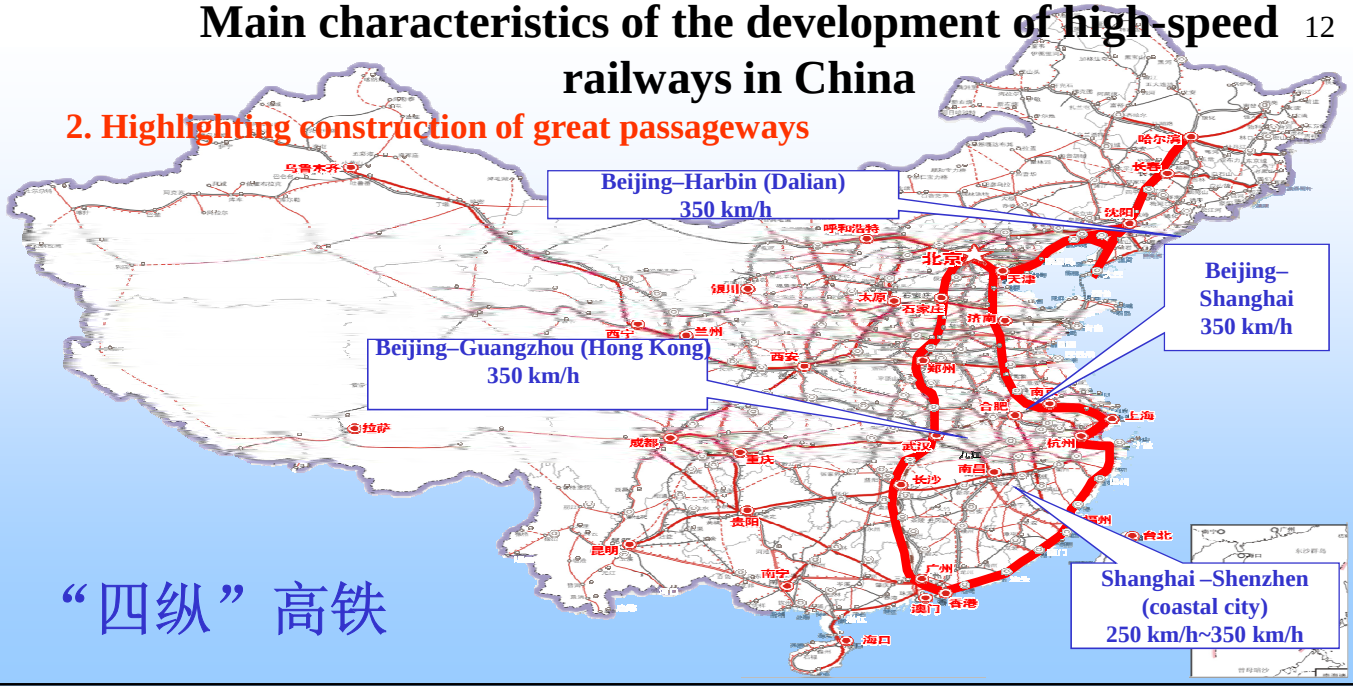
1. Large scale and high standard of construction

- **The high-speed railway network comprises main high-speed railways and intercity railways.**
- **The scale of high-speed railways was planned to be more than 1.2 ×10⁴ km in 2004 and adjusted to be over 1.6 ×10⁴ km in 2008. Moreover, according to the new plan, the scale is expected to be 3×10⁴ km in 2020.**
- **The newly built main high-speed railways are constructed according to the requirement for running at the speed of 350 km/h. Some main railway lines that mainly service for customers, accompanying with freight transport are constructed with the expectation of running at the speed of 200 km/h~250 km/h.**

Main characteristics of the development of high-speed railways in China

12

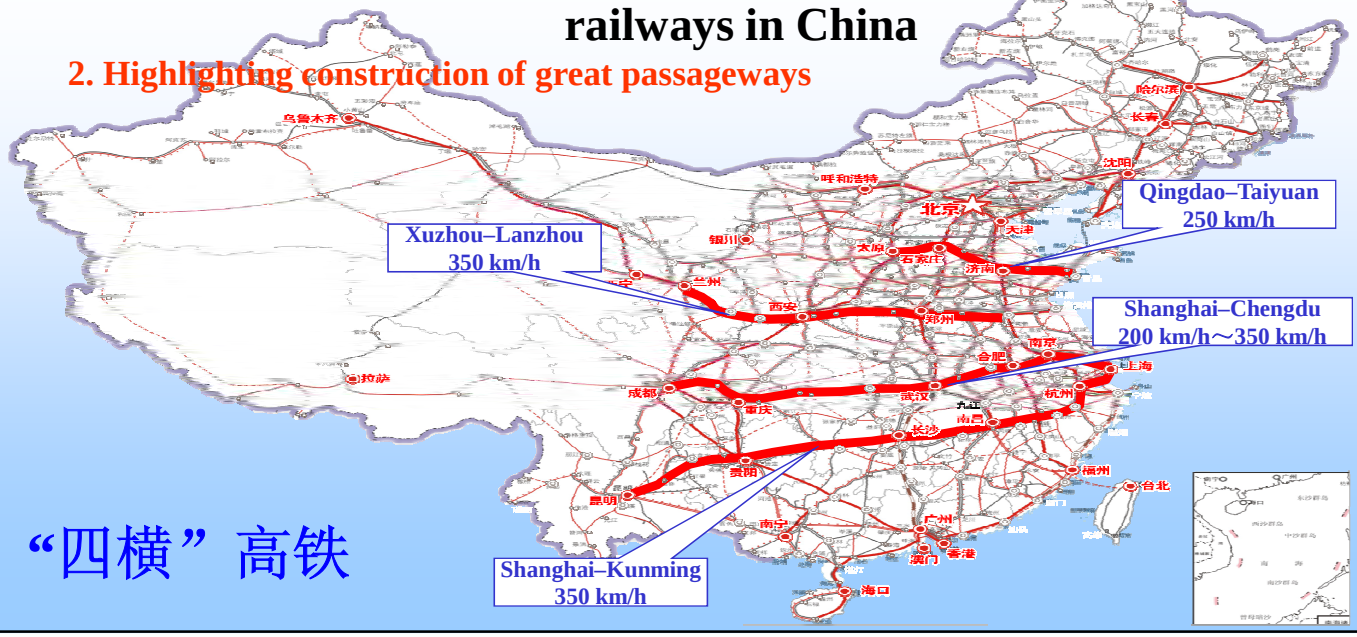
2. Highlighting construction of great passageways



Main characteristics of the development of high-speed railways in China

13

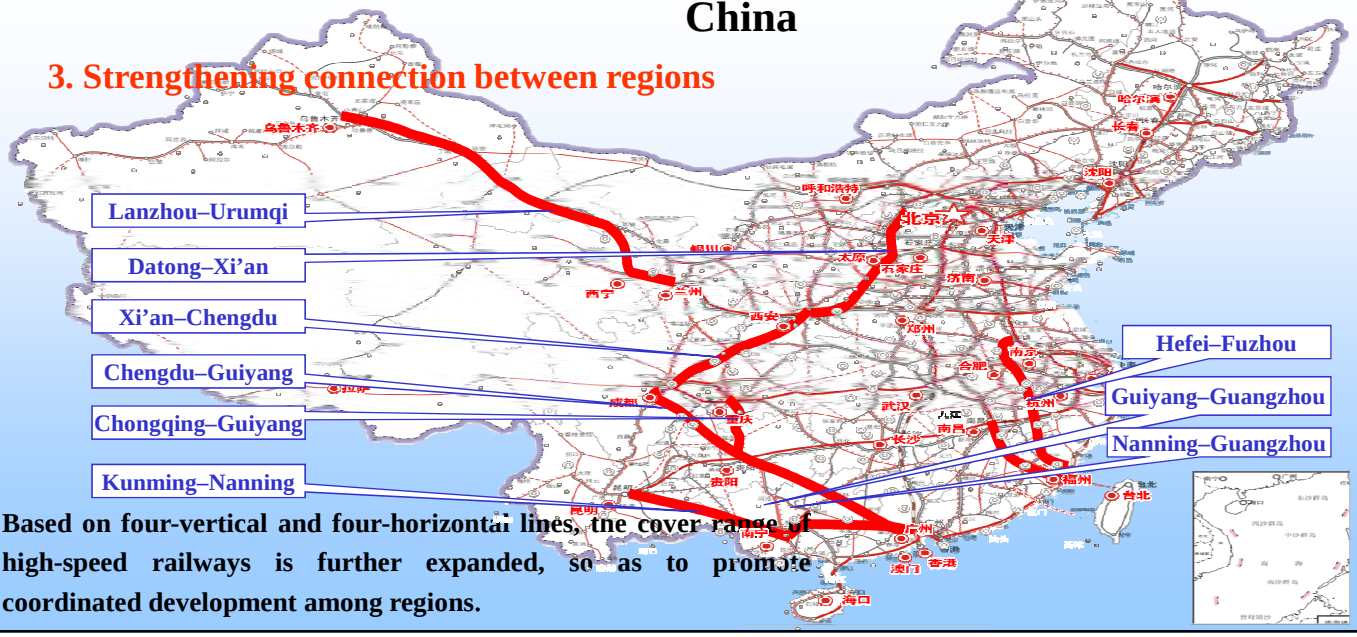
2. Highlighting construction of great passageways



Main characteristics of the development of high-speed railways in China

14

3. Strengthening connection between regions

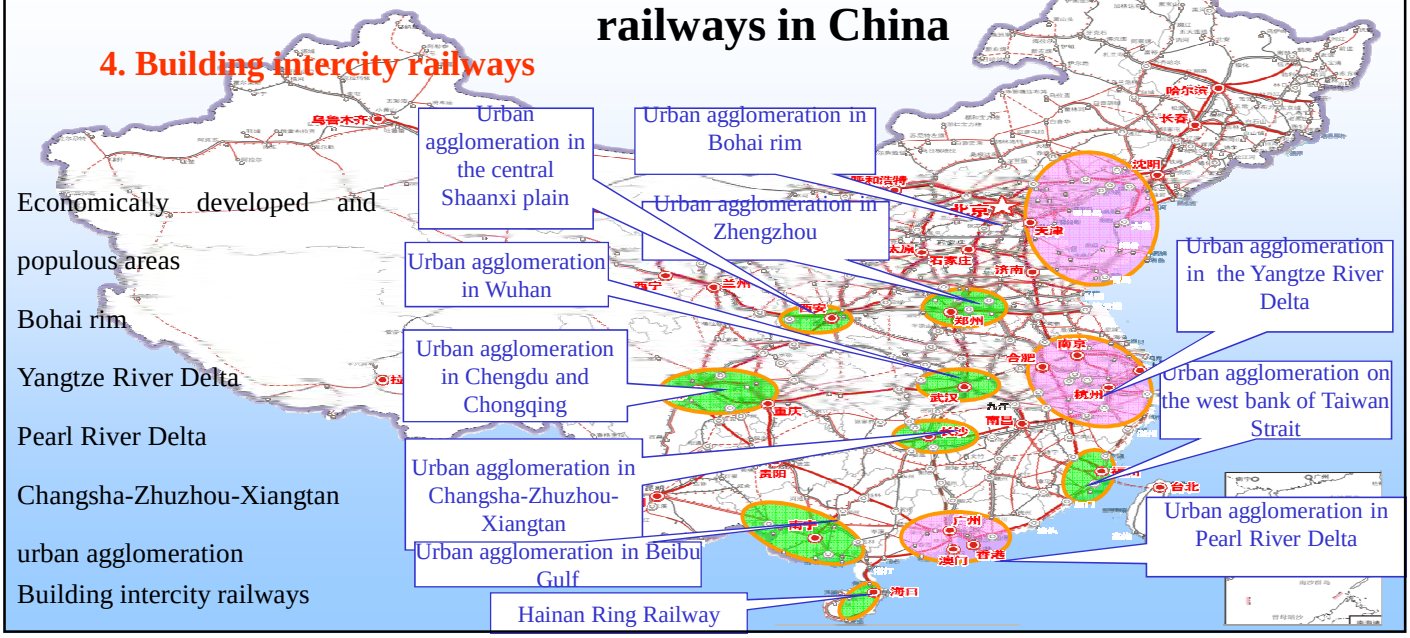


Based on four-vertical and four-horizontal lines, the cover range of high-speed railways is further expanded, so as to promote coordinated development among regions.

Main characteristics of the development of high-speed railways in China

15

4. Building intercity railways



Economically developed and populous areas

Bohai rim

Yangtze River Delta

Pearl River Delta

Changsha-Zhuzhou-Xiangtan urban agglomeration

Building intercity railways

Main characteristics of the development of high-speed railways in China

16

5. Constructing comprehensive transport hubs

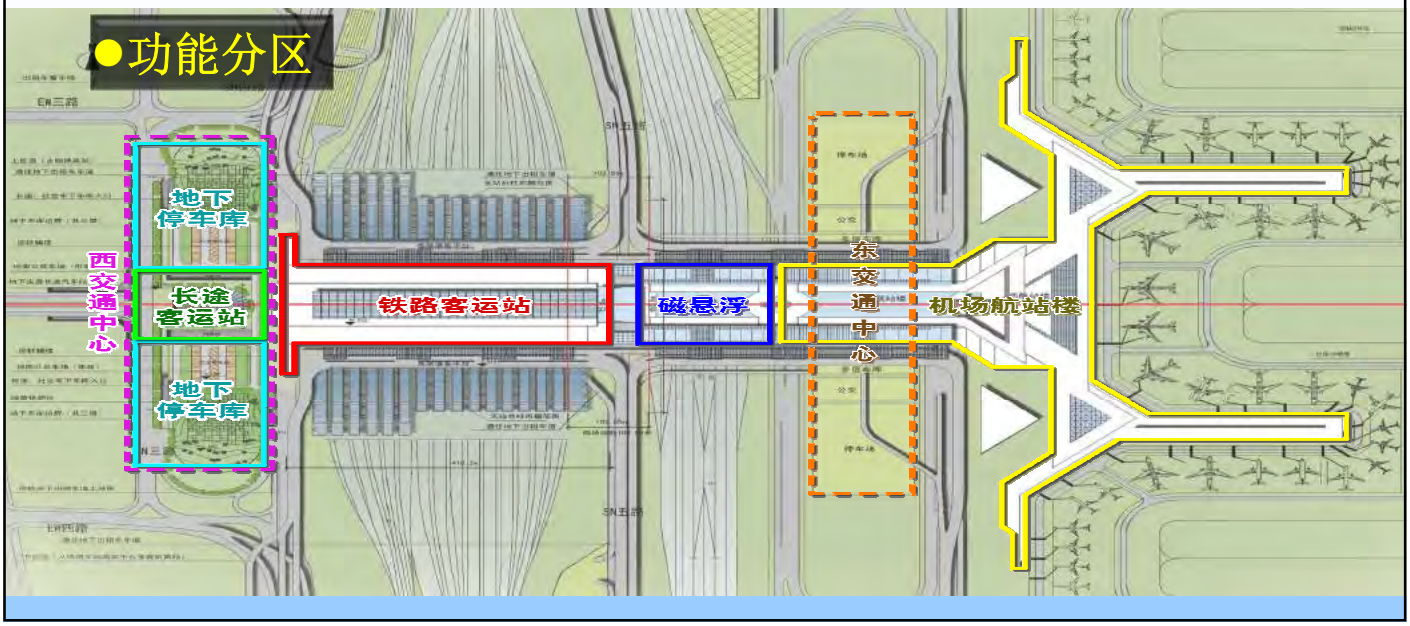
Based on the functional, systematic, advanced, cultural and economic principles, a number of modern railway passenger stations are built and renovated. Large passenger stations are connected with subway and bus routes, thus forming a modern and comprehensive transport hub.

5. Constructing a comprehensive transportation hub—Shanghai Hongqiao

17

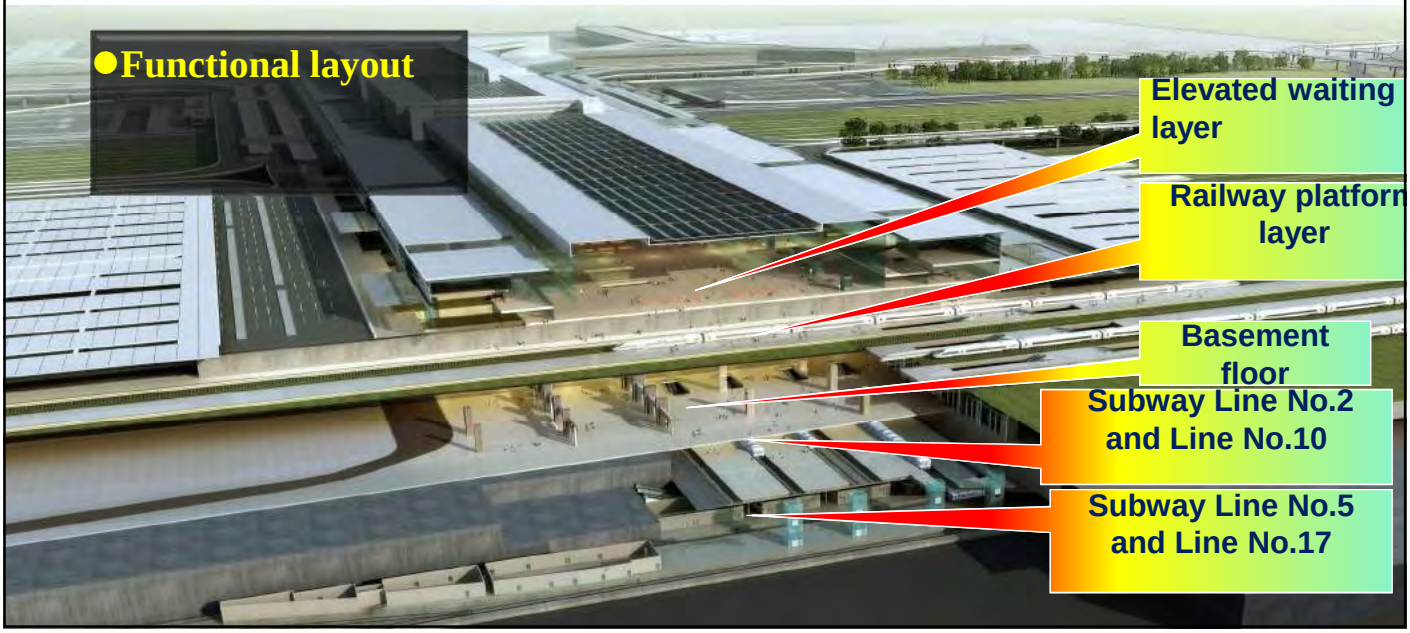
5. Constructing a comprehensive transport hub—Hongqiao in Shanghai

18



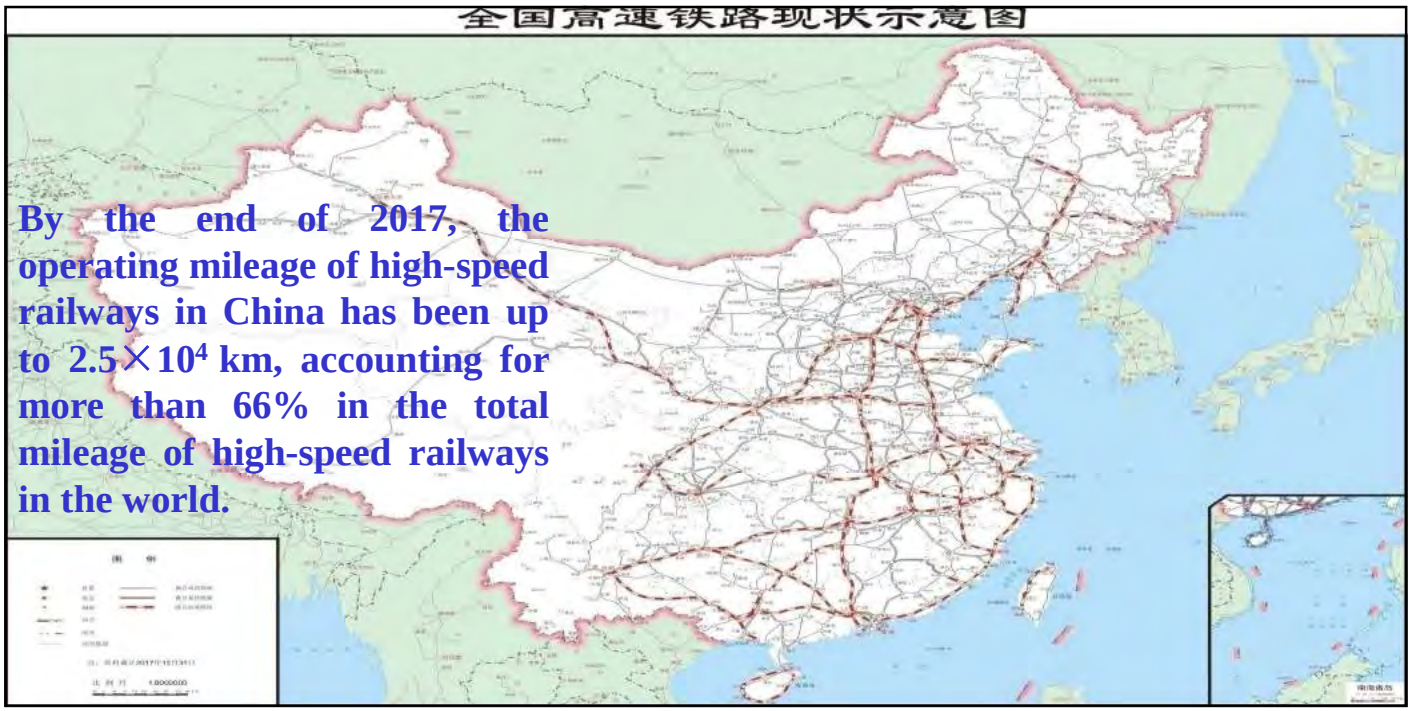
5. Constructing a comprehensive transport hub—Hongqiao in Shanghai

19



5. Constructing a comprehensive transport hub—New Station in Wuhan

20



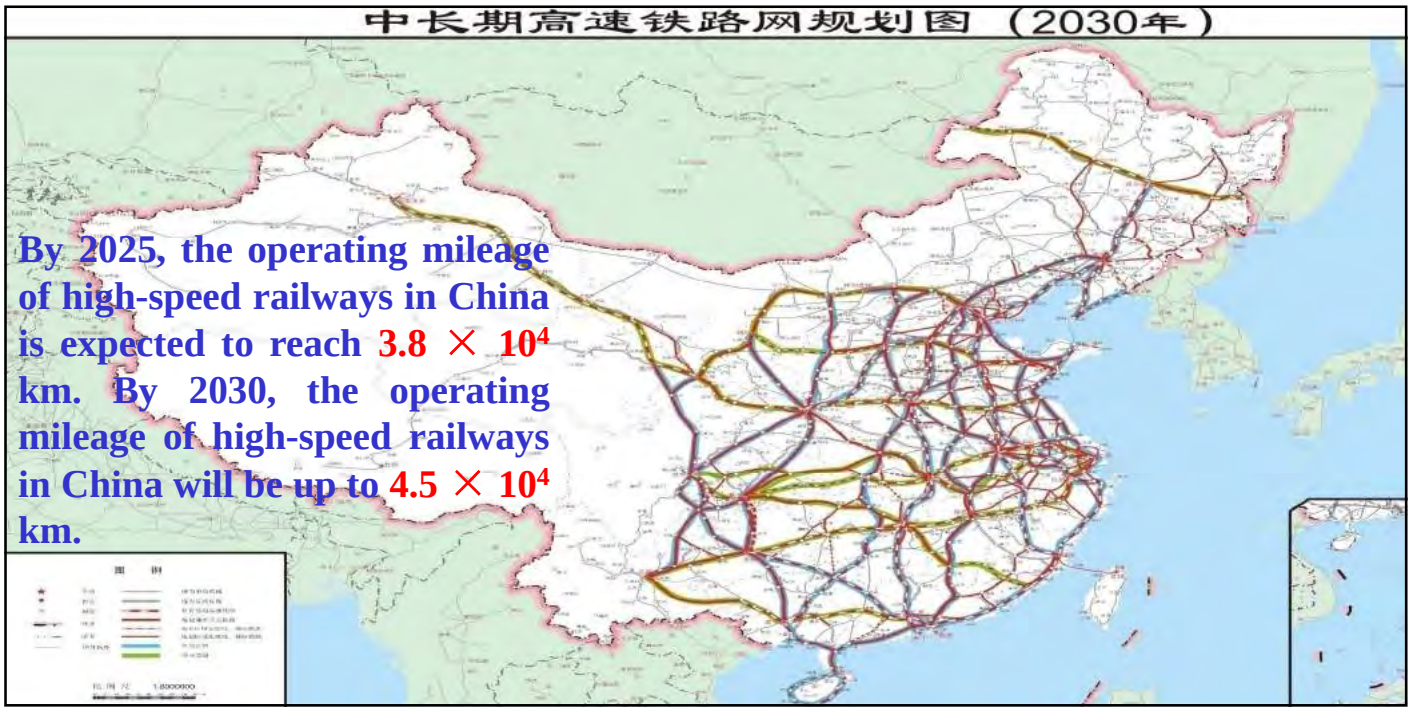
By the end of 2017, the operating mileage of high-speed railways in China has been up to 2.5×10^4 km, accounting for more than 66% in the total mileage of high-speed railways in the world.

2. Prospects on the development of high-speed railways

(1) Building a developed and perfect high-speed railway network

23

Based on the original four-vertical and four-horizontal lines, it is necessary to build additional high-speed railways with suitable standard and meeting the needs of development. On this basis, a high-speed railway network with eight-vertical and eight-horizontal main lines as skeletons and with regional connection lines and intercity railways for supplement is expected to be formed, so as to realize connections of high-speed railways between capital cities and between different regions.

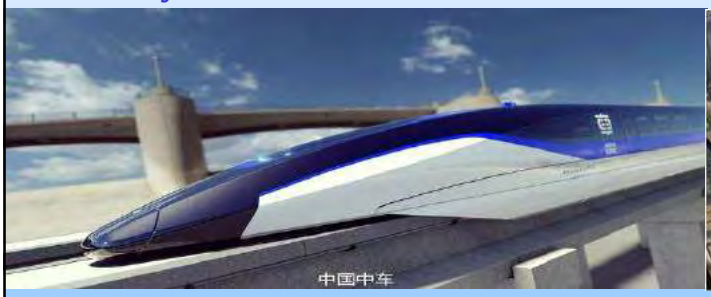


By 2025, the operating mileage of high-speed railways in China is expected to reach 3.8×10^4 km. By 2030, the operating mileage of high-speed railways in China will be up to 4.5×10^4 km.

(2) Developing high-speed train technology with a higher speed

25

China has carried out researches on key technologies of high-speed passenger transport equipment at the speed of more than 400 km/h and maglev transportation system, which provides technical reserves for the construction of super high-speed traffic systems in the future in China.



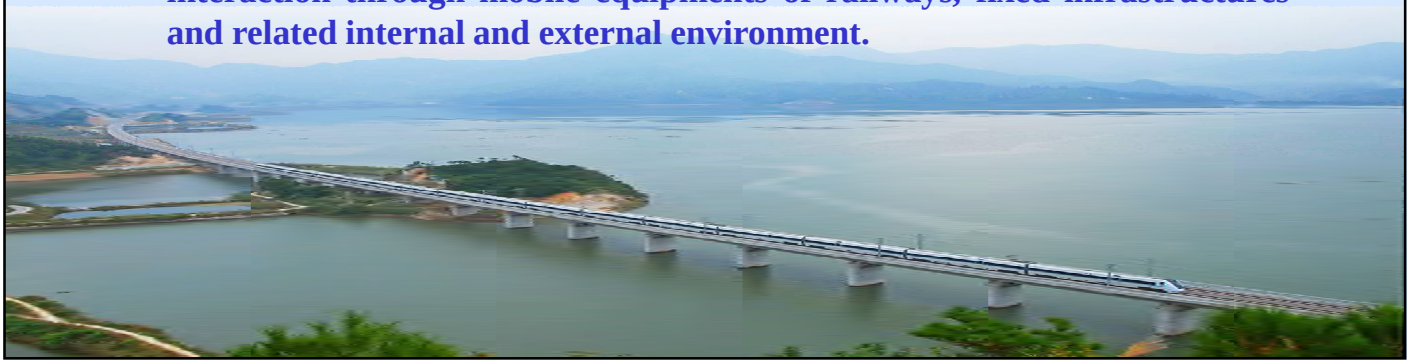
High-speed maglev train at the speed of 600 km/h

High-speed train with variable rail gauges at the speed of 400 km/h

(3) Building intelligent high-speed railways

26

- **Technologies, such as Internet of things, big data, cloud computing, artificial intelligence, robot, virtual reality, high-capacity communications, satellite navigation and geographic information are supposed to be used.**
- **It is expected to realize self-perception, self-diagnosis, self-decision and interaction through mobile equipments of railways, fixed infrastructures and related internal and external environment.**



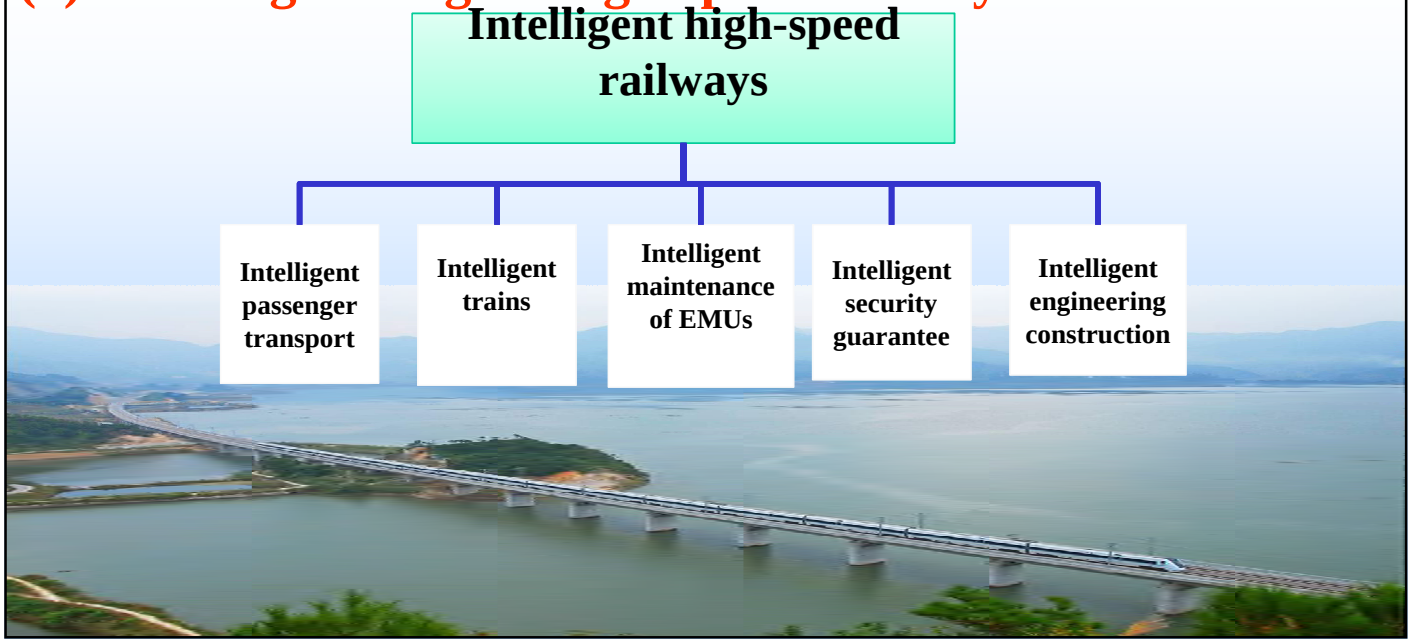
(3) Building intelligent high-speed railways

27

- Realizing intelligent construction, transportation and operation.
- Achieving goals of driving safety, improving transport efficiency, optimizing operation and management, improving service quality and saving more energy at low costs.

(3) Building intelligent high-speed railways

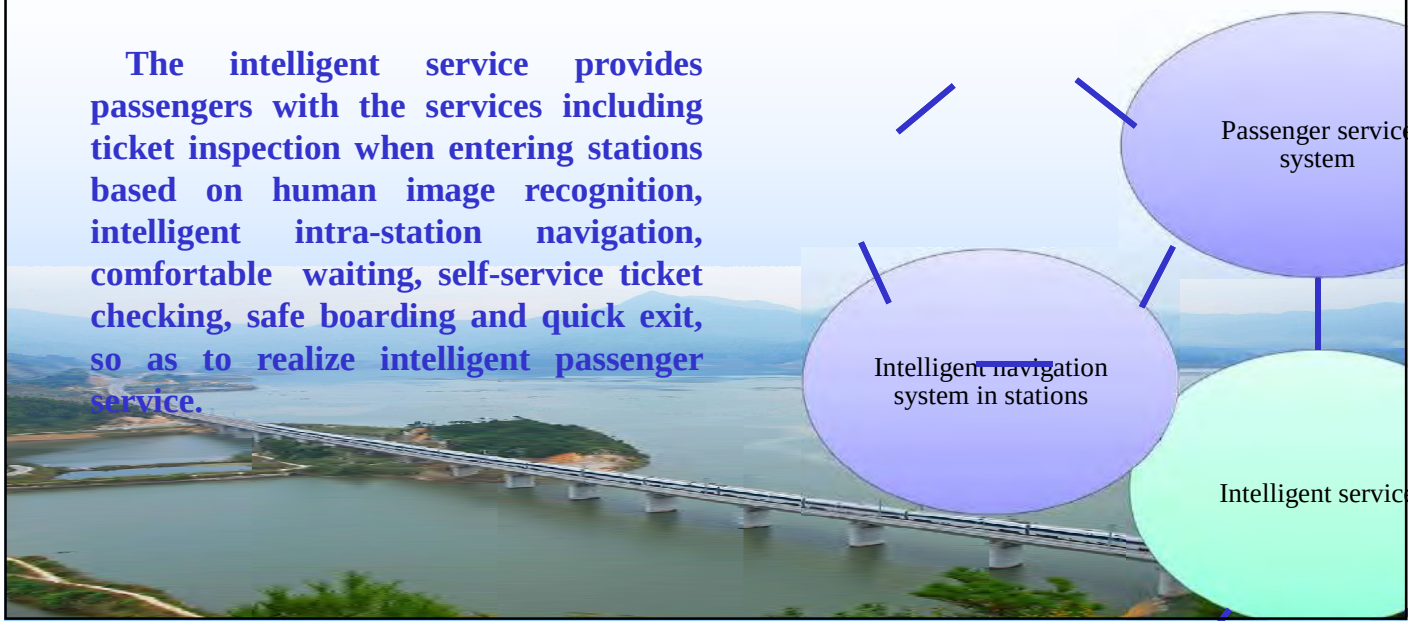
28



(3) Building intelligent high-speed railways

29

The intelligent service provides passengers with the services including ticket inspection when entering stations based on human image recognition, intelligent intra-station navigation, comfortable waiting, self-service ticket checking, safe boarding and quick exit, so as to realize intelligent passenger service.



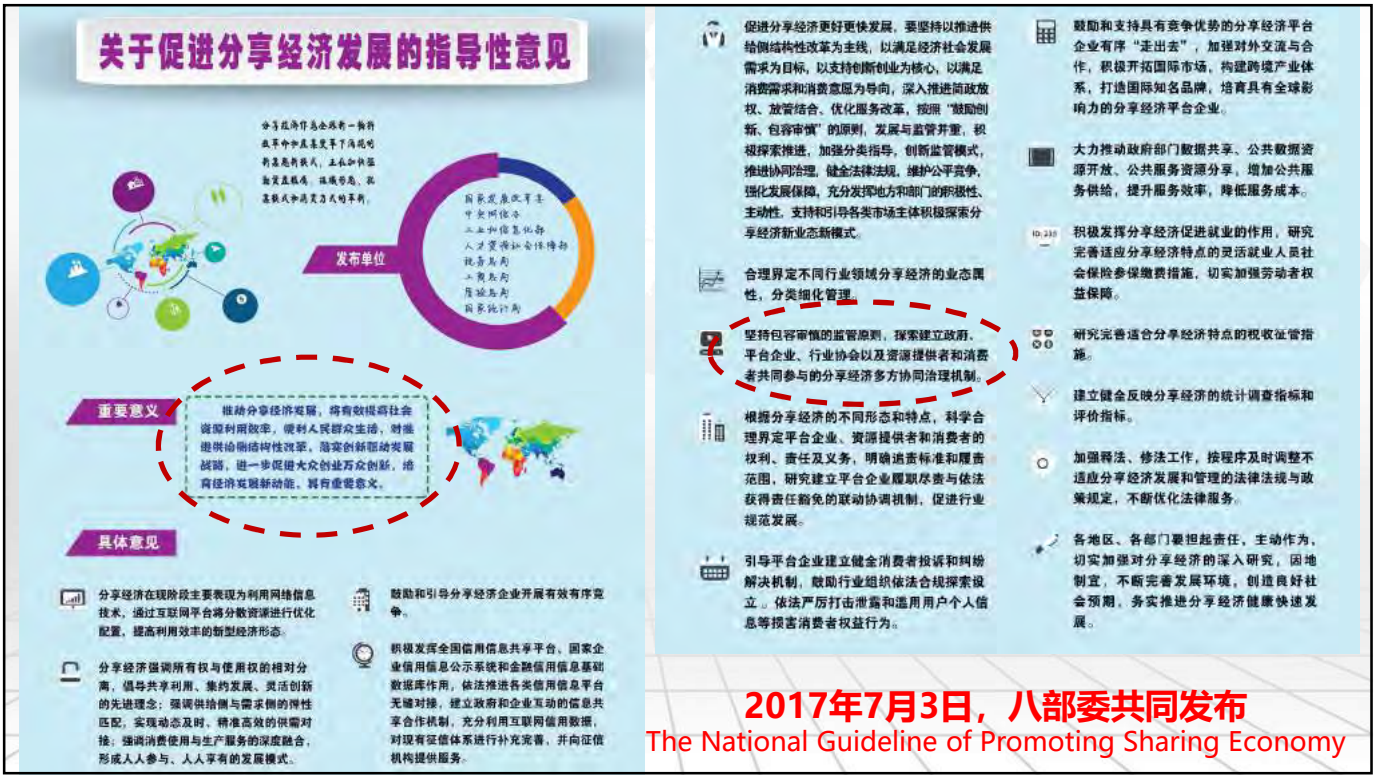
30

分享经济背景下城市交通发展的路径选择
Path Options of Urban Transport Development under the Sharing Economy

吴洪洋 WU Hongyang

交通运输部科学研究院城市交通研究中心

CUSTReC，CATS



2017年7月3日，八部委共同发布

The National Guideline of Promoting Sharing Economy

移动互联网在中国
Mobile Internet in China

截至2017年12月：
Until December 2017：

- 网民规模：7.72亿
- Internet users： 772million
- 普及率Popularity rate：55.8%，
- 全球平均（Global）：51.7%
- 亚洲平均（Asia）：46.7%

购物方式 Shopping　交流方式 Communication　娱乐方式 Entertainment　生活方式 Life Style

传统的城市交通模式正在被新业态：革命！！！

The traditional forms of urban transportation are being replaced in the REVOLUTION

传统城市交通 Traditional forms

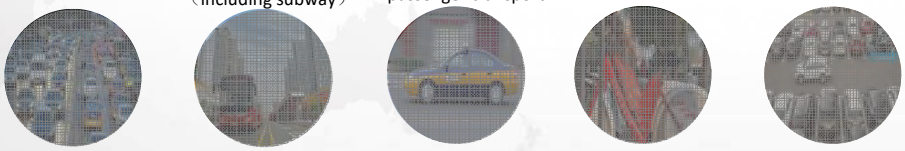
小汽车 Car

公交（含轨道） Public transportation （including subway）

出租车、道路客运 Taxi and road passenger transport

公共自行车 Public bike

停车 Parking



新业态下城市交通 New forms

分时租赁 Time sharing lease

定制小巴 Customized shuttle bus

网约车 Online car-hailing

共享单车 Sharing bike

共享停车 Sharing parking

一方群雄逐鹿！　　备受资本青睐！

- 网约车：滴滴、美团、神州、曹操、易到。。。**54家**
- **Online car-hailing**：**DiDi、Meituan，Shou Qi、Caocao，Yidao... 54**
- 顺风车：滴滴、嘀嗒、高德。。。**40余家**
- **Carpool**：**DiDi、DiDa、Gaode... >40**
- 共享单车：**ofo、摩拜、哈罗**、青桔。。。**87家**
- **Sharing bike**：**ofo、Mobike、Halou、Green orange... 87**
- 分时租赁：**Car2go、Gofun**。。。**40余家**
- **Time sharing lease: Car2go、Gofun... >40**

2017地球村里的共享单车
Sharing Bike in Global Village in 2017

全球注册用户总数：**近4亿**
Registered users：400 Million

87家企业先后进入市场
Enterprises：87

行业累计**融资超300亿元**
Accumulative financing：
30 billion yuan

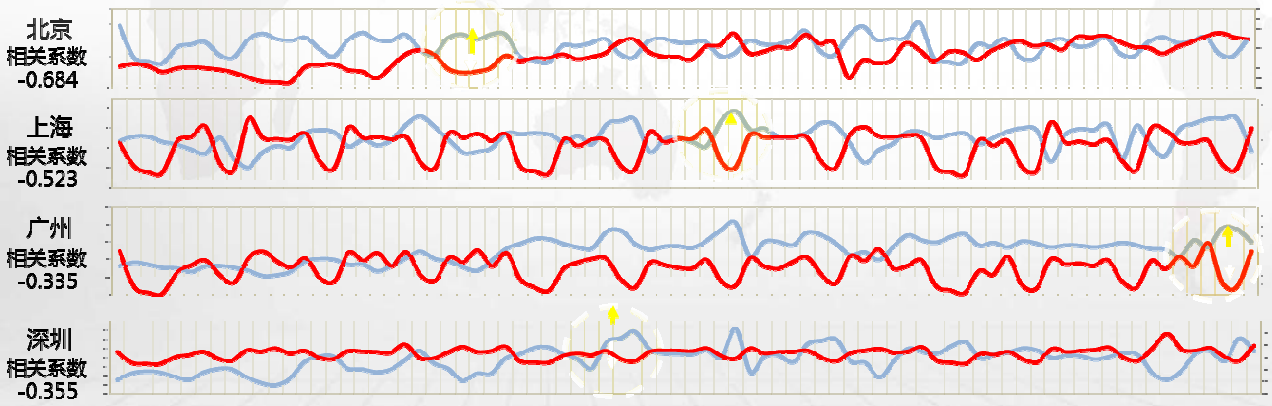
累计订单**115亿单**
Business Orders：
11.5 billions

全球服务**25个国家，304个城市**
25 countries，304 cities

单车投放总量达**2500万辆**
Number of bicycles：25millions

共享单车为我们带来什么？ Contributions

城市日骑行订单量与拥堵延时指数分布Business Orders & Congestion Index



共享单车使城市出行效率**提升15-19%!**
Urban Transport Efficiency improving: 15-19%

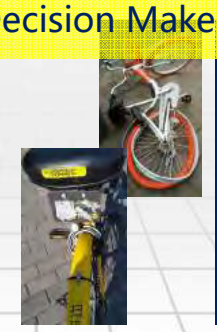
共享单车为我们带来什么？ Challenges

行车空间 **Non-motorized Vehicle Lane**
北京：**56%**的自行车道被机动车占用
Occupied by motorized Vehicles in Beijing: 56%

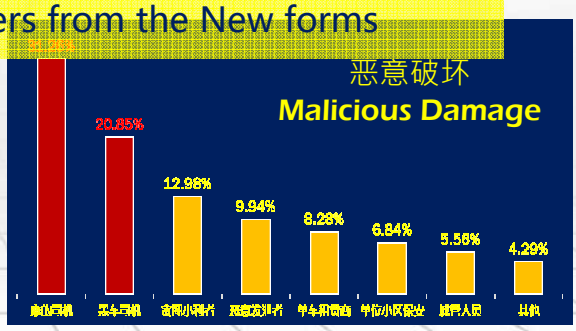
乱停乱放
过度投放
Parking problems

新业态的出现不断给管理者的智慧带来严峻挑战!
Challenges for the Decision Makers from the New forms

押金监管
Deposit
Manageme



恶意破坏
Malicious Damage



另一方频频告急！新业态动了谁的奶酪?
Meet difficulty！Who Moved My Cheese?

- 南京40%巡游出租汽车因缺少驾驶员而暂停经营；
- Nanjing's 40% traditional taxis are suspended for lack of drivers.
- 武汉、福州、宜昌公共自行车停运；
- Public bicycles in Wuhan, Fuzhou and Yichang are stopped.
- 全国道路客运、公交客运量持续下降；
- The scale of bus passenger volume continued to decline.
- 道路客运公司受高铁、城际拼车影响纷纷倒闭
- Road passenger transport companies have been closed down, which




如何对待共享出行新业态?
Attitude on the new form of sharing travel?

落后的生产方式如何在变革中适应发展?

Attitude on the new form of sharing travel?

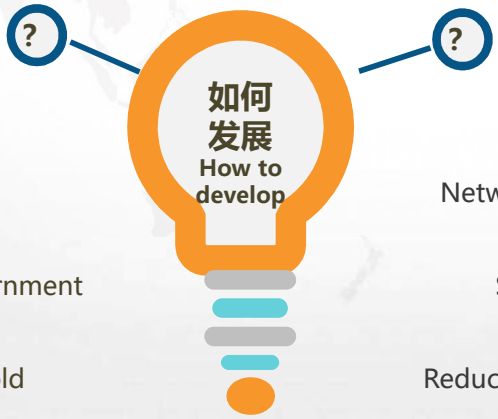
请为新业态的发展抬起那过时的栏杆！——人民日报

Open mind and positive attitude! ——People's Daily

路径选择
Path Options

抗衡
Resist

罢运
Strike
给政府施压
Adding pressure on the government
设置准入门槛
Setting the entry threshold
禁止进入
Prohibition of entry



融合
Cooperate

传统业态网约化
Networking of traditional modes
服务水平提升
Service level promotion
减少管理审批程序
Reduction of document procedures
合作共赢
Cooperation and win-win

如何对待共享出行新业态?
Attitude on the new form of sharing travel?

2016

■全国两会《政府工作报告》
Two sessions' Report on the work of the government
■《关于促进绿色消费的指导意见》
Guidance on promoting green consumption

3月

4月

■ 《关于深化制造业与互联网融合发展的指导意见》
Guidance on deepening the integration of manufacturing and the Internet

5月

■ 《关于深入实施“互联网+流通”行动计划的意见》
■ *On the in-depth implementation of the "Internet plus circulation" action plan views*

2017

7月

■ **《关于促进分享经济发展的指导性意见》**
Guiding opinions on promoting sharing economic development

■ 《推进“互联网+”便捷交通 促进智能交通发展的实施方案》
■ *To promote the implementation of the program "Internet plus" to promote the development of intelligent transportation and convenient transportation*

8月

■ **《关于鼓励和规范互联网租赁自行车发展的指导意见》**
Guiding opinions on encouraging and standardizing the development of Internet rental bicycles

■ **《关于促进小微型客车租赁健康发展的指导意见》**
■ ***Guidance on promoting healthy development of small mini bus rents***

要发展共享经济，让更多的人有平等创业就业的机会，使广大人民更好分享改革发展成果。
We should develop a shared economy and allow more people to have equal opportunities for entrepreneurship and employment so that the wider people can better share the fruits of reform and development.

----李克强(Keqiang Li)

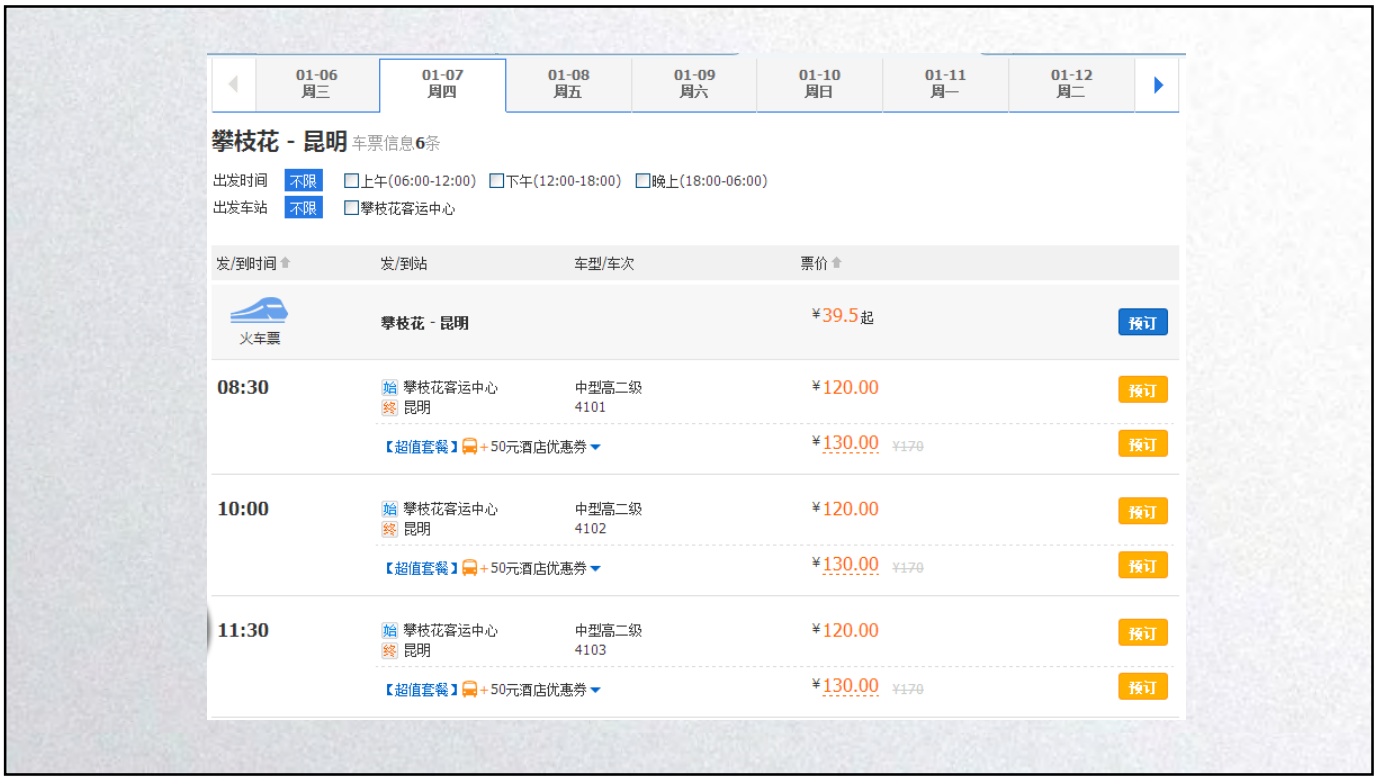
城际拼车
Inter-city Carpool

PK

道路客运
Road Passenger Transport

- 客运企业开展定制服务：15个省、2000余辆。江苏“巴士管家 ”、广东“淘巴士”
- 私人小汽车城际合乘：滴滴、嘀嗒、高德，2018年春节运送乘客超3000万
- 出租车开展定线城际客运：部分巡游车申请网约车资质
- 以汽车租赁形式开展城际客运：一些租车公司、违规争议

攀枝花——顺风车Carpool in Panzhihua


01-06 周三
01-07 周四
01-08 周五
01-09 周六
01-10 周日
01-11 周一
01-12 周二
攀枝花 - 昆明 车票信息6条
出发时间 不限 上午(06:00-12:00) 下午(12:00-18:00) 晚上(18:00-06:00)
出发车站 不限 攀枝花客运中心
发/到时间
发/到站
车型/车次
票价
火车票
攀枝花 - 昆明
¥39.5起
预订
08:30
始 攀枝花客运中心
终 昆明
中型高二级
4101
¥120.00
【超值套餐】+50元酒店优惠券
¥130.00 ¥170
10:00
始 攀枝花客运中心
终 昆明
中型高二级
4102
¥120.00
【超值套餐】+50元酒店优惠券
¥130.00 ¥170
11:30
始 攀枝花客运中心
终 昆明
中型高二级
4103
¥120.00
【超值套餐】+50元酒店优惠券
¥130.00 ¥170


社会共治
Social multi-component governance
政 府
Government
01
发展分享经济，推动绿色出行
➢明确发展定位，做好顶层设计
➢理顺管理体制，提升治理能力
➢加快建章立制，完善标准体系
➢加强规划建设，补齐设施短板
➢强化监督管理，规范经营行为
➢强化押金监管，防范金融风险
➢建立信用体系，增强自律意识
➢加强宣传引导，推进社会共治
Develop a sharing economy and promote green transportation
➢ Clarify development state and make good top level design
➢ Improve management system and promote governance ability
➢ Speed up formulation of standard and optimize standard system
➢ Strengthen planning and construction and enhance weakness of the facilities
➢ Strengthen supervision system and standardize market behavior
➢ Improve supervision of deposit and prevent financial risk
➢ Establish a credit system and enhance self-discipline consciousness
➢ Strengthen propaganda work and promote social common governance
社会共治
social multi-component governance
02
企业
Enterprise
按照国家法律法规和相关规定，依据市场规律自主经营，履行经营主体责任和相应社会责任。
According to the state laws and regulations and relevant regulations, operate independently according to market rules, and fulfill the responsibilities of the main body of operation and the corresponding social responsibilities.
03
用户与社会
Users and society
自觉遵守交通法规，共同参与管理，带动更多使用者。
Consciously abide by the traffic regulations, and Joint participation in management with more users.

- 共享出行行业正迈向**智能化、有序化、国际化**!

The sharing travel :towards intellectualization, orderliness and internationalization.

- 管理者和实践者需要以**更加开放的心态**去迎接未来!

Managers and practitioners need to face the future with a more open mind!

- 出行领域还有更多的创新需要**有志人士**去挖掘!

There are still more innovations in the travel industry for aspiring people.

让我们为推动分享经济发展，

促进城市绿色出行携手共进!

To improve the sharing economy development,

To promote urban green travel together!

THANKS


上海
综合交通管理与创新
Comprehensive Transport Management and Innovation in Shanghai Municipality
孙建平Sun Jianping
国务院安委会专家咨询委员会交通运输专业委员会委员
同济大学城市风险管理研究院院长
Member of Transportation Committee, Expert Advisory Committee, Safety Commission of the State Council, China
Dean of Institute for Urban Risk Management at Tongji University


现状
Current situation
砥砺奋进 成绩斐然
Striving ahead and gaining brilliant achievements

一

砥砺奋进 成绩斐然

Striving ahead and gaining brilliant achievemen

城市交通综合管理
水平显著提高 Integrated Urban Transport Management Improvement

城市交通基础设施
不断完善
Urban Transport Infrastructure Improvement

交通有力支撑
城市经济社会发展
Strong support to urban socio-economic development by transport

城市交通运输服务
能力持续提升 urban transport service improvement

二

判断

完善提升 时不我待

Comprehensive Transport Improvement

二 完善提升 时不我待

当前，上海正处于创新驱动发展、经济转型升级的关键时期。上海“四个中心”和社会主义现代化国际大都市的定位和经济全球化、区域一体化、新型城镇化都对综合交通的发展提出了更新、更高的要求。同时，城市机动化和交通需求增长的趋势仍会延续。上海已明确提出规划建设用地“负增长”的要求，可供大量交通设施建设的土地十分有限。因此，未来五年，上海综合交通体系将逐步进入“完善功能、注重管理、提升服务”的交通设施建设和品质提升并重发展阶段。In the next five years, transport in Shanghai will step into the stage of emphasizing transport facility construction and service quality improvement.

完善功能

注重管理

提升服务

二 完善提升 时不我待

到2020年，上海要在基本建成“四个中心”和社会主义现代化国际大都市的基础上，努力建设成为具有全球资源配置能力、较强国际竞争力、影响力的世界级城市群核心城市，特别是经济全球化、区域一体化和新型城镇化都对上海综合交通的发展提出了更新、更高的要求。

1、提升综合交通管理水平，进一步突出“智慧、低碳、共享”的发展理念。Improving the management level of comprehensive transportation to further highlight the development ideas of intelligent, low-carbon, and sharing transportation.

2、坚持“管为本、重体系、补短板”，推进综合交通管理与创新。Promoting management and innovation of comprehensive transportation by sticking to ideas of basing on management, paying attention to the system, and improving weak links.

三

举措
Countermeasures
扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

痛点问题
Existing problems

诸如轨道交通高峰拥挤严重，地面公交吸引力低、换乘不便，公共交通整体服务水平和可靠性尚需提高；道（公）路系统功能和结构不尽合理，路网局部连通性不强，交通需求管理政策突破力度不足，道路拥堵形势依然严峻；现有交通管理手段在面对新型交通模式存在诸多不适应性，综合交通节能减排技术和水平不高，资源环境承载力面临巨大压力;综合管理水平有待提升，信息化、市场化、科技化等手段的应用还不充分，交通运行秩序需要持续改善。

Existing problems: seriously crowed rail transit in rush hours, low attraction and inconvenient transfer of ground public transit; unreasonable functions and structures of road and highway systems, low local connectivity of the road network; inadaptability of existing transportation management means in the new transportation mode, low energy-saving and emission-reduction technologies and levels of the comprehensive transportation, and high pressures on the bearing capacities of resources and environment; insufficient application of information and technological means, and traffic order needing to be improved constantly.

三

扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

1. **完善城市交通基础设施功能**
Consummating the functions of urban transportation infrastructure

2. **提升公共交通服务品质**
Improving the service quality of public transportation

3. **创新综合交通管理模式**
Innovating the management modes for comprehensive transportation

三

扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

完善城市交通基础设施功能

Consummating the functions of urban transportation infrastructure

- 加快推进建设多层次轨道交通体系的建设，形成一网多模式Speeding up the construction of multi-level rail transport systems and forming
- 加快推进综合客运枢纽和场站建设 Facilitating the construction of comprehensive passenger transportation hubs and stations
- 完善市域公路网络，加快新城路网体系建设Improving urban highway network and speeding up construction of road network in new urban areas
- 提升主城区的道路设施的服务功能Improving the service functions of road facilities in main urban areas
- 推进综合货运枢纽和物流园区建设Facilitating the construction of comprehensive passenger transport hubs and logistics parks

三

扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

1. 完善城市交通基础设施功能

Consummating the functions of urban transportation infrastructure

2. **提升公共交通服务品质**

Improving the service quality of public transportation

3. 创新综合交通管理模式

Innovating the management modes for comprehensive transportation

三

扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

提升公共交通服务品质

Improving the service quality of public transportation

- Capacity expansion and efficiency improvement of rail transport, and improving the operation management level
- Optimizing and adjusting ground public transit network
- Facilitating the planning, construction, and law enforcing management of bus transit lanes
- Improving the informatization and humanization levels of public transportation services
- Optimizing the management of public transport industry
- Expanding services and functions of waterway passenger transport
- Exploring new management modes for taxi

- 轨道交通扩能增效，提高运营管理水平
- 优化调整地面公交线网
- 推进公交专用道规划建设和执法管理
- 提升公共交通服务的信息化和人性化水平
- 优化公共交通行业管理
- 拓展水上客运服务功能
- 探索出租汽车的管理新模式

三

扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

1. 完善城市交通基础设施功能

Consummating the functions of urban transportation infrastructure

2. 提升公共交通服务品质

Improving the service quality of public transportation

3. **创新综合交通管理模式**

Innovating the management modes for comprehensive transportation

三

扬长补短 创新发展

Strengthening strong points, compensating for shortcomings, innovation, and development

创新综合交通管理模式

Innovating the management modes for comprehensive transportation

- 02 •强化城市交通精细管理Strengthening the fine management of urban transportation
- 03 •规范发展交通新业态和新模式New industrial activities and modes for transportation
- 01 •优化和完善交通需求管理政策 Optimizing and improving management policies for transportation demand
- 04 •探索多元协同的交通管理新模式 New transportation management modes with multi-subject cooperation


谢谢
Thanks !

ASIAN INFRASTRUCTURE INVESTMENT BANK

Transport Infrastructure (draft strategy)

Sustainable and Integrated Transport for Trade and Economic Growth in Asia

Policy and Strategy, Asian Infrastructure Investment Bank
April 2018

ASIAN INFRASTRUCTURE INVESTMENT BANK

Asia is lagging and will see high demand ahead

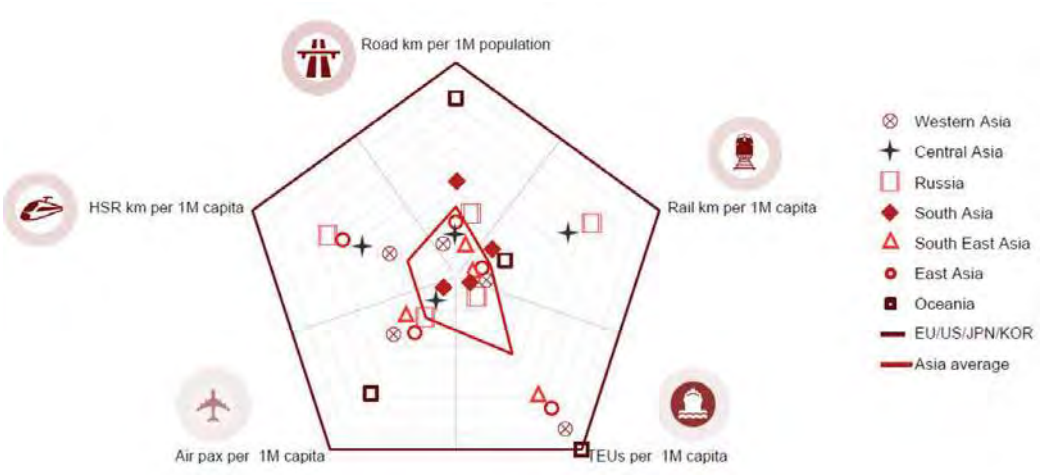
Large demand that is still dominated by road transport

Asia still lags significantly behind developed economies in transport infrastructure provision

Regional needs are varied

Total demand around $500-900 billion per year

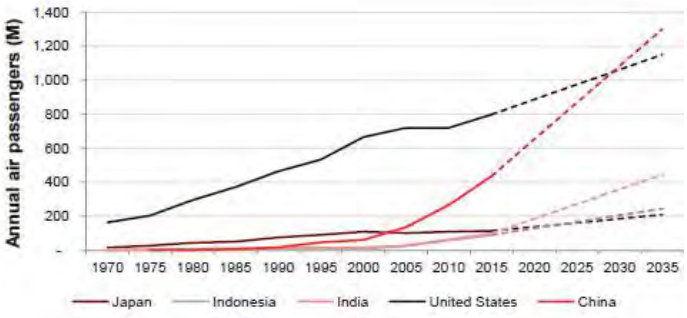
Three-quarters are for the road subsector



Several sub-sectors will see very high growth

Large demand for aviation in China, India and Indonesia

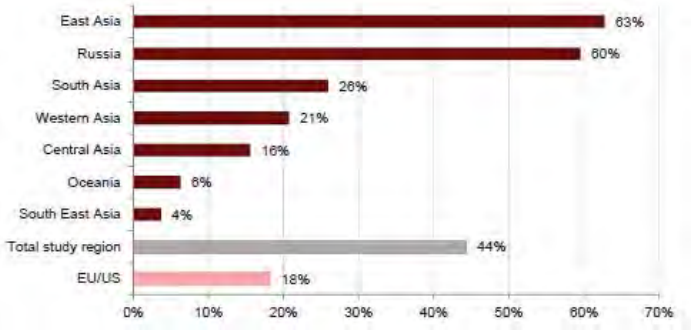
Forecast of passenger take offs



- China will see more than 1 billion air passengers within a decade
- India aviation market will reach size of China's 2015 market size in 2035

Large demand for new rail and rail upgrading

Rail electrification % in various region



- China has shown how High Speed Rail can be viable even at *relatively* low levels of average incomes
- HSR will become increasingly deployed at high density corridors in Asia
- Electrification of networks will also see high demand

Long planning and preparation cycles

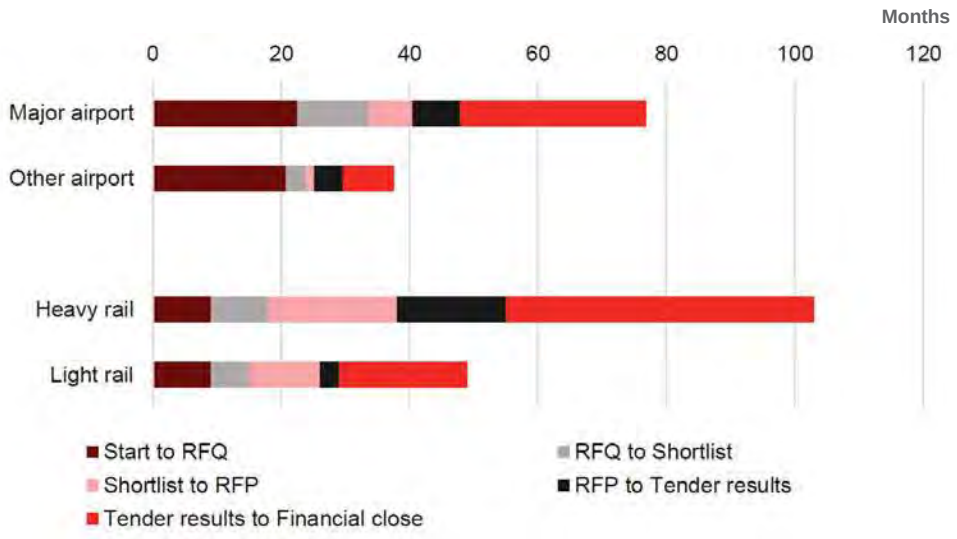
Long planning, preparation and construction cycles

Airports and rail take more than 60 months from planning to tender close

Environmental, social, and land impact to be addressed

Implies higher financing cost, and related risks around planning, construction, and market demand

Needs various partners to work together, e.g., co-financing and risk mitigation



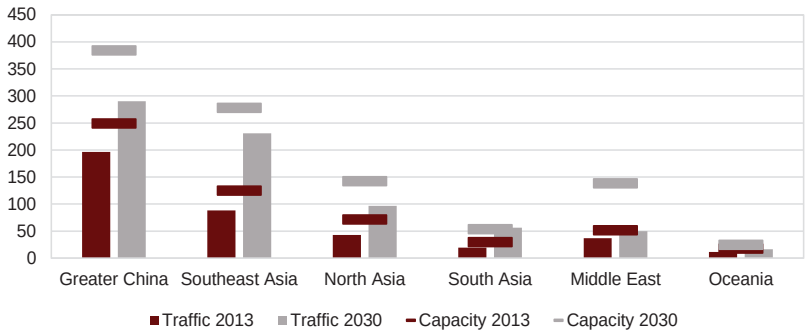
Need to manage demand shifts

Sensitive to demand and technology changes

Port sector has seen excess capacities in some regions

But ports in certain geographies and port upgrades will continue to be required

Port Container Traffic and Capacity Projection (million TEUs)



Electrification of cars (and autonomous driving), with shifts in shipping would also change infrastructure demand

Electric barges and shipping

Hyperloop

Sensor and autonomous vehicles

With implications for AIIB strategy

- **Prioritize "middle-range" projects with large economic impact and some financial returns**
  - **Make projects bankable with AIIB's presence**
  - **Crowd in private capital**
- **Prioritize strategic connections**
  - **Trunk linkages**
  - **Cross border connectivity**
  - **Integration**
  - **Upgrading**
- **To remain flexible in addressing countries' and clients' needs**

AIIB's Approaches

Ensuring Economic and Financial Sustainability	▪ Rigorous cost-benefit and demand sensitivity analysis ▪ Build in maintenance cost
Mobilizing Private Capital	▪ Providing more support for PPPs, viability gap financing ▪ Playing the role of anchor financier
Promoting environmental and social sustainability	▪ Encourage "avoid, shift and switch" projects and project design to reduce carbon ▪ Maintain high ES standards, including enhancing safety and gender access
Developing strategic partnerships	▪ Work with regional initiatives to identify projects early ▪ Build up financing partners, including private sector
Embracing innovative and proven technology	▪ Spread green technology to Asia ▪ Improve infrastructure productivity (including use of ICT)

Key AIIB Transport Projects to Date

Tajikistan Dushanbe-Uzbekistan Border road	▪ Expansion of border connections ▪ AIIB financed $24m
Pakistan M-4 Motorway	▪ Construction of M-4 Section ▪ AIIB financed $100m
Oman Duqm Port	▪ Port and SEZ development ▪ AIIB financed $265m
Georgia Batumi Bypass	▪ Bypass with highways, tunnels and bridges ▪ AIIB financed $114m
India Rural Roads	▪ Rural roads in Gujarat, MP ▪ ~$500m
India-Bangalore Metro	▪ Construction of Line R6 ▪ ~$335m

In developing countries, lack of infrastructure is a far more serious barrier to trade than tariffs - Joseph Stiglitz

Perspectives

- Recent Trends and Challenges for Urban Transport in China
- Emerging Policy Responses
- Lessons from International Experience
- Some High Level Conclusions

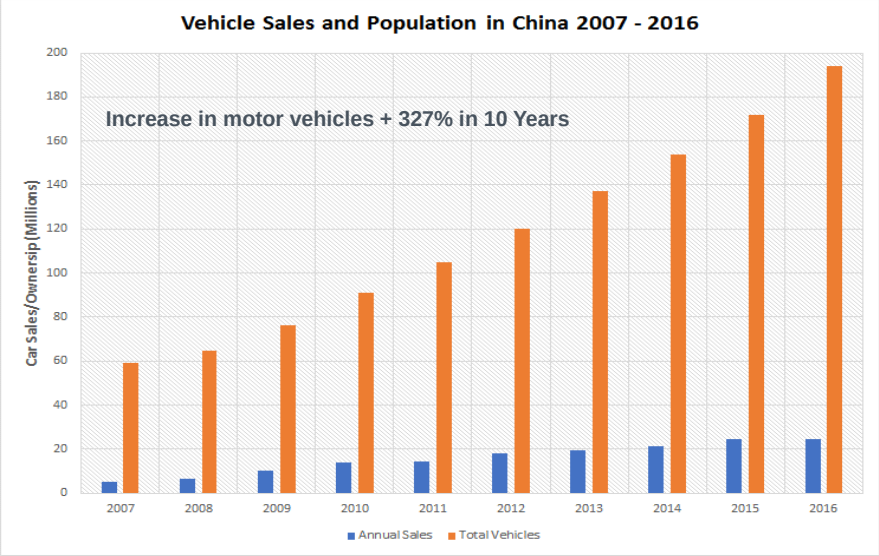
An external viewpoint

Update of 2006 ETC Paper
https://aetransport.org/en-gb/past-etc-papers/search-all-etc-conference-papers?abstractId=2334&state=b

Recent Trends – Vehicle Ownership

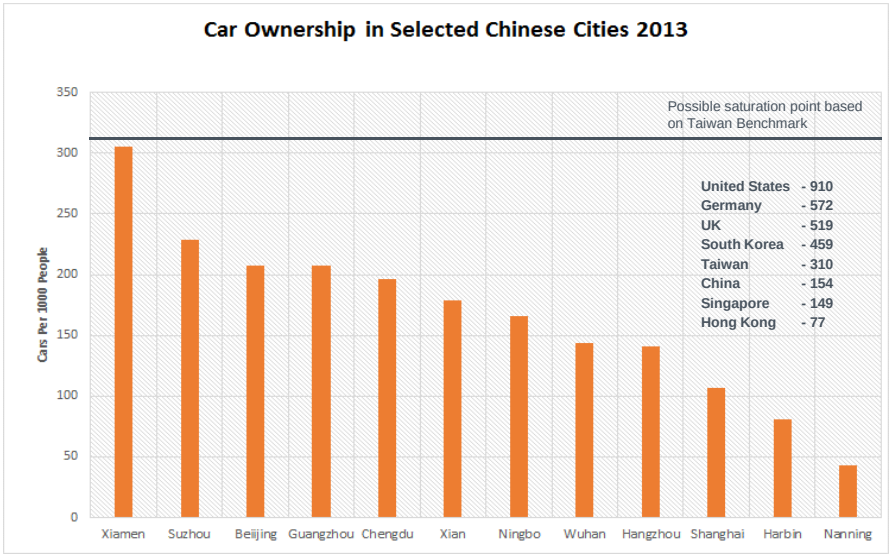
- China is urbanizing rapidly – to 70% by 2025 with an additional 250 million urban dwellers from rural areas (25 million per year)
- At the same time, the economy is growing, diversifying and developing increasingly on market principles within a socialist context
- This is driving a major increase in vehicle ownership – 279 million (2017) nationally of which 194 million are private cars, up more than 300% in a decade
- This is matched by a sharp decline in historically high levels of walking and cycling linked to the Dan Wei (live-work unit) system which has now largely broken down
- For every 1000 households there are now 310 private cars, exceeding 600 in large cities (e.g. Shenzhen, Beijing) – 40 Chinese cities exceed car ownership of 1 million
- In per capita terms, many Chinese cities now exceeding 200 cars per 1000 people, on a par with New York, but well below most "mature" motorised economies (e.g. UK – 519)
- Taiwan, China's closest cultural comparator, has car ownership of 310 cars per 1000 people, indicating a possible end range at "saturation" point
- Most cars powered by fossil fuels with only 528,000 (0.002%) driven by new energy sources (2014) although the latter is rapidly increasing

Recent Trends – Vehicle Ownership



Source: www.statista.com

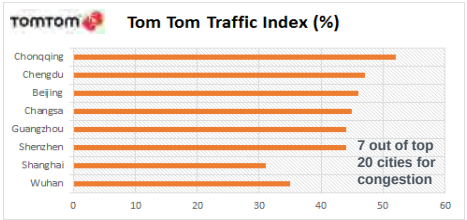
Recent Trends – Vehicle Ownership

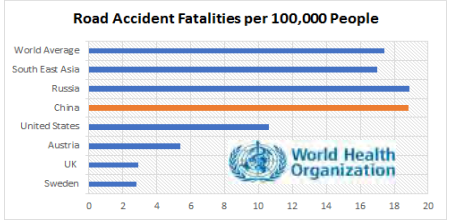


Source: Counting Cars. Collins and Erikson (2013)

Implications

Economy	People	Environment
		
Overloaded Infrastructure Capacity Deficits Delay and Costs	Traffic Congestion Safety and Security Reduced Life Quality	Air Pollution Energy and Carbon Ecological and Severance





The Challenge

- Many Chinese cities are on a “high carbon-emission growth path” in the face of massive demographic increase, economic development, pressures for modernisation of services and public expectations for mobility
- In transportation terms, recent responses have focused on building extensive road networks to facilitate motor vehicle use, and very basic bus-based public transport, resulting in growing traffic, congestion, pollution and destruction of agricultural land
- This has occurred at car ownership levels which are still low by international standards, but exacerbated by Government decisions to develop the motor vehicle industry as a “national pillar” of development and promote a domestic car market
- Without urgent action, this path is unsustainable – and this is increasingly recognised

Policy Drivers

Top Down	Bottom Up
▪ Successive Five Year Plans and other directives towards supporting mass transit, public transport priority, urban traffic management and TDM ▪ National initiatives (e.g. National Urbanisation Plan) to encourage eco-low carbon and sustainable development ▪ Adjustment of Central Government responsibilities e.g. merger of Ministry of Construction and Ministry of Railways into Ministry of Transport, MoHURD ▪ Initiatives to focus national level reforms at the city and local level e.g. NEV pilot cities ▪ Programmatic initiatives from World Bank, UN-Habitat and other IFIs/NGOs to link loans and other support for infrastructure to complementary measures, including TDM and institutional reform	▪ Driven by emergence of pressing and unsustainable transport challenges ▪ Diversification of transport systems towards multi-modal infrastructure and need for holistic management ▪ Local dynamics, politics and leadership (e.g. Mayors) ▪ Horizontal and vertical integration of networks and functions towards common outcomes ▪ Enacted in first tier cities – e.g. Beijing, Shenzhen, Shanghai – and some lower tier cities – e.g. Chengdu, Hangzhou ▪ Disruptive innovators – e.g. dockless cycle hire (Ofo, Mobike), ride-hailing (Didi) ▪ Community interests and grass-roots towards people-centric planning

Current 13th Five Year Plan (2016 – 2020)

- Give priority to public transport development
- Speed up development of urban rail, bus rapid transit and other forms of mass transit, including over 3000 Km of urban rail transit in cities of more than 3 million population
- Encourage development of eco-friendly transport
- Give impetus to development of online vehicle booking and customized transport services
- Ensure faster and smoother traffic flow
- Make progress in low-carbon transport, including energy-efficient and environmentally-friendly equipment
- Accelerate smart transportation, including advanced information technology and vehicle automation and Internet of Vehicles

Policy Responses: Public Transport

Urban Population	PT Mode Share Target	Average Speed Target	Bus Ownership Target (Per 10,000 People)
Over 3 Million	35%	15 Kph	15
1 - 3 Million	25%	20 Kph	12
Under 1 Million	15%	25 Kph	10
Coverage	No less than 50% of urban land area should have a functional bus stop within a radius of 300 metres		
	No less than 90% of urban land area should have a functioning bus stop with a radius of 500 metres		
Network Density	3 - 4 kilometres per Sq, Km in Central Area; 2 -25 kilometres per square km on the outskirts of the city		

Ministry of Construction: Transport Planning and Design Standard in Urban Roads

Huge investment in urban transit since 2010 under Central Government selection criteria

Metro – 18 systems operational and 30 under construction

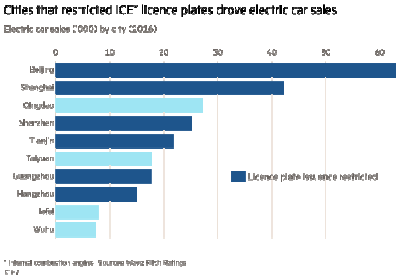
Bus Rapid Transit – 18 systems operational

Bus and Public Transport Priority

Current challenges

- Sustainable financing of urban rail
- Variation in feeder systems, physical and operation integration
- Requirement to strengthen PT regulatory functions separate from operations
- Growth of app-based ride-hailing – Didi Chuxing – Opportunities and threats
- Matching transit with land use, including TOD for urban design and financing

Policy Responses: Air Pollution



- Transparency in air quality monitoring
- China spearheading the global transition for NEVs with road map to mass market of high performance at affordable cost
- Over 500,000 NEVs sold in China in 2016, more than Europe & North America combined
- Government commitment to technology and ecosystem focused on environmental and commercial objectives e.g. EV100
- Target for 40% of all vehicle sales by 2040, some cities planning for complete ban
- Variable progress in charging stations – institutional and regulatory weaknesses
- Some vehicle license quotas and number plate restrictions, but less progress on other measures (e.g. LEZ, Healthy Streets)
- Power generation and grid implications for NEV charging – 70% from coal-fired sources

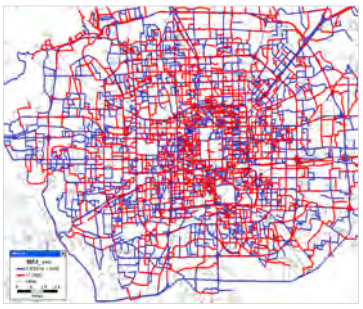
Policy Responses: Transport Demand Management

- TDM policies increasingly articulated in terms of mobility for people, not vehicles
- TDM measures which direct target car use on the agenda e.g.
  - Vehicle License Quotas in Shanghai, Beijing, Tianjin, Shenzhen and Guangzhou
  - Number plate restrictions in Beijing, Hangzhou, Chengdu, Nanchang
- Other cities such as Wuhan and Chengdu have studied TDM, including road-space allocation, access controls, parking management and RUC
- However, implementation is less evident especially in lower tier cities – City leaders concerned with economic competitiveness and political unpopularity
- Plans for RUC in Beijing, Shanghai and Guangzhou studied but not taken forward

Policy Responses: Cycling Rennaissance

- Historically 60 – 70% mode share, but recent sharp declines in infrastructure
- MoHURD policy on walking and cycling
- First public bike share in Hangzhou in 2008, followed by private dockless systems e.g. Ofo and Mobike
- Cycling rates doubled and in Shenzhen said to replaced 10% of private car trips
- Increasing official recognition of benefits in terms of decongestion, health and environment
- Inconsistent response to manage "bicycle graveyards" and lack of investment in cycle infrastructure
  (Exceptions – Guangzhou, Xiamen, Hangzhou)
- Infrastructure for pedestrians neglected and limited application of concepts such as shared use and healthy streets

Studying Road User Pricing in Beijing (2008)



- Proposed as one element of wider TDM Strategy
- 2020 time horizon based on monitoring of network conditions and KPIs
- ERP technology with long-term GPRS/GPS
- Within 2nd Ring Road, extendable to 3rd
- Initial cordon charge of RMB 5 – 7 variable by time period and reviewed alongside other consumer prices
- Certain discounts and exemptions (e.g. disabled, public transport)
- Programme of complementary measures (e.g. traffic management) and revenue hypothecation
- Technology trials, strong programme and operational management
- Stakeholder consultation/political engagement
- Dramatic reductions in congestion feasible
- In reality, vehicle license quotas and number plate restrictions have been the main TDM measures

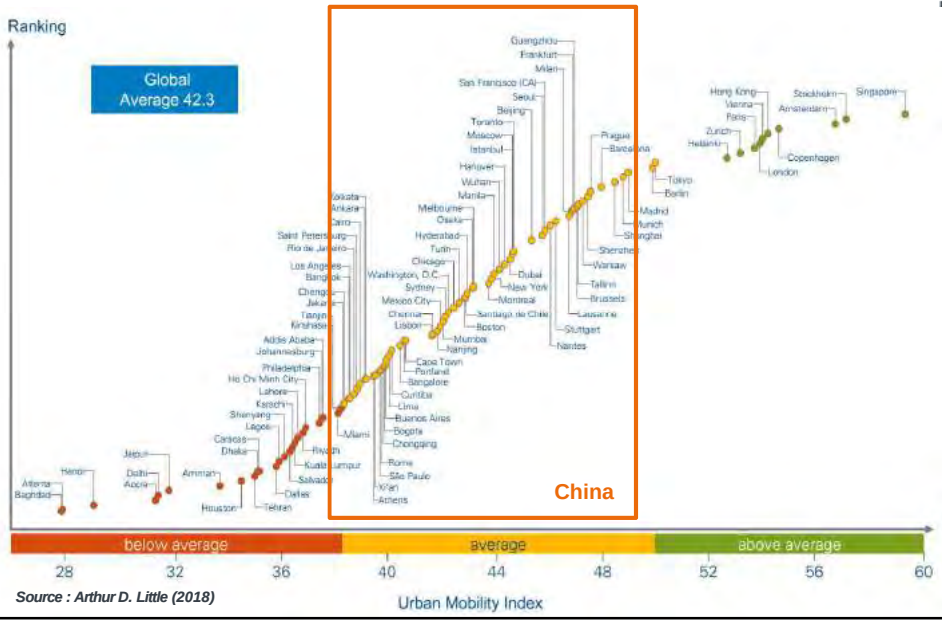
Policy Responses: Multi-Modal Integration

- Strengthening the Ministry of Transport
- Integrated Transport Strategies
  - White Papers and Comprehensive Transport Strategies (e.g. Nanjing, Shenzhen, Wuhan)
- Multi-modal integration
  - Hub stations and interchange design
  - Integrated ticketing and fares (e.g. Alipay)
  - Metro – BRT – Bike connections and incentives
- App-based smart transportation
- Transit-Oriented Development
- Early steps institutional reform
  - Strengthening Transport Commissions in key cities to integrate functions across modes
  - Separation and stronger regulation of public transport operators
  - Governance of data for network planning, operations and passenger information

The Case of Hangzhou, Zhejiang

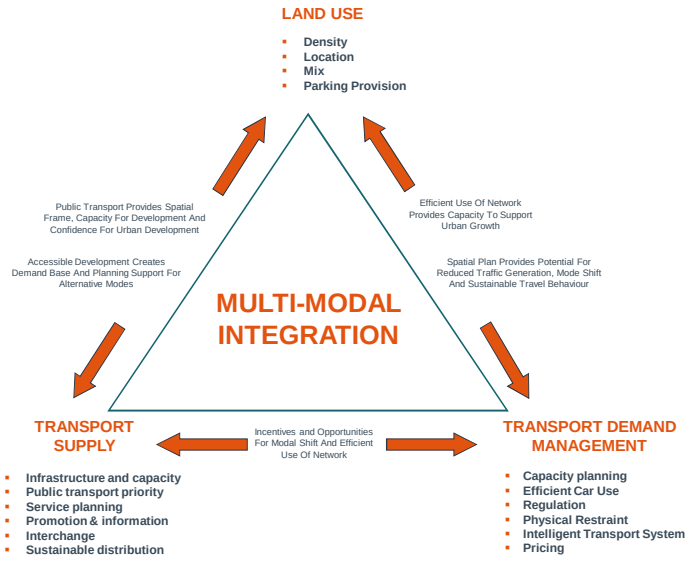
- Plan for integrated and low carbon transport network to address congestion, energy consumption, emissions and noise associated with private car ownership in urban area of current 6.8 million, forecast 8.8 million by 2030
- Targets to increase PT mode share 50%, increase travel choice and reduce carbon intensity 50% in 2020 from 2005
- Development of metro (8 lines), BRT (18 lines) and water bus (3 lines) networks within a coordinated PT framework
- Non-Motorised Transport project focused on extensive public cycle hire and supporting corridors implemented according to a NMT Design Guide, the latter including pedestrian infrastructure and walkable streets
- "Zero Transfer Network" strategy to ensure seamless interchange between public transport modes, including T Card and Citizen Cards and focus on easy, convenient and safe physical interchanges at local and regional levels
- Pilot city for adoption of NEVs – through consumer subsidies, investment in bus fleet, development of charging infrastructure and free charging entitlement, aimed at building confidence as well as direct financial incentives
- Issues remain, for example on sustainability of NEV subsidies, and will need to be resolved as Hangzhou moves from successful experimentation to a mature integrated transport system that works in the long-run
- In 2017, UNWTO included Hangzhou as one of the World's Top 15 Model Cities for Best Practices in Tourism

Benchmarking City Performance



Source : Arthur D. Little (2018)

The Challenge of Multi-Modal Transport



The Challenge of Multi-Modal Transport

Transport for London

Land Transport Authority
We Keep Your World Moving

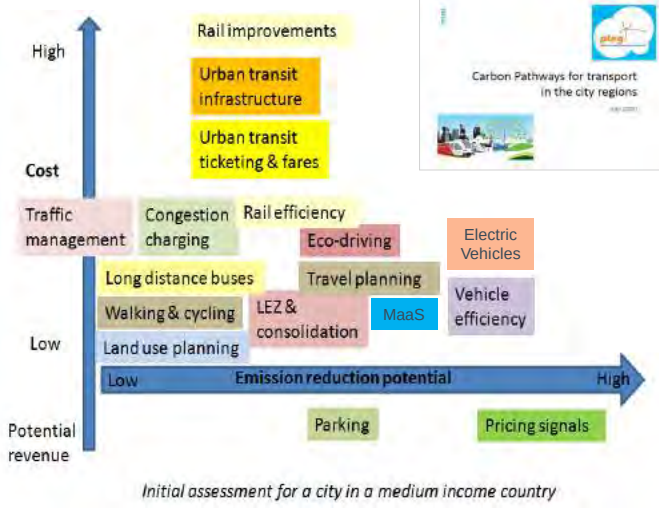
NSW GOVERNMENT Transport for NSW

RTA
هيئة الطرق والمواصلات
ROADS & TRANSPORT AUTHORITY

Success Factors for Integrated Transport Delivery

Policy	Strategy	Interventions
▪ Recognition of how transport links with economic development and land use and contributes to broader economic, social and environmental goals ▪ Clear identification of current transport problems and issues and how these will change in the future ▪ Political leadership and priority assigned to the transport sector and the need for investment ▪ Development of a vision for transport which demonstrates a commitment to long-term planning ▪ A set of overarching policy outcomes, specific transport sub-objectives and quantitative targets ▪ Specific policies and proposals linked to different types of intervention with a holistic treatment of the supply chain ▪ Clear identification of funding mechanisms, including private sector ▪ Clear division of responsibilities for planning and delivery between a range of public and private sector agencies ▪ Recognition of roles and responsibilities between tiers of public administration	▪ Collection and use of a range of supply and demand data to illustrate issues, develop future strategic options & propose solutions which are effective, deliverable and value for money ▪ Use of an analytical basis for understanding how transport demand and conditions might change in future and for appraising, selecting and prioritising various components ▪ Consensus building around overall approaches and specific interventions through stakeholder engagement ▪ Progressive phasing of strategy, allowing public and stakeholder support to be generated and maintained ▪ Recognition of risks in delivery and mechanisms for providing early indications and managing these risks; ▪ Understanding of the need to be able to monitor progress with the ability to modify implementation programmes ▪ Communication of the strategy, and associated actions, in a comprehensive, accessible and well presented format	▪ Recognition of inter-dependencies between all modes, including private and public transport, non-motorised modes and inter-modal and multi-modal integration ▪ Coverage of movement of freight as well as people and understanding of trade-offs to be made in allocating capacity between user groups ▪ Recognition of capacity enhancement (supply) to be balanced with TDM (demand) on basis of "carrot" and "stick" approach ▪ A focus on policy and regulation, enhancing the efficiency of transport operations and maintenance as well as on investment in infrastructure ▪ Exploration of innovative approaches through use of technology, systems & processes ▪ Inclusion of proposals for effective governance, resourcing, and management of delivery of measures, including institutional change where relevant.

Strategies for Low Carbon Sustainability



- No single solution – packages of measures
- Importance of small-scale interventions broadly applied compared to major projects with narrow geographical impact
- Design principles and guidelines e.g. shared streets
- Doubling up on benefits (e.g. Eco-driving – emissions and safety) to sell the message
- Importance of behavioural change alongside technology
- Role of Government in providing regulatory signals and standards

Eco-Low Carbon Urban Planning Methodology

Free download:
www.atkinsglobal.com/fpc
Click ***Future Proofing China***

- Prepared with funding from the UK's Foreign and Commonwealth Office Prosperity Fund, co-funded by China's Ministry of Housing and Urban Rural Development. (MoHURD)
- Led by Atkins in close collaboration with the China Society for Urban Studies.(CSUS)
- Based on both international and Chinese eco-low carbon (ELC) urban planning best practice, the methodology is aimed at providing clear, practical guidance for ELC urban planning in China, including implementation.
- Future Proofing Cities approach tailored for China.
- Applied on more than 50 projects in China.

中华人民共和国 住房和城乡建设部

ATKINS

ELC urban planning is aimed at broadening the scope of traditional urban planning to incorporate, as an integral part of the process, these three core objectives:

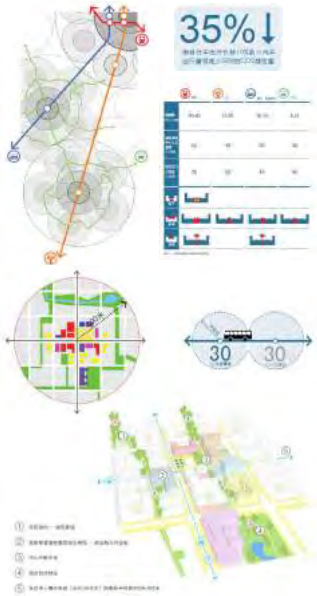
- Reducing greenhouse gas emissions
- Making more efficient use of natural resources
- Protecting biodiversity and the natural environment

Sustainable Transport Planning

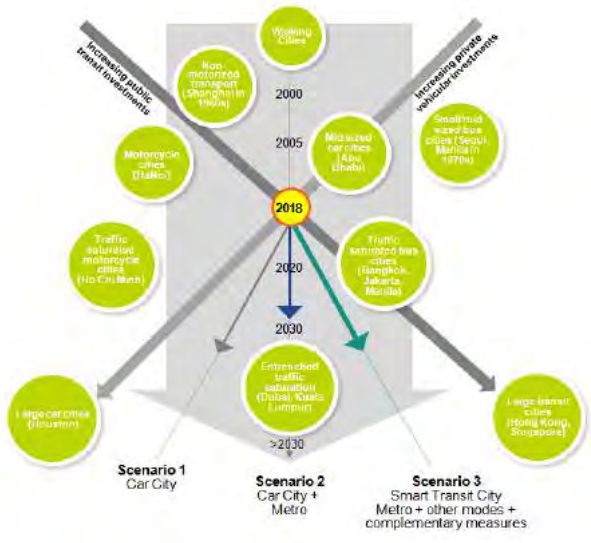
- Overall carbon intensity and wider ecological footprint is influenced by transport mode and travel behaviour
- Transit-Orientated Development (TOD) for land use efficiency and encourages sustainable access
- Transport hubs anchor key neighbourhoods and determine land development density and patterns
- Road network is appropriate to demand, mode choice and reduces negative impacts of traffic

Key Principles

- Public transport system is multi-modal and developed to increase land use efficiency
- Eco-Low Carbon transport and non-motorized transport mode is utilized to optimize land use pattern and emissions, noise and severance
- Road hierarchy, local street space and appropriate density should be planned as continuous and accessible public space and quality public realm



Strategic Choices at the City Level



Scenario 1 – Car City

- Continue private vehicular investments
- No major public transit beyond bus
- No complementary measures

Scenario 2 – Car City + Metro

- Continue road investments as planned (e.g. Expressways)
- Metro and urban rail network
- Nominal bus and taxi service
- Limited integration and complementary measures

Scenario 3 – Smart Transit City

- Selective road investments as per Integrated Transport Strategy
- Optimized Metro network as per Integrated Transport Strategy
- Enhanced bus and taxi service
- Comprehensive NMT (Walking & cycling)
- Complementary measures, including focused TDM
- Intelligent Mobility, systems and data in infrastructure and operations
- Land use and public realm planning

China – State of the Nation in 2018

Mode/Theme	2006	2018
Priority Functions	Plan and Construct	Operate and Manage
Transport Network	Simple, Primary Modes	Complex, Multi-Modal
Urban Rail	√	√√√
Road-Based Public Transport	√	√√
Travel Demand Management	X	√
Non-Motorised Modes	X	√√ (Cycling) X (Walking)
Integration	X	√√
Energy and Emissions	X	√√
Land Use and Planning	X	√
Institutions and Governance	X	√
Policy and Regulation	X/√	√√

Conclusions

- Urbanisation in China requires a new type of multi-sectoral urban planning – Eco-Low Carbon Cities – and transport which is multi-modal, integrated and complex
- Acute urban congestion occurring in China even at internationally low levels of vehicle ownership, but scope for purely road-based solutions increasingly constrained
- Significant progress being made in urban transport with Central Government directives and local action, especially in investing in mass transit & increasingly NMT
- There are also a number of disruptive trends, for example cycle hire and ride-hailing
- More remains to be done, and it is not about doing more of the same
  - Mainstream successful experiments and bring all cities up to the standards of the best
  - Evolving from construction of infrastructure to complex operations, regulation and management
  - Focus on people (demand and customer needs) rather than infrastructure or vehicles (supply)
  - Reforms to transport governance, regulatory environment, financing and engagement of private sector
  - Embracing new, smart and disruptive technology with appropriate and proportionate standards and regulation
- Culture and mindset will be as important as technical skills and techniques


Jonathan Spear
Director Transport Policy and Planning, Atkins Fellow
E-Mail: jonathan.spear@atkinsacuity.com
Tel: +65 9170 9402
atkinsacuity.com
@atkinsacuity
linkedin.com/company/atkinsacuity
CHINA
BEIJING
ATKINS
Acuity

Asset Management of World Bank's Investment and Financing Projects

ZHAI Xiaoke, Senior Transport Expert, World Bank

PRESENTATION NOT AVAILABLE FOR PUBLICATION

公路及公路运输行政管理效能国际研讨会
International Seminar on the Effectiveness Of Road and Road Transport Administration

信息资源整合共享与大数据应用实践

Information Resource Integration and Sharing & Practice of Big Data Application.

交通运输部科学研究院
China Academy of Transportation Science
综合交通运输大数据应用中心
National Comprehensive Transportation Big Data Application Center

曹剑东
Cao Jiandong

2018年4月
April 2018

目录
Content

1 发展背景 Development Background

2 工作基础 Work Foundation

3 整合共享 Integration and Sharing

4 数据分析 Data Analysis

Part.1

发展背景

Development Background

国家战略 National Strategy

2015年8月31日，国务院发布《关于印发促进大数据发展行动纲要的通知》（国发〔2015〕50号）：建立综合交通服务大数据平台。On August 31, 2015, the State Council issued the Notice on Issuing the Action Plan for Promoting the Development of Big Data : to establish a comprehensive transportation service big data platform.

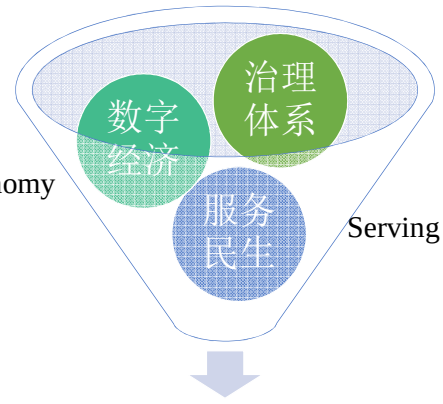
重要讲话 Important Speech

基本任务：
加快完善数字基础设施，推进数据资源整合和开放共享，保障数据安全，加快建设数字中国
Basic Tasks:
Accelerate the improvement of digital infrastructure, promote the integration, opening and sharing of data, to ensure data security, accelerate the construction of digital China.

总体判断：
大数据是信息化发展的新阶段
Overall judgment:
Big data is the new stage of informatization development.

信息技术应用和发展回归“数”的本质
The application and development of information technology returns to the essence of “digit"

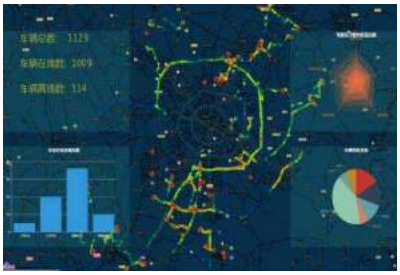
交通运输新机遇 New Opportunities for Transportation



Governance system

Digital economy

Serving people's livelihood



交通大数据 Transport Big Data

运行网络化VS管理属地化
Running networked vs management localization

国家综合交通运输信息平台 National Comprehensive Transport Information Platform

实施国家大数据战略的“一号工程” Implementation of “Project No. 1” of the National Big Data Strategy

交通运输部办公厅文件

交办科技〔2017〕177号

交通运输部办公厅关于印发《国家综合交通运输信息平台总体技术方案》的通知

部属各单位，有关各司局：

为深入贯彻中央网络安全和信息化总体工作部署，全面落实国务院政务信息系统整合共享工作要求，有效支撑交通运输国家建设，经交通运输部同意，现将《国家综合交通运输信息平台总体技术方案》（以下简称《总体技术方案》）印发你们，并就有关事项通知如下：

一、重要意义

党的十八大以来，以习近平同志为核心的党中央高度重视网络安全和信息化工作，党的十九大报告中提出要“推动新型工业

国家综合交通运输信息平台 National Comprehensive Transport Information Platform

1.Integrated transportation decision support and evaluation center.

2.Integrated transportation operation coordination and emergency command center.

3.Comprehensive transportation administration office and service support.

4.Comprehensive transportation information resource sharing and opening hub.

5.Comprehensive transportation network security and operation maintenance support base.

国家综合交通运输信息平台 National Comprehensive Transport Information Platform

Part.2

工作基础

Work Foundation

工作基础 Work Foundation

综合交通运输大数据应用中心
National Comprehensive Transportation Big Data Application Center

工作任务： work responsibility

- 综合交通运输大数据政策标准研究
  Research on the policy and standard of comprehensive transportation data
- 数据资源目录编制和维护
  Compilation and maintenance of data resource directory
- 部级交通运输数据资源交换共享与开放应用平台开发、管理
  Development and management of ministerial data exchange, sharing, open and application system
- 大数据技术研发应用及模式创新
  Research and application of big data technology and model innovation
- 大数据分析决策技术支持
  Technical support for big data analysis and decision making


中华人民共和国交通运输部

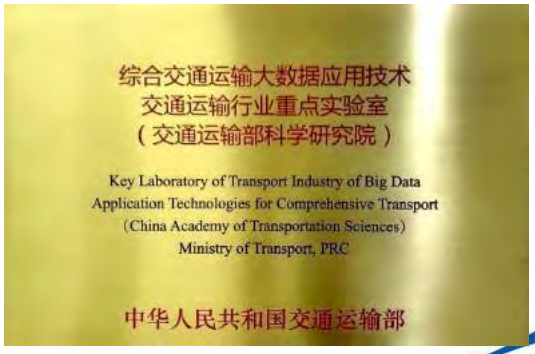
交通运输部关于部署综合交通运输大数据应用中心相关工作的通知

工作基础 Work Foundation

综合交通运输大数据应用技术实验室 Laboratory of Comprehensive Transport Big Data Application Technologies

研究方向： Research direction

- 数据资源管理应用体系与相关标准规范研究
  Research on the application system of data resource management and related standards.
- 大数据动态采集、模型构建与处理技术研究
  Research on dynamic collection, model construction and processing of Big Data.
- 基于大数据的综合交通运输监测、分析评估与预警技术研究Comprehensive transport monitoring, analysis and evaluation and warning technology research based on Big Data.



工作基础 Work Foundation

我善治“数” We are good at data governance

研究经验： Research experience：

- 承担8个司局的统计工作，丰富的数据治理经验。
  Undertake statistical work for 8 departments of MOT, rich experience in data governance.
- 长期为经济运行分析工作提供技术支持，丰富的数据分析经验。
  Long-term economic operation analysis work to provide technical support, rich experience in data analysis.
- 承担高速公路监测等工作，经常碰到“大”数据。
  Undertake highway monitoring and other work based on big data

Part.3

整合共享

Integration and Sharing

政策文件 Policy Documentation


中华人民共和国中央人民政府
www.gov.cn

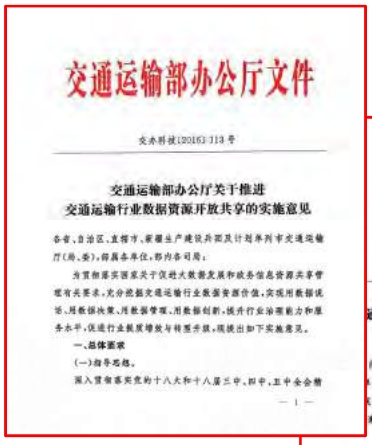
国务院 总理 新闻 政策 互动 服务

首页 > 信息公开 > 国务院文件 > 综合政务 > 政务公开

索 引 号：000014349/2016-00165　　主题分类：综合政务\政务公开
发文机关：国务院　　成文日期：2016年09月05日
标　　题：国务院关于印发政务信息资源共享管理暂行办法的通知
发文字号：国发〔2016〕51号　　发布日期：2016年09月19日
主 题 词：

国务院关于印发政务信息资源共享
管理暂行办法的通知
国发〔2016〕51号

各省、自治区、直辖市人民政府，国务院各部委，各直属机构：
现将《政务信息资源共享管理暂行办法》印发给你们，请认真贯彻执行。
国务院
2016年9月5日


交通运输部办公厅文件

交办科技〔2016〕113号

交通运输部办公厅关于推进
交通运输行业数据资源开放共享的实施意见

各省，自治区、直辖市、新疆生产建设兵团交通运输厅（局、委），部属各单位，部内各司局：
为贯彻落实国家关于促进大数据发展和政务信息资源共享管理有关要求，充分挖掘交通运输行业数据资源价值，实现用数据说话、用数据决策、用数据管理、用数据创新，提升行业治理能力和服务水平，促进行业数据增效与转型升级，现提出如下实施意见。
一、总体要求
（一）指导思想。
深入贯彻落实党的十八大和十八届三中、四中、五中全会精


交通运输部文件

交科技发〔2017〕58号

通运输部关于印发《交通运输政务信息资源
共享管理办法（试行）》的通知

自治区、直辖市、新疆生产建设兵团交通运输厅（局、委），部
单位，部内各司局：
现将《交通运输政务信息资源共享管理办法（试行）》印发你
遵照执行。

（此件公开发布）

工作方案 Work Programme


中华人民共和国中央人民政府
www.gov.cn

国务院 总理 新闻 政策 互动 服务 数据 国情

首页 > 信息公开 > 国务院文件 > 综合政务 > 电子政务

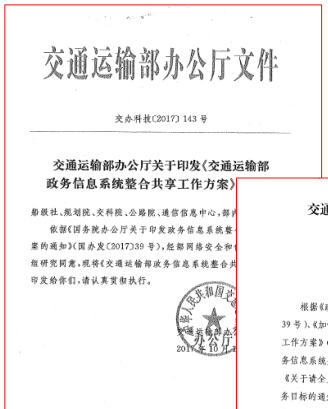
索 引 号：000014349/2017-00088　　主题分类：综合政务\电子政务
发文机关：国务院办公厅　　成文日期：2017年05月10日
标　　题：国务院办公厅关于印发政务信息系统整合共享实施方案的通知
发文字号：国办发〔2017〕39号　　发布日期：2017年05月18日
主 题 词：

国务院办公厅关于印发政务信息系统
整合共享实施方案的通知
国办发〔2017〕39号

相关资讯
• 国务院办公厅印发《政务信息系统整合共享实施方案》

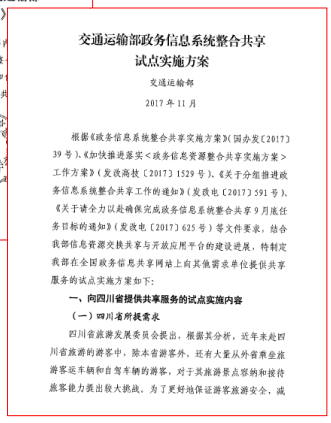

中华人民共和国国家发展和改革委员会
National Development and Reform Commission

关于印发《加快推进落实〈政务信息系统整合
共享实施方案〉工作方案》的通知
发改高技〔2017〕1529号


交通运输部办公厅文件

交办科技〔2017〕143号

交通运输部办公厅关于印发《交通运输部
政务信息系统整合共享工作方案》


交通运输部政务信息系统整合共享
试点实施方案

交通运输部
2017年11月

根据《政务信息系统整合共享实施方案》（国办发〔2017〕39号）、《加快推进落实〈政务信息资源整合共享实施方案〉工作方案》（发改高技〔2017〕1529号）、《关于分组推进政务信息系统整合共享工作的通知》（发改电〔2017〕591号）、《关于请全力以赴确保完成政务信息系统整合共享9月底任务目标的通知》（发改电〔2017〕625号）等文件要求，结合我部信息资源交换共享与开放应用平台的建设进展，特制定我部在全国政务信息共享网站上向其他需求单位提供共享服务的试点实施方案如下：

一、向四川省提供共享服务的试点实施内容

（一）四川省所提需求

四川省旅游发展委员会提出，根据其分析，近年来赴四川省旅游的游客中，除本省游客外，还有大量从外省乘坐旅游客运车辆和自驾车辆的游客，对于其旅游景点容纳和接待旅客能力提出较大挑战，为了更好地保证游客旅游安全，减

政务信息资源目录 Government Information Resource Catalog System

政务信息资源目录2017版：信息资源523项，信息项6934项。
Government information resources directory 2017:
information resources: 523, information items: 6934.


交通运输部办公厅文件

交办科技〔2017〕123号

交通运输部办公厅关于印发《交通运输政务信息资源目录编制指南（试行）》的通知

各省、自治区、直辖市、新疆生产建设兵团交通运输厅（局、委），部属各单位，部内各司局：

为贯彻落实国家政务信息系统整合共享要求，加快推进交通运输政务信息资源共享开放，实现以信息资源目录管理交通运输数据资产，推进"十三五"交通运输大数据建设，经交通运输部同意，现将《交通运输政务信息资源目录编制指南（试行）》印发给你们，请结合工作实际，做好交通运输政务信息资源目录编制工作。

联系人：交通运输科技司　付光琼、姚育荣

— 1 —

政务信息资源目录编制指南
Guidance for compiling government information resources

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

建设目标 Construction Objectives

- 建成交通运输行业数据资源中心。

To build the data resource center in the transportation industry.

- 建成部省数据交换通道。

To build a data exchange channel between MOT and the provinces.

- 建成部级数据开放共享主枢纽。

To build a data sharing and open hub at ministerial level.

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

采用“1+34”部省共建的模式，21个省已启动建设。

With the model of "1+34", 21 provinces have started construction.

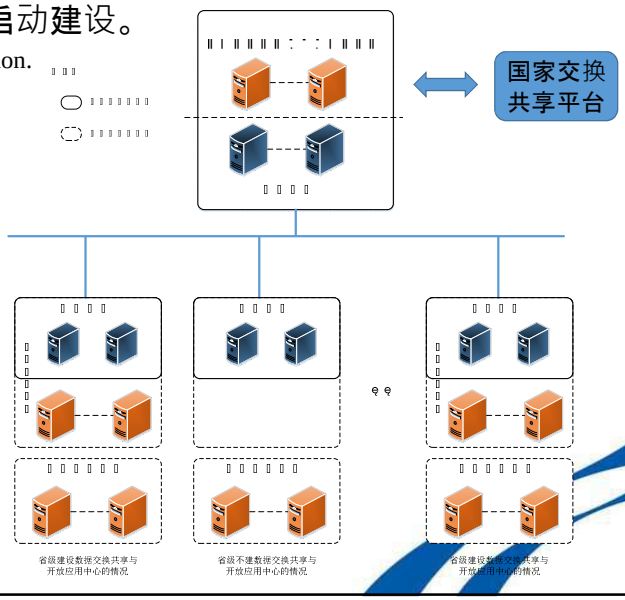
交通运输部办公厅文件

交办科技〔2017〕124号

交通运输部办公厅关于印发
《交通运输信息资源交换共享与开放应用平台
省级工程建设指南》的通知

各省、自治区、直辖市、新疆生产建设兵团交通运输厅（局、委），长江航务管理局，珠江航务管理局：

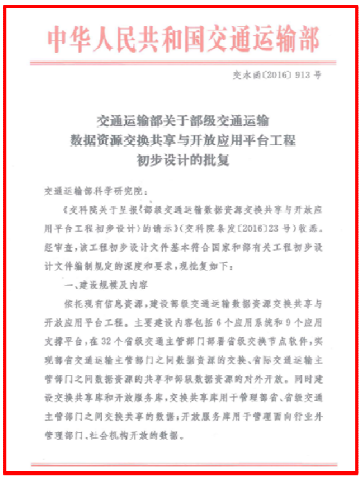
为贯彻落实国务院政务信息共建共享实施方案要求，加快推动“十三五”交通运输信息化规划中部省网联联动的交通运输信息资源共享交换和开放应用平台建设，经交通运输部同意，现将《交通运输信息资源交换共享与开放应用平台省级工程建设指南》印发给你们，请结合工作实际，做好本单位信息资源共享交换和开



交换共享与开放应用平台 Data Exchange and Sharing Application Platform

部级工程规模及工期
Ministerial Project Scale and Construction Period

- 工程计划总投资2199.34万元。工期24个月。
- The total planned investment of the project is 21.9934 million RMB. The construction period is 24 months.
- 总投资不包含硬件购置费用。
- The total investment excludes the hardware acquisition expenses.
- 根据部新要求，合同工期18个月。
- According to the new requirements of the Ministry of Transport, the contract period is 18 months.



中华人民共和国交通运输部

交水函〔2016〕913号

交通运输部关于部级交通运输
数据资源交换共享与开放应用平台工程
初步设计的批复

交通运输部科学研究院：

《交科院关于呈报〈部级交通运输数据资源交换共享与开放应用平台工程初步设计〉的请示》（交科院条发〔2016〕23号）收悉。经审查，该工程初步设计文件基本符合国家和部有关工程初步设计文件编制规定的深度和要求，现批复如下：

一、建设规模及内容

依托现有信息资源，建设部级交通运输数据资源交换共享与开放应用平台工程。主要建设内容包括6个应用系统和9个应用支撑平台，在32个省级交通主管部门部署省级交换节点软件，实现部省交通运输主管部门之间数据资源的交换、省际交通运输主管部门之间数据资源的共享和部级数据资源的对外开放。同时建设交换共享库和开放服务库，交换共享库用于管理部省、省级交通主管部门之间交换共享的数据；开放服务库用于管理面向行业外管理部门、社会机构开放的数据。

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

建设内容 construction content

A. information resource catalog service. B. Data exchange, sharing and open management

C. Data quality assessment D. Platform maintenance management E. Data exchange sharing and opening portal.

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

资源汇聚情况 Resource Converge Situation

- 已完成近30家司局和技术支持单位的对接工作。

Nearly 30 bureaus have docked the technical support units.

- 已完成219项信息资源的对接，其中170项信息资源1409712条数据记录入库。

A total of 219 information resources have been docked, of which 170 information resources 1409712 data records are imported into the database.

- 外部委：工商总局法人库。

External ministry: Corportate Database from the General Administration of Industry and Commerce.

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

资源目录管理
Resource catalog management

数据资源共享服务
Data resources sharing service

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

应用一：水运海事领域证照信息共享
Application 1: License information sharing in maritime field

实现船舶入级证书、国际船舶保安证书、船舶安全管理证书等16类水运领域证照信息共享
Implementation of ship classification certificate, international ship security certificate, ship safety management certificate and other 16 kinds of water transport license information sharing

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

应用二：信用信息资源共享 Application 2: credit information resource sharing

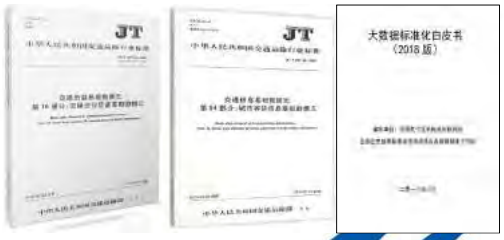
实现工商登记信息、双公示信息、黑名单信息、红名单信息等四类信用数据的共享。

Realize four types of credit data sharing: the business registration information, double publicity information, black list information, and red list information.

交换共享与开放应用平台 Data Exchange and Sharing Application Platform

应用三：综合信息展示系统 Application3： Integrated information display system.

标准研究 Standard Research



Part.4
数据分析
Data Analysis

高速公路收费数据分析及应用 Analysis and application of highway toll collection data

中国运输服务指数
China Transport Service Index

经济运行分析 Economic operation analysis

从综合交通角度出发，利用高速公路收费数据，结合各种运输方式客货运量指标，经过季节调整、无量纲化、权重设置、指数合成，反映交通运输行业总体运行状况。From the comprehensive traffic angle, through the season adjustment, dimensionalization, weight setting, and index synthesis, the combination of highway toll data, and passenger volume and cargo volume indices in different transportation methods reflects the overall operation of the transportation industry.

通过宏观及交通运输关联行业主要指标的发展变化态势，反映交通运输行业经济运行的景气情况、面临的问题，并对行业发展形势进行预警。The development situation of the main indicators of the macro and transport related industry reflects the economic operation of the transportation industry, the problems, and early warning of the development situation of the industry.

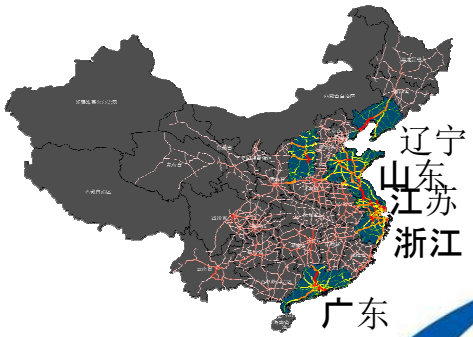
行业景气监测指数
industry boom monitoring index

高速公路收费数据分析及应用 Analysis and application of highway toll collection data

路网交通流量分布分析 Analysis of road network traffic flow

动态反映全国高速公路分区域、分时段、分车型的车流量空间分布和变化情况，以及高速公路重要通道、重要节点交通压力，为效益评估、路网规划、道路拥挤度分析等提供支撑。

Reflects the spatial distribution and change of the vehicle flow, and the traffic pressure of highway's important channels and important nodes, provides support for benefit evaluation, road network planning, road congestion analysis and so on.



货车流量较集中路段

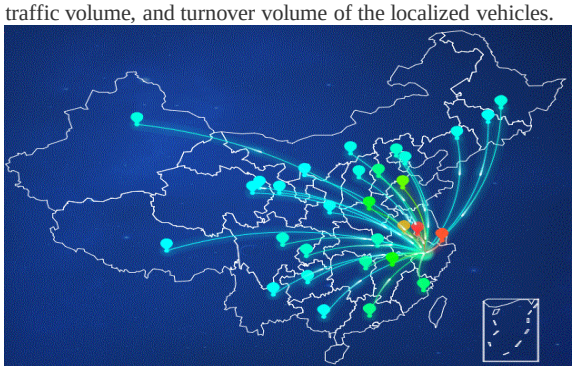
高速公路收费数据分析及应用 Analysis and application of highway toll collection data

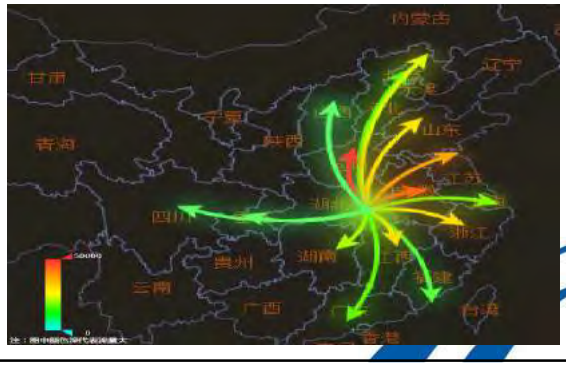
车籍地分布分析

Vehicle Registration place distribution analysis

动态分析本省籍车辆在全国的分布情况以及其他省籍车辆在本省分布情况，反映区域之间的经济联系情况，并为属地化车辆运输量、周转量的推算提供依据。

Dynamically analyzes the distribution of the vehicles from the province in the whole country and the distribution of the vehicles from other provinces in this province, reflects the economic relation between different areas, and supports the calculation of the traffic volume, and turnover volume of the localized vehicles.





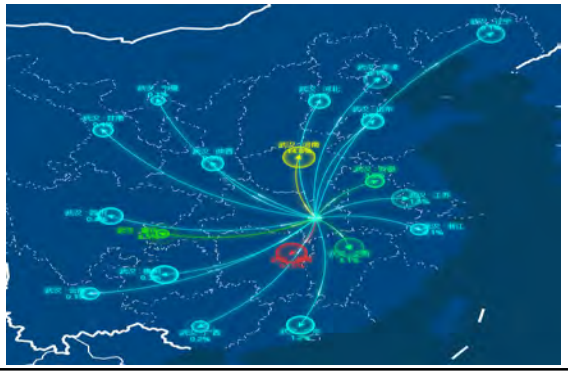
高速公路收费数据分析及应用 Analysis and application of highway toll collection data

跨省流量流向分布分析

Cross - province flow distribution analysis

按照分区域、分交通运输通道、分收费站、分方向、分时间、分车型，分析车辆的流量、流向，掌握当前高速公路网客流、货流的方向性特征。

From the perspectives of different regions, transport corridors, toll stations, directions, times and vehicle models, analyzes the traffic flow and direction in order to master the characteristics of passenger flow and cargo flow of the expressway.



高速公路收费数据分析及应用 Analysis and application of highway toll collection data

定期编制《高速公路运行月度监测报告》 Monthly Monitoring Report on Expressway Operation

包括高速公路上分区域、分流向、分车型的客车和货车的流量、运输量、周转量、货运密度、车辆行程等一共19张分析图表，以及对于旅客运输和货物运输情况变化趋势的分析。

Including 19 analysis charts on the passenger cars in different regions, diversions, and models, and traffic flow, traffic volume, turnover volume, freight density, and vehicle routine of trucks, as well as the trend analysis of passenger transport and cargo transport.

高速公路收费数据分析及应用 Analysis and application of highway toll collection data

与高德联合发布《中国主要城市交通分析报告》

Joint release of China's major urban traffic analysis report

高速公路收费数据分析及应用 Analysis and application of highway toll collection data

与百度联合发布《十一国庆中秋出行预测报告》

Joint release with Baidu on the Mid-Autumn festival travel forecast

预测全国及京津冀、长三角、珠三角、成渝四大城市群的收费站流量排名及去返程的易拥堵时间点

Forecast the toll station ranking of traffic flow and that of traffic jam time point in the whole nation and four big urban agglomeration-
Beijing Tianjin Hebei, Yangtze river delta, pearl river delta, Chengdu Chongqing.

预测全国最热门迁徙路线、热门目的地城市、繁忙机场和火车站

Forecast the country's most popular migration routines, popular destination cities, busy airports and railway stations.

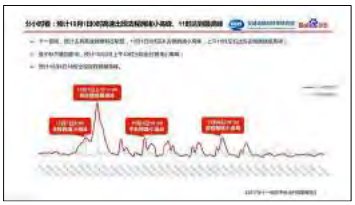
堵 家 买 游

预测热门购物中心、热门奥特莱斯、热门步行街、大型演唱会

Forecast popular shopping centers, outlets, and concerts.

预测全国最热门景区、热度涨幅最大景区及热门骑行路线、热门游乐场

Forecast the most popular scenic spots, popular cycling routes and amusement parks.



高速公路收费数据分析及应用 Analysis and application of highway toll collection data

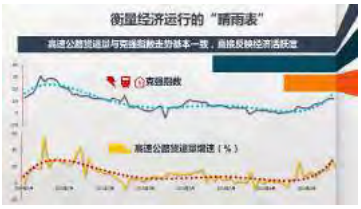
编制并发布《2016年度高速公路运行大数据分析报告》

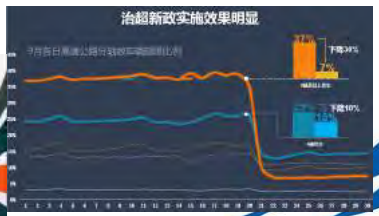
Analysis report on the operation of Highway in 2016

5个维度

总体运行 物流通道 热点跟踪 长江经济带 城镇群

高速公路运行大数据分析





高速公路收费数据分析及应用 Analysis and application of highway toll collection data

大数据分析报告在新闻联播和央视新闻频道进行专题报道

The big data analysis report is featured in CCTV news channel.

城市交通数据分析及应用Urban traffic data analysis and application

城市公共交通基础设施水平评价

Evaluation of urban public transport infrastructure level.

- 联合高德地图发布《主要城市公共交通大数据分析报告》

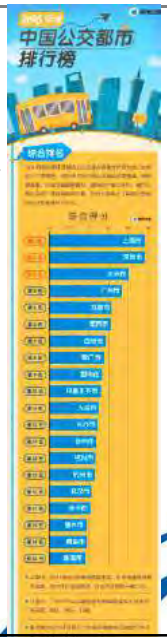
Joint release report with GAOGDE Map - "Public Transport Big Data Analysis report in the major cities of China "

- 摸清主要城市公共交通基础设施服务覆盖水平

Figure out the coverage level of main cities' public transport infrastructure service

- 规范互联网企业对公共交通的评价口径

Standardize the Internet enterprises on public transport evaluation

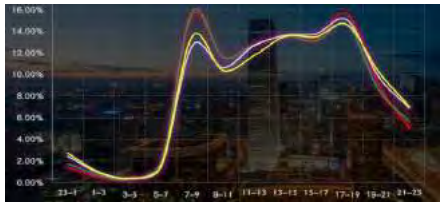


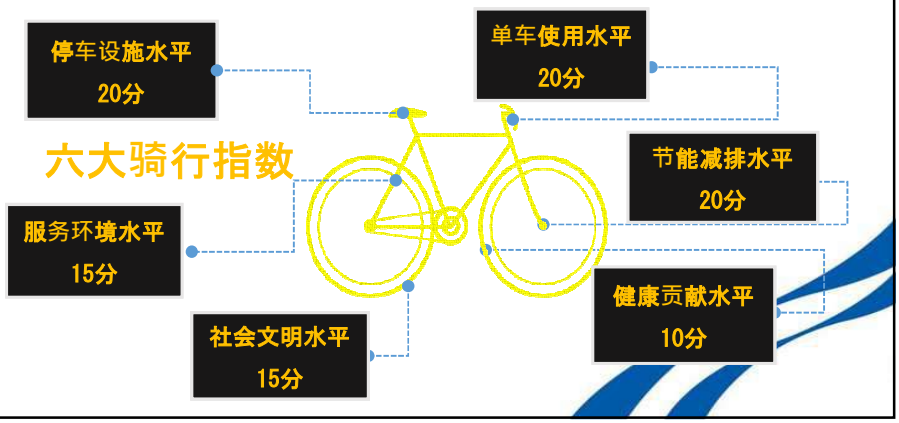
城市交通数据分析及应用Urban traffic data analysis and application

共享单车骑行水平评价 Sharing-cycling evaluation.

- 与OFO联合发布《2017年中国主要城市骑行报告》Joint issue with OFO on cycling report of China's major cities in 2017
- 分析主要城市自行车停车设施水平和骑行环境，评价主要城市共享单车的骑行水平

Analyzing the level of bicycle parking facilities and cycling environment in the major cities, and evaluating the cycling level of shared bicycles in the major cities.





城市交通数据分析及应用 Urban traffic data analysis and application

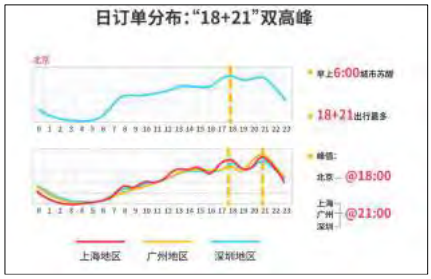
共享汽车出行特征分析 Analysis of car-sharing

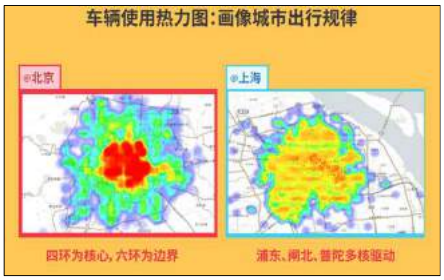
- 联合途歌科技发布我国首部针对共享汽车开展的大数据分析报告—《中国一线城市共享汽车出行分析报告》。

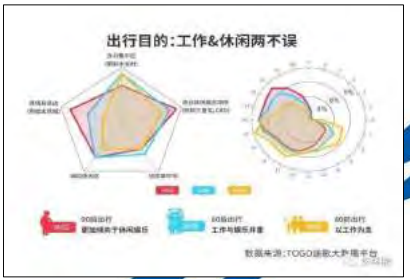
China's first big data analysis report on shared cars.

- 从诞生历程、用户画像、出行体验、社会价值等四个角度，全面分析了当前共享汽车发展的主要特征。

From the four perspectives including birth history, user portrait, travel experience and social value, comprehensively analyzing the main features of the current development of shared cars.







物流数据分析及应用 Logistics data analysis and application

智慧物流大数据发展综合评价

Comprehensive evaluation of big data development of intelligent logistics

全国智慧物流大数据综合指数 40.9

56.3 数据化发展指数

- 物流业务数据化程度相对较好

45.9 智能协同发展指数

- 物流业务协同化处于快速发展阶段

18.8 数据基础设施指数

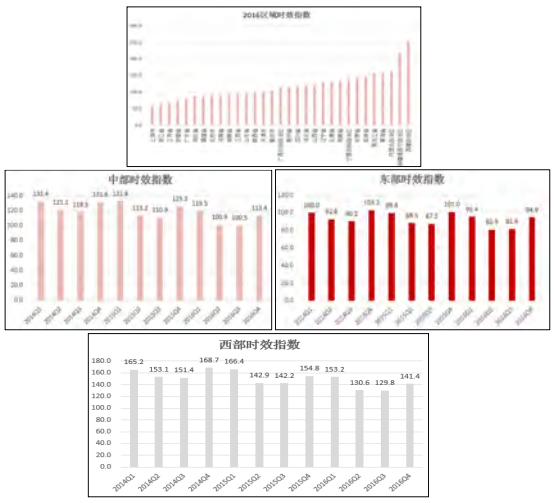
- 物流数据云存储与计算处于起步阶段

物流数据分析及应用 Logistics data analysis and application

物流时效性评价

Logistics timeliness evaluation.

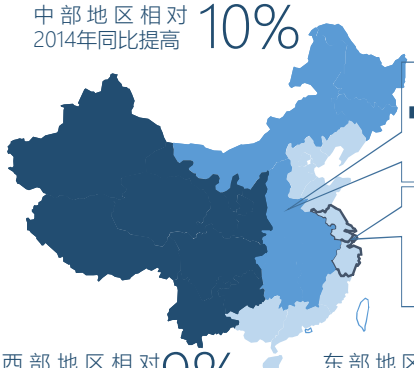
2016年区域时效指数



全国物流时效性评价

National logistics timeliness evaluation.

中部地区相对2014年同比提高 10%



- 中部成为物流时效提升最快的地区
- 长三角地区继续保持领先优势，上海市、浙江省和江苏省位列全国前三

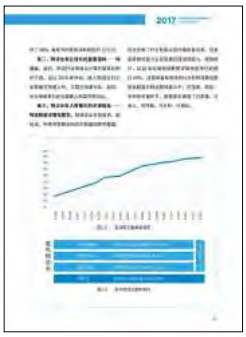
西部地区相对2014年同比提高 9%

东部地区相对2014年同比提高 6%

物流数据分析及应用 Logistics data analysis and application

联合发布《2017中国智慧物流大数据发展报告》

Jointly released the 2017 China smart logistics big data development report



描绘中国智慧物流全景蓝图，点明中国电子商务与智慧物流发展趋势

Describe the overall blueprint of China's intelligent logistics, point out the development trend of China's e-commerce and intelligent logistics.

Thanks for listening

谢谢聆听

交通运输部科学研究院
综合交通运输大数据应用中心

曹剑东 博士/研究员
010-58278344

China Academy of Transportation Science

Comprehensive Transportation Big Data Application Center.

Dr. CAO Jiandong
Researcher

2018年4月 April 2018

Exchanging
knowledge and techniques

WORLD ROAD ASSOCIATION

www.piarc.org

CHINA BEIJING
AIPCR-PIARC
TC A.1 Seminar

A Rhode TRIP – Planning for the future of mobility in Rhode Island

From Providence to Beijing

XENOPHONTOS Christos Savvas
Assistant Director, RIDOT

A Rhode into the AV Future

RIDOT AT A GLANCE - RESPONSIBILITY

Manage the construction and maintenance for:

2,900 Lane Miles of State Roads and Highways

1,176 Bridges

777 Traffic Signals
100,000+ Traffic Devices

2,500+ Drainage Structures

5 Rail Stations
18 Park and Rides

681 Full Time Employees

A Rhode TRIP – Planning for the future of mobility in Rhode Island

From Providence to Beijing

The Future Is Here…

Transportation is Rapidly Changing Every Day

- Societal changes are driving mobility innovations
- New technologies are emerging at an accelerated pace
- Vehicles are rapidly becoming more connected
- Full autonomy is on the horizon, and we need to be ready

Rhode Island is Planning for The Future of Mobility

- Embrace innovation in transportation and other sectors
- Position the state as a leader on the cutting edge of progress
- Prepare to make best use of new and emerging technologies
- Integrate these changes into RIDOT's infrastructure planning

How Will We Do It?

The Rhode Island Transportation Innovation Partnership

Rhode Island Transportation Innovation Partnership

GOALS OF TRIP

- Provide people with access to sustainable mobility options and get them to their destinations safely, reliably and efficiently
- Create a fertile ground in which the private sector can flourish in a responsible way and unleash new economic benefits

STRATEGY

- Establish and develop opportunities for innovation by connecting policymakers and critical communities of practice
  - Public Agencies
  - Private Sector Industries
  - Universities and Workforce Development Centers

Rhode Island Transportation Innovation Partnership

REQUEST FOR INFORMATION ON CAV & INNOVATIVE TRANSIT SYSTEMS

- JUNE 2017 RIDOT Issues a Request for Information (RFI)
- 6 Areas of Interest
  - Opportunities for Partnership
  - Capital planning and infrastructure
  - Safety, Security, Risk and Liability
  - Environment and Sustainability
  - State Law and Regulations
  - Workforce and professional training needs within the State

8

Rhode Island Transportation Innovation Partnership

Opportunities for Partnership

- Explore how the state might effectively partner with private sector and/or other public sector entities and:
- Identify opportunities for Pilot Programs
- Create a complimentary environment for deployment with:
  - Nearby jurisdictions / other regions
  - Cities and municipal governments within Rhode Island
  - Academic institutions and technical schools
- Data, data, data … what to do with the data
- Create and enhance opportunities for inclusiveness

9

Rhode Island Transportation Innovation Partnership

Capital Planning and Infrastructure

- Integrate the long-range capital planning process with the needs of new innovative transport technologies and needs for CAVs
- Identify what can/must be done now and immediate investments needed
- Prepare and implement an action plan that encompasses opportunities for public-private partnerships and partnerships with academic institutions

10

Rhode Island Transportation Innovation Partnership

Safety, Security, Risk and Liability

- What are the challenges and opportunities that we are facing when it comes to safety, security, liability and risk as technology changes rapidly
- Autonomous vehicles are considered inherently safer than human operated vehicles
- Expectation however is that there will be a mixed fleet of vehicles on our roadways to about 2050.
- This creates a unique set of conditions that we need to study and better define as we move forward with the adoption of new technology.

11

Rhode Island Transportation Innovation Partnership

Environment and Sustainability

- Link to opportunities for resource conservation, emission reductions, and overall environmental sustainability through innovation
- Support improved access to all modes of transit that could lead to a safer, cleaner environment
- New mobility paradigms and personal interaction with vehicles could impact environment
- Impact of fuel saving technology to GHG emissions

12

Rhode Island Transportation Innovation Partnership

State Laws and Regulations

- State and local laws may directly conflict with the nature of AVs.
- Currently federal government regulates vehicle safety and states regulate operators, traffic laws and insurance and liability
- Discuss how they could be structured to balance the needs of emerging technology with RIDOT's core mission for providing improved travelers safety and mobility as well as private enterprise opportunity and prosperity.
- Define potential legal / liability issues
- Develop public policy to maximize benefits from deployment

13

Rhode Island Transportation Innovation Partnership

Workforce Development

- Plan for the impacts of CAVs, MaaS, On-Demand Ride Sharing and Electrification on the workforce.
- Anticipate everything: negative impacts and potential job losses but also positive impacts and opportunities for job growth
- Identify how Rhode Island can best prepare to train its workforce to be competitive with the integration of these technologies
- Establish an action-oriented plan of what must be done now to be ready for this transition

14

PROOF OF CONCEPT

- Conceptually propose a proof-of-concept or pilot CAV or on demand ride-sharing service deployment in any of the following locations or elsewhere in Rhode Island:
  - City of Providence Smart Transportation Corridors
  - City of Pawtucket
  - Quonset Business Park
  - University of Rhode Island Kingston Campus roadway network
  - Potential use of shoulders in interstate corridors

The Rhode Island Transportation Innovation Partnership Expo

September 14-15, 2017

- Interactive event where key stakeholders learned about the testing grounds for new and emerging technologies in panel discussion and site visits
- Attendees visited potential sites for RI's smart corridors
- Discussions focused on infrastructure planning, workforce changes, best practices, and more

- The smallest state is the best testing ground!

RFI 7553496: Submission Summary

- 30 responses from 28 different parties
- All respondents were private parties
- Submissions in the following areas:
  - Mobility
  - Safety
  - CAV Planning/Facilitation
  - Security
  - Environment
- AV manufacturing companies expressed interest (even though not all submitted to RFI)

WHERE ARE WE NOW?

The Path Forward

19

RIDOT's Efforts to Date

- **April 2017:** RIDOT hosts International Mini-Summit on CAVs in Providence
  - Experts from WRA (PIARC) present what is being done in their countries
  - RIDOT establishes focus group
- **June 2017:** RIDOT issues Request for Information (RFI) on CAVs and innovative transit systems
- **July 2017:** The Rhode Island Transportation Innovation Partnership (TRIP) is established

TRIP Transportation Innovation Partnership

RIDOT's Efforts to Date

- **September 2017:** TRIP hosts CAV Expo at The New England Institute of Technology
  - Panel discussions focused on opportunities for partnership, infrastructure planning for CAVs, workforce development, environmental impacts, safety, mobility-as-a-service, and more
  - Site visits in Providence, Pawtucket, Central Falls, Quonset, and URI
- **October 2017:** RFI Closed & Reviewed
- **November 2017:** RIDOT and URI host a joint research forum, ***Transportation Innovation Partnership (TRIP): Leading the Way for Research***

RIDOT's Efforts to Date

- **The TRIP Mobility Challenge**
  - A pilot program to test automated, multi-passenger vehicles in Providence's urban core
- **GOALS**
  - **Introduce** safe, innovative, high-tech, low-emission AVs to Rhode Island
  - **Improve** transportation networks by connecting underserved neighborhoods
  - **Integrate** cutting-edge tech into Rhode Island's transit systems
- **Request for Proposals (RFP) coming soon**
- **More information here**

NEXT STEPS

REQUEST FOR PROPOSALS

RI TRIP

AUTONOMOUS VEHICLE MOBILITY CHALLENGE

RIdot Driven to get you there

23

QUESTIONS - DISCUSSION

24

QUESTIONS?

Grazie…

Gracias…

Merci…

谢谢

Thank you for your attention

一站式智能出行服务

One-stop Intelligent Travel Service

刘美银

LIU Meiyin

2018年4月25日

Apr.25.2018

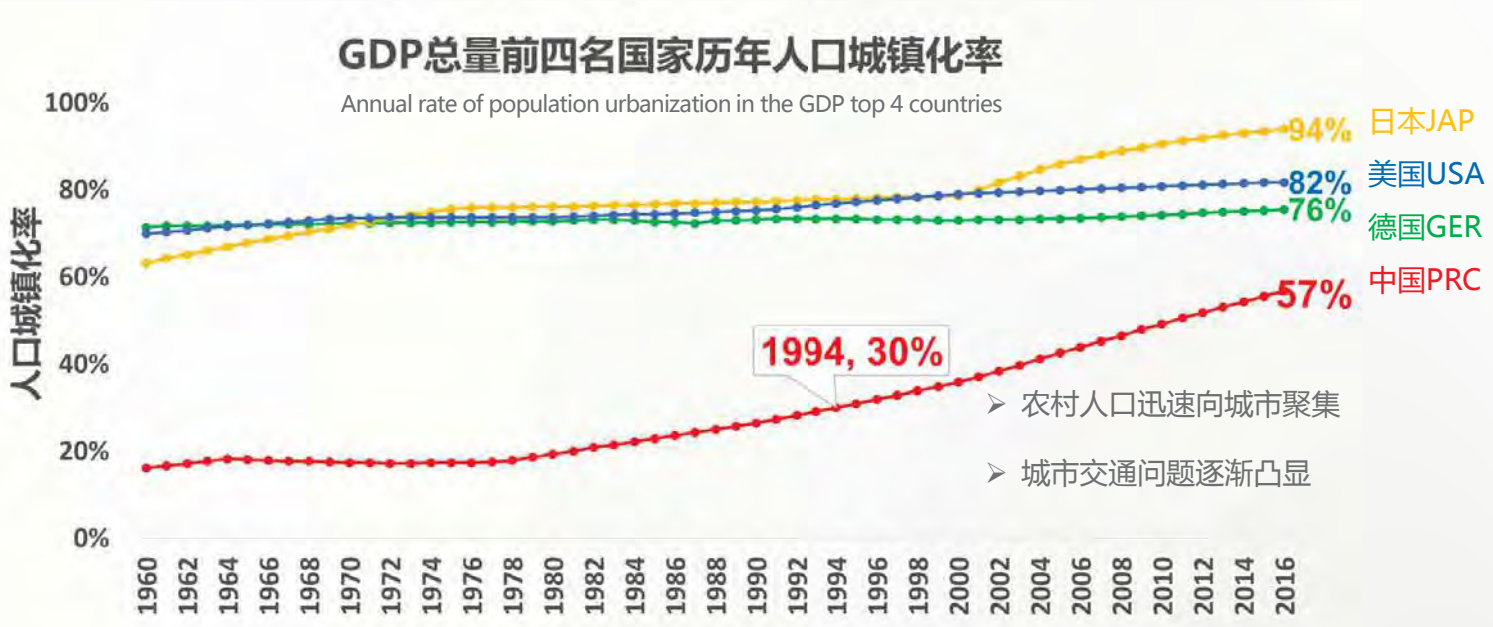
滴滴 DiDi

目录 Contents

滴滴

1 城市交通面临的挑战之一：人口城市化聚集

Urban Transport Challenge #1: Urbanization of population

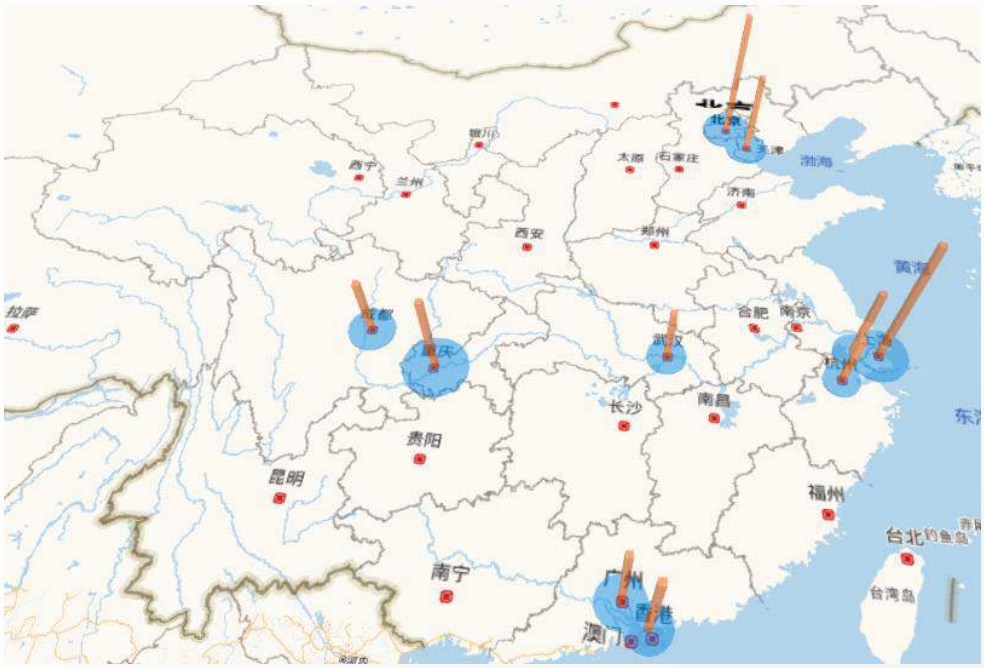


数据来源：世界银行WDI数据库
Data source: World Bank WDI database

1 城市交通面临的挑战之一：人口城市化聚集

Urban Transport Challenge #1: Urbanization of population

序号 No.	城市 City	2017年 GDP(亿元) (1/10 Billions)	常住人口 Permanent Pop (万人) (10 Thousands)
1	上海	30134	2420
2	北京	28000	2173
3	深圳	22438	1253
4	广州	21503	1450
5	重庆	19500	3048
6	天津	18595	1562
7	苏州	17320	1068
8	成都	13889	1604
9	武汉	13410	1091



数据来源：各地市统计局
Data sources: Local bureaus of statistics

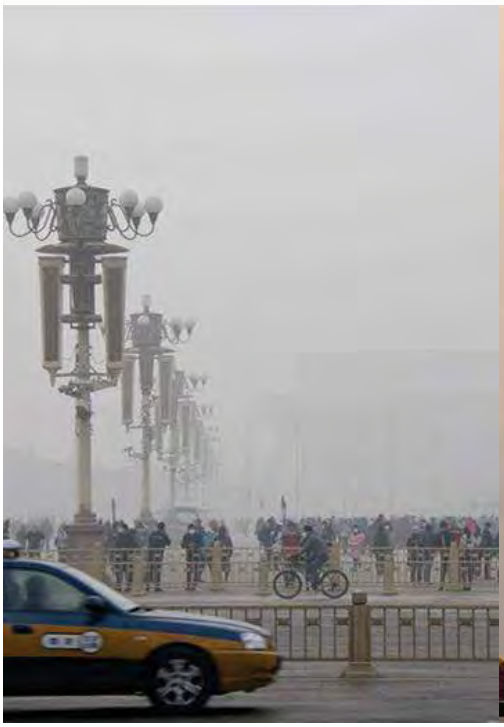
滴滴

1 城市交通面临的挑战之二：有限交通资源优化组织

Urban Transport Challenge #2: Optimal organization of limited traffic resources

1 城市交通面临的挑战之三：资源环境的瓶颈制约

Urban Transport Challenge #3: Resource and environment bottlenecks



城市交通发展出形成两套解决方案

Two solutions for urban transport development

面向公众服务的交通体系

Transport system: Public service

轨道交通 Rail Transit

公共汽车 Public Bus

公共自行车 Public Bicycles

传统出租车 Traditional Taxi

租赁汽车 Car Rental

自助交通体系

Transport system: Self-service

私家车 Private Car

自行车 Bicycle

步行 Pedestrian

面向公众服务的交通体系
Transport system: Public service

经济实惠
Economical and practical
环保
Environment-friendly
周转效率高
High turnover efficiency

服务舒适性较差
Uncomfortable
无法提供门到门的服务
Could not provide “Door to door” service
需要等待和换乘
Wait & transfer

自助交通体系
Transport system: Self-service

服务舒适
Comfort service
门到门
“Door to door”
0换乘
Zero transfer

成本高
High cost
车辆、道路利用率低
Low utilization of vehicles and roads
不环保
Environment-unfriendly

- 公共交通体系无法实现门到门、零换乘，服务水平低
- 人们生活水平提高，对于出行品质要求提高

自助交通体系不断膨胀

城市交通效率降低

未来城市交通如何发展

2 未来交通发展趋势
Development Trend of Future Transport

出行需求
Travel Demand

工业时代
Industrial Era

- 根据经验与统计数据
  Experience and statistic based
- 模糊预估需求总量与分布
  Fuzzy predict of total demand and distribution
- 无法掌握需求变化
  Hard to follow demand change

- 利用大数据、人工智能技术
  Use of big data and artificial intelligence
- 实时掌握需求总量与分布
  Real-time control of total demand and distribution
- 了解用户个性化需求
  Understand personalized needs of users

互联网时代
Internet Era

- 根据经验与历史数据
  Experience and historical data based
- 固定化的运输服务组织
  Fixed transport service organization
- 滞后的服务供给调度
  Lagged service supply scheduling

- 海量数据与强大计算能力
  Massive data and powerful computing ability
- 服务实时调度，预测需求提前调度
  Real-time and predictive scheduling
- 智能规划路径，优化出行方式组合
  Intelligent path plan & travel mode optimization

Service Supply
服务供给

2 未来交通发展趋势
Development Trend of Future Transport

在新技术革命浪潮的推动下，未来交通发展的趋势应当是技术和互联网的深度融合。

智能化

Intelligentization

- Big data
- Cloud computing
- Artificial intelligence

- 大数据
- 云计算
- 人工智能

自动化

Automation

- Autopilot

- 自动驾驶

电动化

Electrification

- Motor vehicle electrification
- Charging facilities construction

- 机动车电动化
- 充换电配套设施建设

共享化

Sharing

- Vehicle sharing
- Transportation operators provide travel services

- 载运工具共享
- 交通运营商提供出行服务

2 未来交通发展趋势
Development Trend of Future Transport

智能化
Intelligentization

自动化
Automation

电动化
Electrification

共享化
Sharing

面向公众服务的交通系统
Transport system: Public service

自助交通系统
Transport system: Self-service

融合两种交通系统的优点
Integrate the advantages

一站式出行服务
One-stop Travel Service

2 未来交通发展趋势
Development Trend of Future Transport

目前，世界各发达国家开始探索一站式出行服务，如美国、英国等。这些国家都是典型的交通强国。一站式出行是未来交通强国的重要标志之一。

我国在一站式出行服务方面具备一定优势：

China has the following advantages on One-Stop Travel Service

智能手机普及率高（72%）

High smartphone penetration rate

网约车、共享单车发展迅速

Fast development of ride-hailing and bike-sharing

移动支付技术先进

Advanced mobile payment technology

良好政策支持环境

Good policy support

3 一站式出行服务
One-Stop Travel Service

十九大提出建设交通强国，交通领域智能化、共享化、电动化、自动化发展水平是实现交通强国的重要标志

滴滴的愿景:成为引领汽车和交通行业变革的世界级科技公司——全球最大一站式出行平台，全球汽车运营商，全球智能交通技术的引领者

滴滴愿意响应国家号召，参与交通强国建设，承担交通发展的使命，建设一站式出行平台，让出行更美好

3 一站式出行服务
One-Stop Travel Service

一站式智能出行的内涵：

The connotation of one-stop intelligent travel:

在深刻理解公众出行需求的基础上，将各种交通模式全部整合在统一的服务体系与平台中，从而充分利用大数据、机器学习、人工智能等技术，调配最优资源，规划最优路线，满足个性化出行需求的交通服务生态，并以一票制支付方式或包月套餐方式进行支付。

A transportation service system based on a profound understanding of public travel demand, integrating various traffic modes into a unified service system and platform, taking advantage of big data, machine learning, artificial intelligence and other technologies, deploying optimal resources, planning optimal routes, and meeting personalized traffic needs, paid by integrated ticket or monthly package.

3 一站式出行服务
One-Stop Travel Service

场景描述：由高铁站到会议地点，长距离
Scenario: Long distance from railway station to conference location

个性需求：尽快抵达会场
Personalized Demand: Arriving ASAP

出行信息：降雪天气，途径城区交通拥堵
Travel info: Snowing & Traffic Jam

服务方式：网约车、地铁
Service mode: Metro + Ride-hailing

一票制支付
integrated ticket

酒店 **Hotel**

路线A：快捷
Rout A: Fast

城区交通拥堵
Traffic Jam area

高铁站 **Railway Station**

Rout B: Comfort
路线B：舒适

3 一站式出行服务
One-Stop Travel Service

场景描述：由住宅到公园，短距离
Scenario: Short distance from residence to park

个性需求：绿色出行，健身休闲
Personalized Demand: Green and healthy

出行信息：自行车道设置情况
Travel info: Bicycle path setting

服务方式：自行车、步行
Service mode: Bicycle + pedestrian

一票制支付
integrated ticket

公园 **Park**

路线A：绿色
Rout A: Green

住宅 **Residence**

Rout B: Fast
路线B：快捷

3 一站式出行服务
One-Stop Travel Service

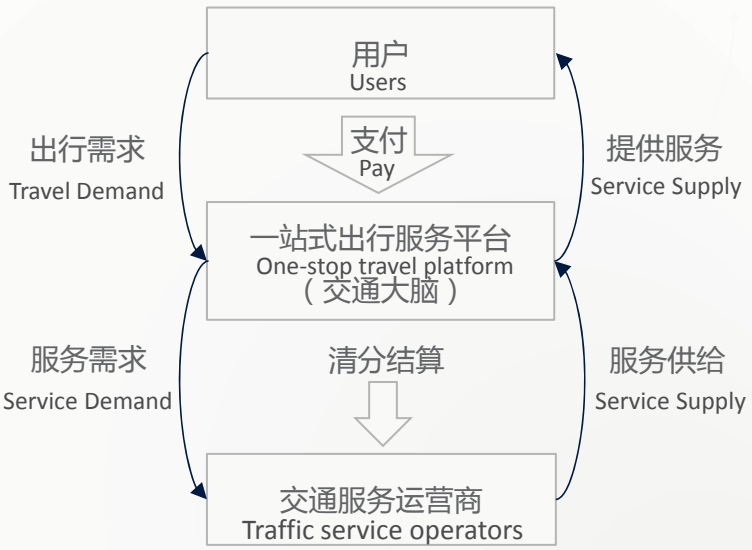
一站式出行的主要特征
Main features of one-stop intelligent travel:

- **智能**——以移动互联网平台的大数据资源、机器学习、人工智能等互联网技术为基础
  Intelligence — Based on Internet technologies such as big data resources, machine learning, and artificial intelligence on mobile Internet platforms
- **共享**——注重出行服务的提供而非拥有车辆，乘客不仅是出行服务的享受者，也是交通数据的提供者与分享者
  Sharing — Focus on the provision of travel services; Users are not only the enjoyment of travel services, but also providers and sharers of traffic data
- **一体**——各种交通方式进行高度整合，用户不再需要出行中各段的交通方式，并实现一票制或包月制的支付体系
  Integrated — Highly integrate various transportation modes; Users are paid with one-ticket or monthly package
- **人本**——以人为本，给人们提供无缝衔接、安全、便捷、舒适和个性化的出行服务
  Humanity — Providing people with seamless connection, safe, convenient, comfortable, and personalized travel services

3 一站式智能出行服务
One-Stop Intelligent Travel Service

- 多种类交通出行服务运营商
  Multiple types of traffic service operators
- 一站式出行平台交通大脑
  One-stop travel platform (traffic brain)
- 一票制支付清分结算系统
  Integrated-ticket payment clearing system

一站式出行平台的构成
Consist of One-Stop Travel Platform



3 一站式出行服务
One-Stop Travel Service

滴滴构建一站式出行平台
DiDi builds up One-Stop travel service platform

滴滴的愿景——成为全球最大的一站式出行平台
DiDi's vision — Become the biggest One-Stop travel service platform around the world

持续推进各种交通出行服务线上化，平台上已有11种出行服务
Continuous promotion of all kinds of travel service online; There are 11 kinds of travel services on the platform

覆盖全国
400多个城市
Covering
400+ Cities

日均订单
超过2000万
Daily Orders
more than 20 million

4.5亿
注册用户
450 million
Registered Users

3 一站式出行服务
One-Stop Travel Service

滴滴构建一站式出行平台
DiDi builds up One-Stop travel service platform

在服务线上化的基础上，不断探索共享出行新模式
On the basis of online service, constantly explore new modes of sharing travel

分享车辆和座位
Sharing vehicles and sits

- 开发顺风车、拼车等服务
- 通过分享座位，提升车辆和道路使用效率，培养共享出行习惯

2017年滴滴平台累计分享座位**10.5亿**个

- Develop service such as hitch and carpool
- Improving vehicle and road use efficiency via sit-sharing; developing sharing-travel habits

In 2017, DiDi platform accumulatively shared **1.05 billion** seats

汽车服务运营
Vehicle service operate

- 家庭不再拥有小汽车，只购买出行服务
- 汽车服务运营商提供汽车出行服务
- 白天车辆高效率运营提供服务，夜间统一停放充电

滴滴成立了汽车开放平台，已经运营超过**20万辆**新能源车

- Families purchase travel service instead of using private vehicle
- Vehicle service operators provide road travel service
- Providing service during the day, while parking and recharging at night

DiDi has established vehicle open platform, operating new energy vehicles more than **200 thousand**

3 一站式出行服务 One-Stop Travel Service

滴滴构建一站式出行平台

DiDi builds up One-Stop travel service platform

建设基于大数据、人工智能技术的智慧交通大脑

Construct smart traffic brain based on big data and artificial intelligence technologies

- 每日新增轨迹原始数据：超过70TB　Daily trajectory original data: more than 70TB
- 每日路径规划请求：200多亿次　Daily path planning requests: more than 20 Billion
- 每两秒做一次需求订单列表和可用司机列表撮合　Matching demand orders and available drivers every 2s
- 超过3000万个“推荐上车点（虚拟站点）　More than 30 million virtual boarding points

个性化出行需求
Personalized travel demand

交通大脑

多种类出行服务供给
Multiple travel services supply

3 一站式出行服务 One-Stop Travel Service

滴滴构建一站式出行平台

DiDi builds up One-Stop travel service platform

建设基于大数据、人工智能技术的智慧交通大脑

Construct smart traffic brain based on big data and artificial intelligence technologies

- 高效匹配用户需求与交通服务供给，提升城市交通效率
  High efficiently matching user demand and travel service supply, and improving urban traffic efficiency
- 为用户制定个性化、多组合出行选择方案，满足快捷、舒适、绿色等需求
  Providing personalized and multiple combination travel plans; to be fast, comfortable and green
- 智能规划路径，优化城市交通组织
  Intelligent planning path, and optimizing urban traffic organization

3 一站式智能出行服务
One-Stop Intelligent Travel Service

滴滴基于公交模块的初步一站式出行功能已经上线

可提供网约车、公交、地铁、共享单车、步行等方式的组合出行方案

可满足快捷、少换乘、少步行等出行需求

3 一站式出行服务
One-Stop Travel Service

滴滴构建一站式出行平台
DiDi builds up One-Stop travel service platform

构建一票制支付体系
Establish Integrated-ticket Payment System

一票制支付体系是一站式出行平台的重要组成，是滴滴未来构建一站式出行平台的重要组成部分

Integrated-ticket Payment System is an important component of One-Stop Travel Platform

- 建立科学的清分结算系统
  Establishing a scientific clearing and settlement system
- 在行程结束后，用户在移动端进行一票制支付
  Users pay with integrated ticket at mobile after travel finished
- 包月套餐支付方式
  Monthly package payment

总 结
Summary

构建一站式出行平台，核心是创造用户价值，让出行更美好，让城市更美好，让环境更美好，让我们的生活更美好。

实施这一目标，需要一点一滴做起，需要我们共同的智慧与力量。

让我们共同携手，为之努力奋斗！

The cores of constructing One-Stop Travel Platform are to create users' value, to make travel more convenient, to make city more accessible, to make the environment more sustainable, and to make our lives better.

In order to achieve this, we need to use our wisdom and strength together, and to start at the very beginning.

Let us work together and fight for it!

THANK YOU

北京市海淀区东北旺路8号院尚东·数字山谷B1号楼

The Challenge of Multi-Modal Transport

The Challenge of Multi-Modal Transport

Transport for London

Land Transport Authority
We Keep Your World Moving

NSW GOVERNMENT Transport for NSW

RTA
هيئة الطرق والمواصلات
ROADS & TRANSPORT AUTHORITY

TRAFIKVERKET
SWEDISH TRANSPORT ADMINISTRATION

The Issue

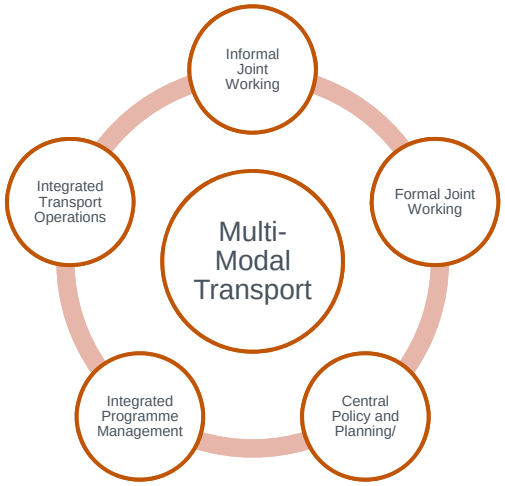
- Roads policy and planning needs to be placed in the context of meeting wider economic, social and environmental goals and delivering positive outcomes across all transport modes and land uses
- A key aspect of this is strengthening multi-modal governance arrangements for transport policy, planning, delivery and operations
- There is a need to establish how existing road administrations can work to achieve integration with other modes, networks and agencies to achieve common goals and better outcomes
- In addition, there is a recent trend of creating (integrated) multi-modal transport agencies, long-established in many countries for public transport, but also now incorporating road and traffic functions
- There is a need to establish the strength and nature of recent trends, which models are emerging and whether assertions of the benefits of revised multi-modal governance and joint working arrangements are supported by evidence
- This debate is as relevant in China as elsewhere, especially as the Country moves from construction of primary transport networks to complex infrastructure and management across transport modes towards, especially at the urban level

Dimensions of Transport Governance

Modes/Themes
Strategic Roads
Local Roads
Traffic Management
Rail
Bus and Taxi
Water Transport
Non-Motorised Modes
Demand Management
Land Use Planning
Maritime
Aviation
Freight

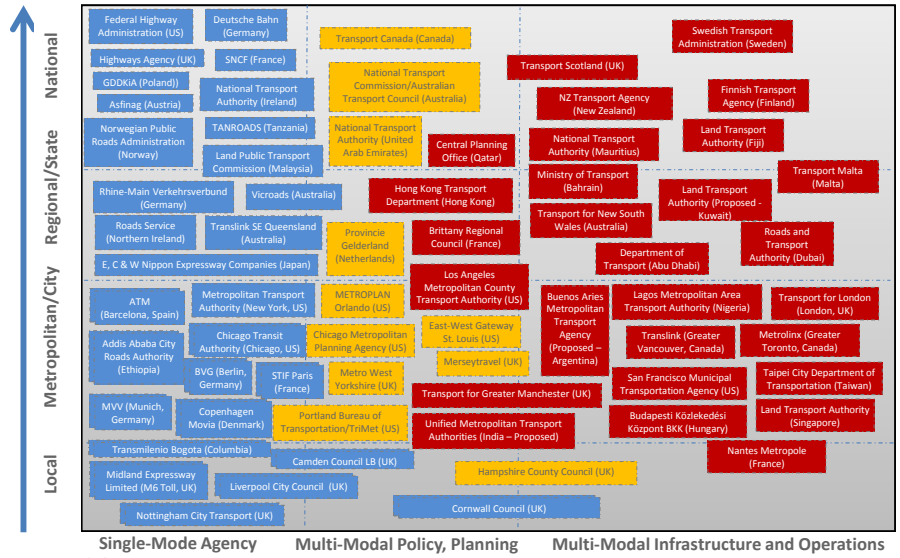
Functions
Policy
Strategic Planning
Detailed Planning
Design
Construction
Regulation
Funding/Financing
Operation & Management
Maintenance
Enforcement
Monitoring
Ownership

National	Regional	Local



Integration – Points of Departure

One destination, but multiple routes?



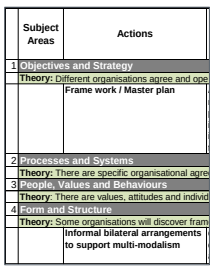
World Road Association Research 2011 – 2015

(Technical Committee 1.1 Performance of Transport Administrations)

- Key trends in multi-modal transport planning and delivery
- Reflecting these trends in governance structures and processes
- Reasons and rationale for the trends observed
- Costs and benefits of multi-modal integration and related governance arrangements
- Wider factors behind effectiveness within and between organisations
- Lessons learned and recommendations

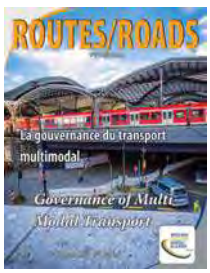
Survey

Case Studies



	Subject Areas	Actions
1	Objectives and Strategy	
	Theory: Different organisations agree and ope	
		Frame work / Master plan
2	Processes and Systems	
	Theory: There are specific organisational agre	
3	People, Values and Behaviours	
	Theory: There are values, attitudes and individ	
4	Form and Structure	
	Theory: Some organisations will discover fram	
		Informal bilateral arrangements to support multi-modalism

Toolkit



Reporting

Survey Responses

25 Organisations from 18 Coutries across the World

Survey Findings

Success factors for multi-modal planning and delivery

- **Multi-Modal Mindset**

  Organisational culture to consider all transport modes and networks, driving policy, planning, professional values and behaviour

- **Objectives**

  Specific objectives within organisational strategy to consider and integrate across modes and networks

- **Roles and Responsibilities**

  Clarity of organisational and departmental roles, feeding through to individual responsibilities and job descriptions

- **Stakeholders**

  Mechanisms and procedures to secure active consultation and involvement of all significant stakeholders, including those responsible for other modes and networks

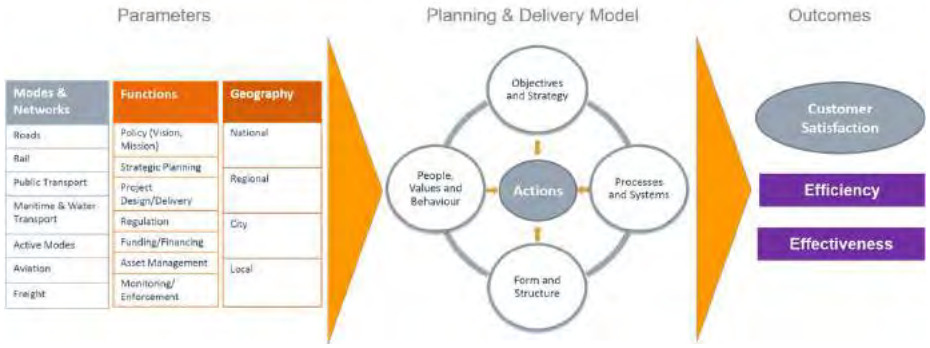
- **Customer-focus**

  Strong customer and user focus to ensure customer satisfaction and wider public welfare and value around “whole journey”, irrespective of mode and network, promoting an externally rather than internally driven approach

Seven Detailed Case Studies

- A wide range of measures to promote multi-modal integration in place in policy, planning and delivery regardless of organisational form
- Interfaces between roads and public transport are considered to be particularly complex, significant and requiring specific focus
- Integration of national with regional/local networks is an additional level of challenge
- Even multi-modal agencies have internal organisational units focused on different modes and networks, requiring internal collaboration to achieve success
- **The precise organisational form has limited relevance for the success of multi-modal measures, indicating that other factors are in play**

Developing a Conceptual Governance Model



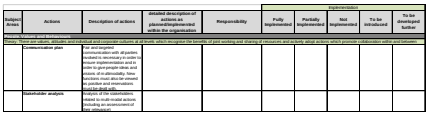
Toolkit for Multi-Modal Collaboration

Toolkit for specifying, coordinating and monitoring multi-modal actions

- Groups of actions derived from survey results
- Developing customer-oriented measures
- Actions for all organisational forms
- Coordination of actions
- Supports individual measures or broader packages of action

Four categories of actions

- Objectives and Strategy
- People, Values and Behaviour
- Processes and Systems
- Form and Structure



Toolkit: Multi-Modal Collaboration

Objectives and Strategy

Framework of Objectives

- Common vision or objectives over set timescale
- Integrated Transport Strategy/Master Plan
- Aligning programmes and budgets with vision
- Monitoring delivery across organisations with shared KPIs for inputs, outputs and outcomes

Formal or Informal Agreements

- Agreement of common or consistent planning, design or operational policies and principles
- Agreements across transport providers to implement multi-modal actions at project level
- Can be informal, formal or contractually binding

Toolkit: Multi-Modal Collaboration

People, Values and Behaviour

Stakeholder and Communication Plan

- Stakeholder map and management strategy
- Common and integrated communication across organisations and stakeholders
- Branding of multi-modal initiatives to the public

Exchange of Knowledge and Experience

- Platforms and procedures for exchanging knowledge and different perspectives
- Shared approaches to professional development
- Secondment or role/job rotation between organisations

Toolkit: Multi-Modal Collaboration

Processes and Systems

Planning and Appraisal

- Unification or alignment of planning processes for various transport providers to optimise programme on multi-modal basis
- "Modally-agnostic" project appraisal techniques across all agencies
- Shared procurement and contracting

Shared data and IT

- Common and central data collection, analysis, storage and access
- Shared performance monitoring/management
- GIS
- Single Source of Truth on key data sets

Toolkit: Multi-Modal Collaboration

Function, Form and Structure

Central planning or coordination office or unit across modes and their respective agencies (e.g. Ministry PMO, CPO)

Shared organisation leadership or management

Partial Organisational Restructure

- Evaluating existing structures and making changes for multi-modal planning, while retaining distinct entities, functions and structures

Full Organisational Restructure

- Forming a joint structure where functions and organisations are merged or and management, staff and resources are integrated
- Creating a new multi-modal structure

Single or Multi-Modal Organisations

Transport Organisations

Single Mode Organisations

- Use domain knowledge specific to a mode or transport provider in best possible way
- Can act more efficiently and effectively within their structure

Multi-Modal Organisations

- Stronger strategic leadership
- Objective decision-making
- Modally agnostic
- Utilisation of synergies
- Potential to achieve financial savings

Key Points for Multi-Modal Transport Agencies

- **A strong statement of leadership**, public profile, integrated decision making & resource allocation
- **A "single voice"** (and brand) for the transport sector within Government, to stakeholders, public and supply chain partners
- **Facilitating balanced decision making** across all modes and networks in line with strategic transport vision and objectives
- **Focus on whole, door-to-door journeys** (including points of interface)
- Potential **closer alignment with land use planning framework** and wider policy priorities
- **Organisational economies of scale**
- **Stronger purchasingpower** with suppliers
- **Removes problems of possible gaps or duplication** between modally-focused agencies

Transport for London

RTA

TRAFIKVERKET
SWEDISH TRANSPORT ADMINISTRATION

NSW Transport for NSW

Land Transport Authority

TRANSLINK

The Multi-Modal Approach

Success of the multi-modal approach in structural terms depends on:

- Supportive strategic conditions and a compelling technical narrative
- Political leadership and guidelines
- Local context and circumstances
- Weighing up of the costs and disruption of change vs. the benefits of reform

Implementation of multi-modal structures require:

- Proper consideration of all organisational options
- A robust implementation and change management plan
- Significant investment of time and resources
- Focus on changing organisational culture, mindsets and behaviours
- Consideration of residual functions and structures

Points of Departure

One destination, but multiple routes?

Critical Factors for Organisational Effectiveness



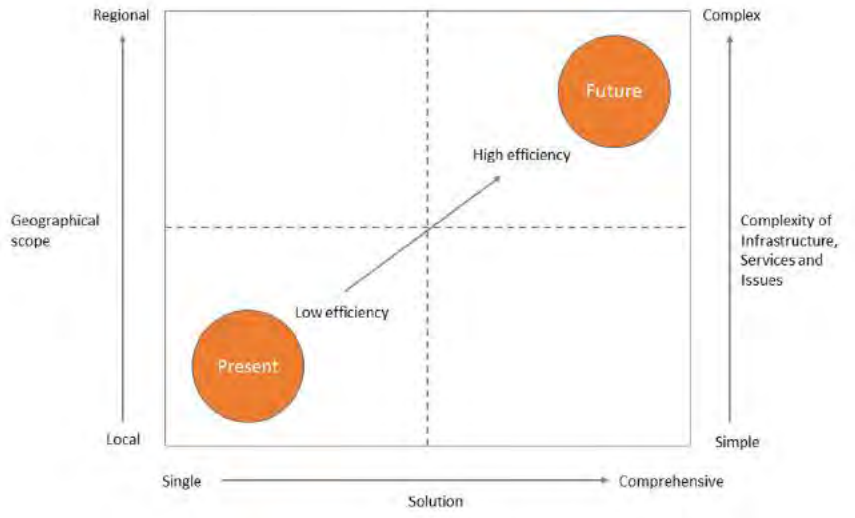

Vision and Leadership	Form and Structure	Processes and Systems	Capacity and Skills
Values and Culture	Collaboration	Performance Management	Integrity and Accountability




Some Observations on the China Context

- The rapid urbanisation and development of China poses mounting challenges for Government at all levels to manage the transport sector, deliver necessary infrastructure and services and support sustainable and integrated solutions
- Transport planning, especially at the city and regional level, is moving from construction of primary networks towards physical and operational integration across modes as well as complex management from a users perspective
- Urban regions may expand beyond administrative boundaries e.g. Yangtze River Delta, Pearl River Delta, Beijing-Tianjin- Hubei
- Transport responsibilities are frequently scattered across a range of institutions, with mis-aligned goals, conflicting policies and inefficient resource allocation
- There is also inconsistent involvement of the private sector, monopoly control and inefficient use of public funds, for example in urban public transport
- There is growing recognition of the need for institutional reform, either through merger of functions to a unified structure or coordination across different agencies
- If not tackled then institutional bottlenecks will impede cities' ability to develop economically or achieve environmental sustainability

Trends in Urban Transport in China



Source: Lulu Xue, WRI China (2015)

Division of Responsibilities for Chinese Cities

		Road & City Construction	Rail	Public Transport [1]	Public Parking	Traffic
Decision	Objective and strategy [2]	Municipal Party Committee & Municipal Government; the National People's Congress (NPC)				
	Planning and policy	Planning Bureau; Land Bureau	National Development and Reform Commission (NDRC); Planning Bureau; Land Bureau	Planning Bureau; Land Bureau (Planning of bus station, taxi stand and bus lane)	Planning Bureau (Public parking planning)	Traffic Police (Administrative measures for traffic roads management, such as motor vehicle purchase restriction and traffic control)
				Transportation Commission (Transit operation, route planning)	Traffic Police (Curb parking planning)	Traffic Police (Road traffic rules)
	Investment & financing	NDRC	NDRC	NDRC and Construction Committee		
	Toll pricing	NDRC (Road toll)	NDRC	NDRC	Price Bureau, Traffic Police, Construction Committee and Transportation Commission	
Implementation	Construction supervision & regulation	Construction Committee (Urban road, bridge, tunnel and sidewalk)	Rail transit system construction supervision and regulation (Metro Office)	Construction Committee (Public transport infrastructure construction supervision and regulation)	Public parking construction supervision and regulation (Construction Committee)	
		Garden Bureau; City Management Office (Road greening, maintenance)		Traffic Police (Bus lane and bikeway construction and planning)		
	Informatization	Traffic Police		Transportation Commission		
	Operation supervision & regulation	Construction Committee; City Management Office	Metro Office	Transportation Commission	District Government	Traffic Police (License plate management for motor vehicles, etc.)
	Law enforcement	Traffic Police		Traffic Police (Bus lane supervision & regulation)	Traffic Police; Construction Committee; City Management Office	Traffic Police

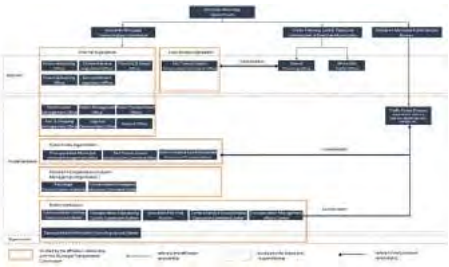
Notes: The highlighted yellow cells show the responsibilities of transportation commission in general cities (incompletely summarized);
1. Urban public transportation mode excluding rail transit;
2. Objectives, strategic planning and decisions for urban macro transportation development, such as White Paper on Transportation Development, and major transportation infrastructure investment & financing.

05/06/2018

The Process of Institutional Reform

Top Down	Bottom Up
▪ Adjustment of Central Government responsibilities e.g. merger of Ministry of Construction and Ministry of Railways into Ministry of Transport	▪ Driven by emergence of pressing transport challenges
▪ Successive Five Year Plans and other directives towards supporting mass transit, public transport priority, urban traffic management and TDM	▪ Diversification of the transport systems, modes and management decisions required
▪ National initiatives to encourage development of electric and alternative fuel manufacturing sector	▪ Local dynamics, politics and circumstances
▪ Initiatives to focus national level reforms at the city and local level	▪ Focused on the horizontal and vertical integration of networks and functions with empowerment of an urban transport commission or equivalent body
▪ Programmatic initiatives from World Bank, IFIs and others to link loans for infrastructure to complementary measures, including institutional reform	▪ Enacted in first tier cities such as Beijing, Shenzhen, Shanghai and some second tier cities such as Chengdu and Chongqing
	▪ No universal reform or single model across China

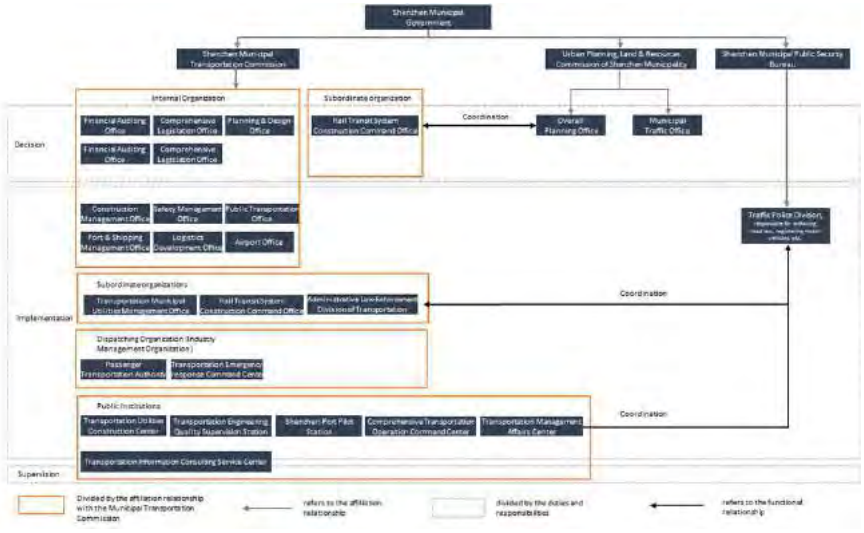
Shenzhen Municipal Transportation Commission



- Since 2001, Shenzhen has formulated an integrated transport management system, including roads, rail transit, public transport, ports and airports
- Policy, planning, design, construction, operation, management are integrated,
- Structure combines decision making and direction under the Shenzhen Municipal Party Committee and Municipal Government, and implementation under Executive Board

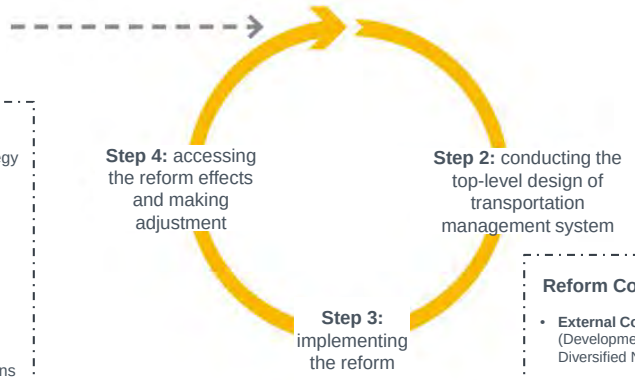
- This structure has integrated decentalised resources originally belonging to the Traffic Department, Traffic Police Department, Planning Department, Construction Bureau and other bodies
- Increasingly, the Committee is also taking on functions of public transport regulation, licensing and monitoring whilst leaving service provision to the concerned operating companies
- Non-strategic local issues decentralised to town and community level
- The Committee has expanded its responsibilities beyond the original Special Economic Zone and increasing focus on Pearl River Delta
- Coordination of data support and analysis is becoming increasingly important for making planning and management decisions

Shenzhen Municipal Transportation Commission



Process of Urban Transport Reform (WRI 2015)

Step 1: formulating a series of measurable and feasible reform objectives



Considerations

- Unified Transport Strategy Aligned with Land Use
- Clarity and Hierarchy of Decision Making
- Appropriate Use of Market Mechanisms
- Separation of Planning, Regulation and Operations
- Alignment of Financial Resources with Functions
- Strengthening of Technical and Professional Capacity

Reform Conditions

- **External Conditions** (Development Stage, Diversified Network)
- **Internal Conditions** (Political Support and Sponsorship)

No "one size fits all" or "Big Transport Committee" solution in all instances – Strengthening of coordination mechanisms between agencies may be just as appropriate depending on local circumstances, benefits vs. costs, ambition or resistance to change and policy decisions.

Some Emerging Conclusions for China

- The importance of effective institutions for transport planning, delivery and management is increasingly recognised at the national and sub-national level
- Institutional roles and responsibilities need to align with strategic goals for city planning, economic development and urban transport networks overall
- Whilst institutional reform does not necessarily lead to a single unified agency for the management of multiple modes and functions, there must be at least inter-agency collaboration to implement solutions in a coordinated way (WRA Toolkit)
- Reformed transport institutions should have the financial and other resources necessary to carry out their role effectively (but realistically), including use of the private sector and ability to set user fees and charges
- Transport planning, regulation and operations should be functionally separated
- Reform should be accompanied by capacity building, skills and management incentives to ensure that institutions are equipped to achieve their objectives
- Initial reforms must be monitored for their impacts and adjustments made as needed to optimise effectiveness, efficiency and accountability

30

Overall Conlcusions

- Developing and implementing transport programmes in the future needs to incorporate thinking and acting across modes and thematic agendas
- The “integration” role to plan, specify, monitor and review multi-modalism is needed (e.g. Ministry of Transport or equivalent) even if modal planning and delivery functions remain institutionally separate
- Multi-modal integration in organisational terms is feasible with
  - Informal agreements
  - Formal partnerships and collaboration
  - Structural merger and integration
- Which approach is likely to be effective depends on a combination of technical, geographical, political and other context-specific factors – there is no one size fits all
- The process of institutional change itself needs careful management
- Alongside structural factors, it is important to consider “soft” aspects for processes, values, attitudes, mindsets and behaviours

The Journey to Integration Begins in Our Minds


CHINA
BEIJING
Jonathan Spear
Director Transport Policy and Planning, Atkins Fellow
E-Mail: jonathan.spear@atkinsacuity.com
atkinsacuity.com
@atkinsacuity
linkedin.com/company/atkinsacuity
ATKINS
Acuity

The National Experience of Multi-Modal Transport Authorities – The Case of Sweden

PIARC TC A1
Seminar
Beijing
26 April 2018

Anna Wildt-Persson
Chief Strategist
Swedish Transport Administration

TRAFIKVERKET




The transport policy goals

The overall transport policy goal is to guarantee a socioeconomically effective transport supply system for citizens and the business community that is sustainable in the long term throughout the whole country

- Transport policy functional goal: **Availability**
- Transport policy consideration goal: **Safety, environment and health**

The Four-stage Principle

1 Rethink

Measures that can influence the need for transportation and choice of transport mode

2 Optimise

Measures that rationalise the use of existing infrastructure and vehicles

3 Rebuild

Limited reconstruction measures

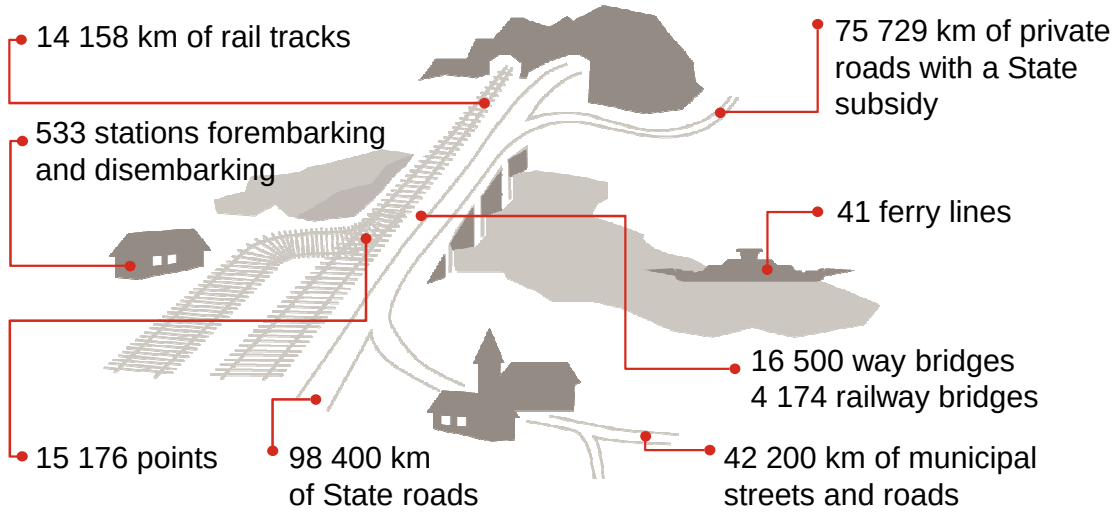
4 Build new

New investments and major reconstruction measures

3

TRAFIKVERKET

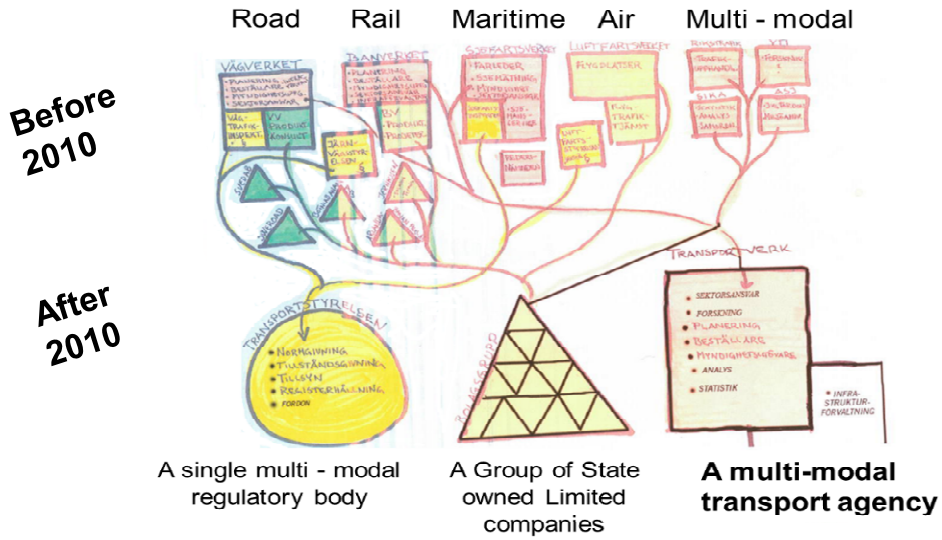
Sweden's roads and railways



4

TRAFIKVERKET

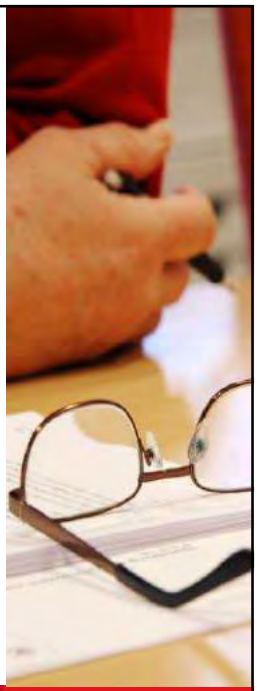
Major organisational changes in the transport sector



TRAFIKVERKET

The Government´s reasoning behind establishing a multi-modal transport agency

- An approach that embraces all means of transportation
- A clearer customer perspective
- Strong regional ties
- A more efficient organisation
- To support innovation and improve productivity in the construction industry



TRAFIKVERKET

The Swedish Transport Administration

The Board

Director-General
Lena Erixon

6 800 employees

Business volume in 2016

54 000 000 000

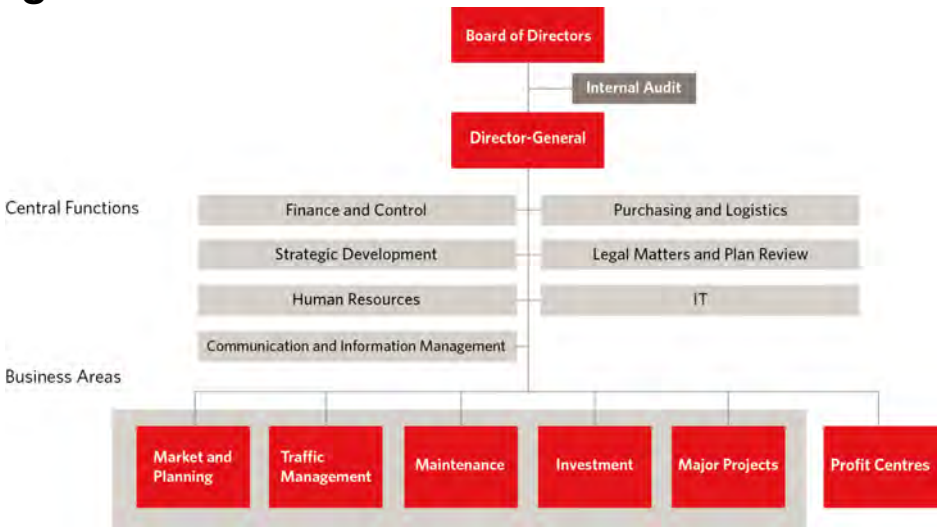
Of which

Investments	SEK 23.5 billion
O&M and traffic control	SEK 19.5 billion
Miscellaneous	SEK 11.0 billion

7

TRAFIKVERKET

General organisation

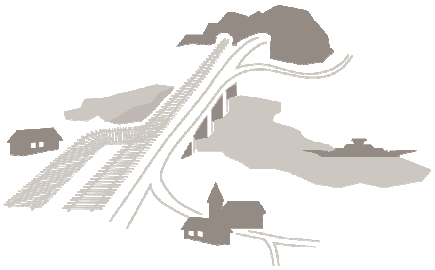


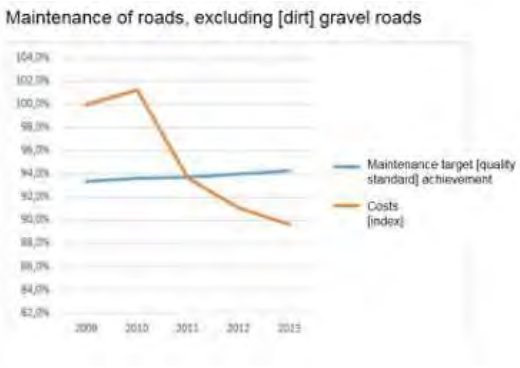
8

TRAFIKVERKET

Some strengths and weaknesses

- Increased possiblity to make full use of the whole transport system through multi-modal planning
- Integrated planning of all transport networks makes co-operation with municipalities and regions easier
- Large-scale foundation for procuring can boost innovation and efficiency
- Large and complex organisation





9

TRAFIKVERKET

Some strengths and weaknesses

- Single costumer handling
- Less administration – less overhead costs
- More attractive employer
- Co-ordinated research and development
- Cross-fertilisation of ideas and working methodologies between experts
- Much focus on rail...

10

TRAFIKVERKET

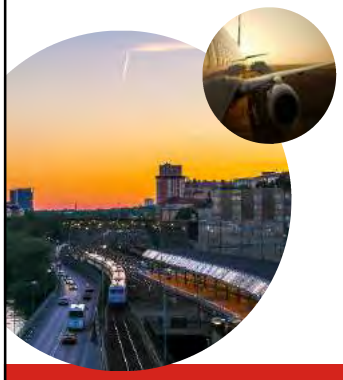
Issues and Challanges during the change process

- High expectations among employees and other actors to solve complex issues
- Cultural differences between different single-mode agencies
- Short time from decision to implementation
- Operational issues to solve for more than 6000 employees

Leassons learned

- Reorganisation requires strong political commitment
- Affirmative attitudes among employees and external stakeholders a great advantage
- Operational issues when merging large agencies
- Different cultures both an asset and a challenge
- Reorganisation not sufficient, new mind-sets needed

In focus right now



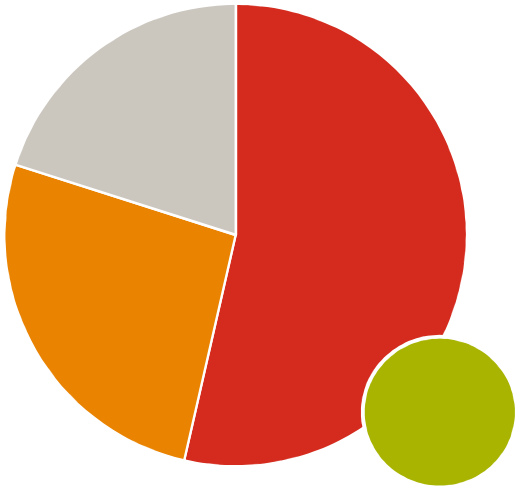
Proposed National Plan for the Swedish Transport System 2018-2029

13

TRAFIKVERKET

SEK 622.5 billion

- Development SEK 333.5 billion
- Operation and maintenance of roads SEK 164 billion
- Operation and maintenance of railways SEK 125 billion
- + SEK 90 billion from congestion taxes, loans, infrastructure fees, rail charges and other forms of co-financing



14

TRAFIKVERKET

Our vision

Everybody arrives smoothly, the green and safe way

15

TRAFIKVERKET

16

TRAFIKVERKET

National Outcomes

- Conversion to the worlds first fossil free welfare state
- Investment to increase residential construction
- Improve commercial conditions
- Be prepared and utilise digitization
- Strengthen employment
- An inclusive society

SWEDEN

National Outcomes

Better public services

- Reducing welfare dependency
- Supporting vulnerable children
- Boosting skills and employment
- Improving interaction with Government
- Reducing crime

New Zealand Government

Agency Outcomes

highways england
driving forward

- Supporting economic growth
- A safe and serviceable network
- More free-flowing network
- Improving the environment
- Accessible and integrated network

- Boosting economic growth
- Building a One Nation Britain
- Improving journeys
- Safe, secure and sustainable transport

5 | 26 April 2018 | International Seminar

Agency Themes

Vejdirektoratet
Danish Road Directorate

Better roads for your money
… because society needs to get maximum benefit from transport funding in Denmark

Safe and easy journey
… because mobility contributes to growth and welfare

Joint solutions
… because open dialogue and cooperation are the precondition for innovation and application

DRD United
… because the Danish Road Directorate is acting as one – working for road users, collaborators and the society

6 | 26 April 2018 | International Seminar

Customer and network outcomes

future transport 2056

NSW GOVERNMENT | Transport for NSW

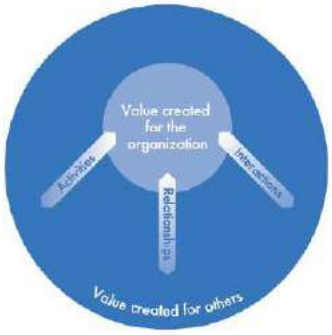
Looking for common areas

- Often no connection between societal outcomes and transport outcomes
- No consistent approach to expectations
- But there are some common elements:
  - Supporting growth
  - Customer focus
  - Sustainable
  - Safe

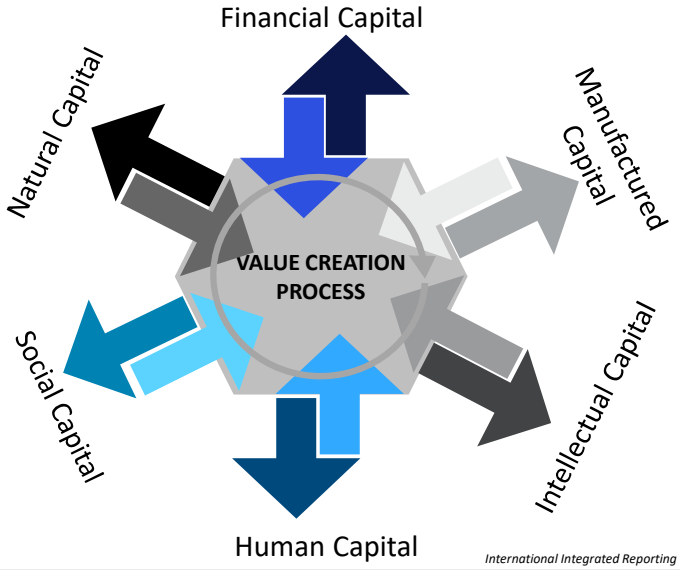
Value creation

Value is not created by an organisation alone.

- It is influenced by the external environment
- Created through relationships with stakeholders
- Dependent on various resources



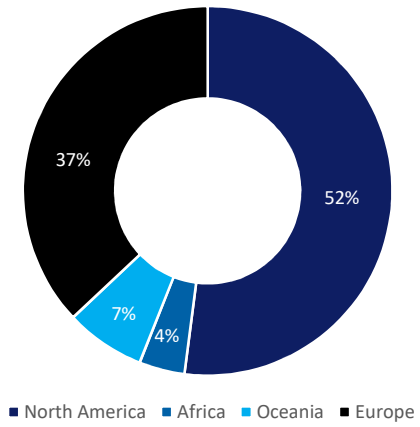
Integrated reporting



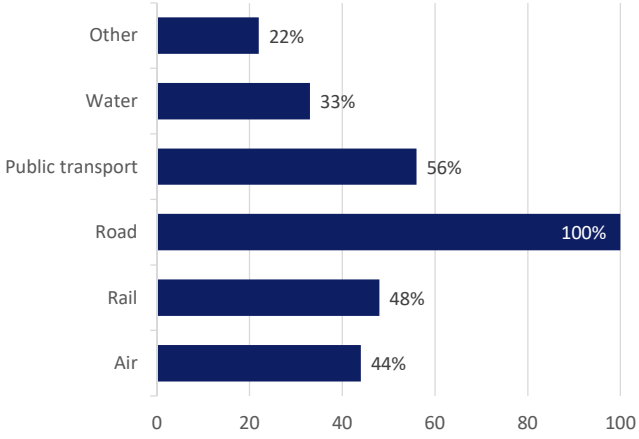
International Integrated Reporting Council - Integrated Reporting Framework <IR>

International survey

International Region



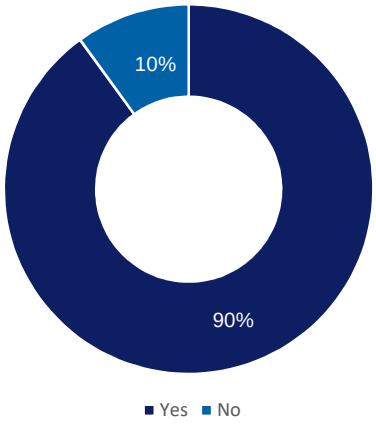
Mode



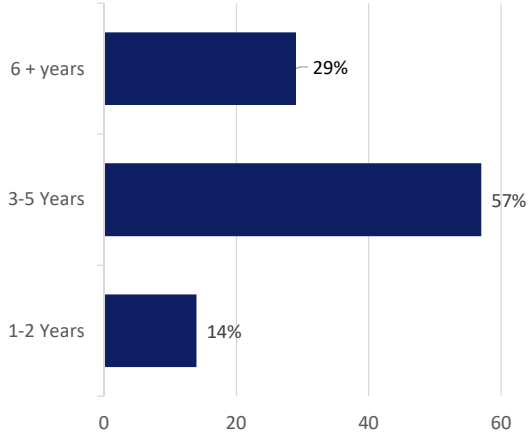
13 | 26 April 2018 | International Seminar

International survey

Have a Strategic Plan



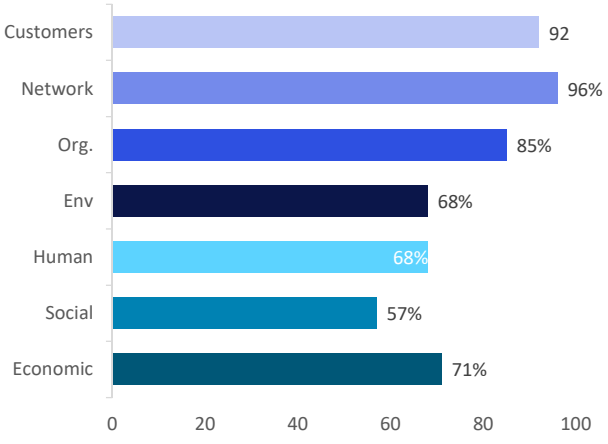
Life of the plan



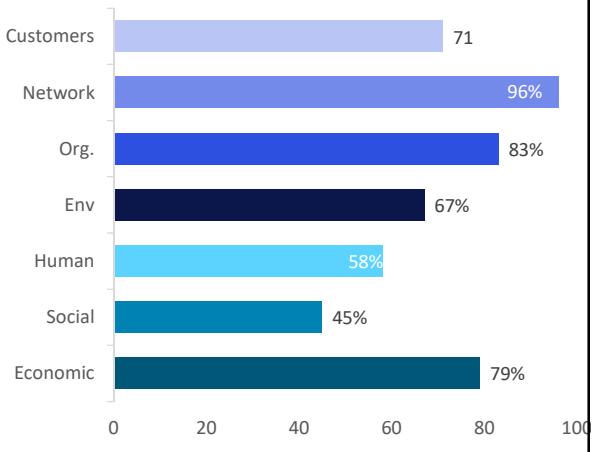
14 | 26 April 2018 | International Seminar

International survey

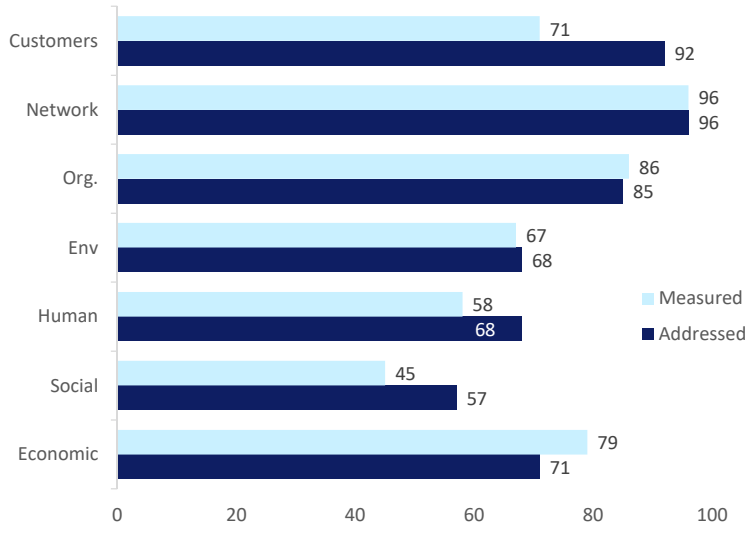
Plan addresses



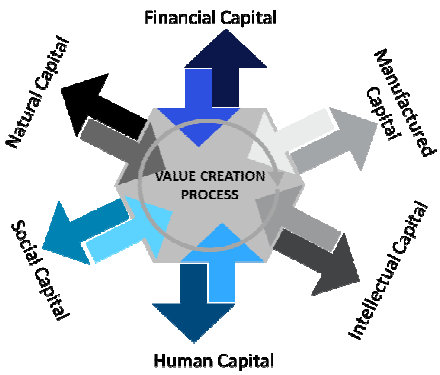
Plan measures



Addressed vs Measured

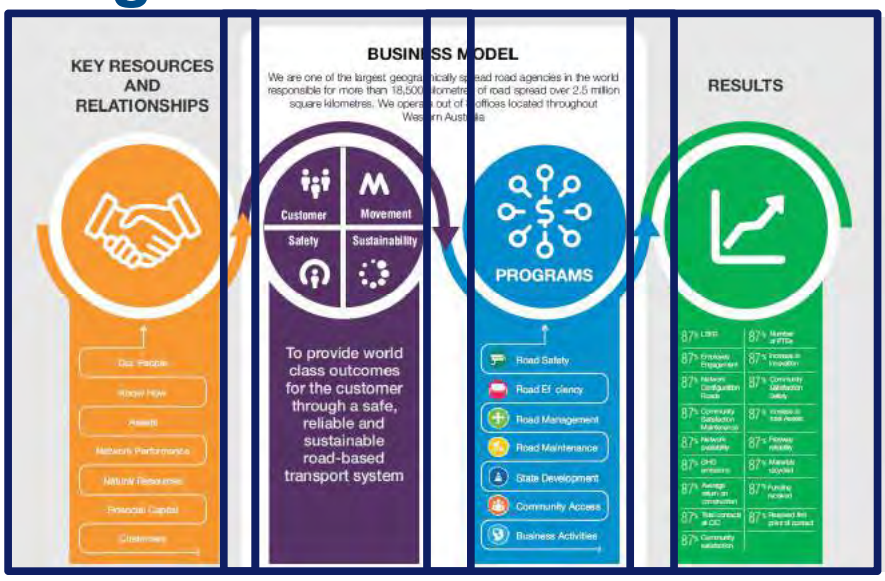


Alignment to Transport



IIRC <IR> Capital	Transport Key Resources
Human	People
Intellectual	Know how
Manufactured	Assets Network performance
Natural	Natural resources
Financial	Financial
Social	Customers

Creating value



Results focused

Benefits of this approach

- Longer term view of the business
- Business and customers understand
  - Relationship between financial and non financial in achieving performance
  - Impact of decisions on future direction
  - What they rely on to succeed
  - Where and how value is created
  - Fulfilling customer needs


WORLD ROAD ASSOCIATION
MONDIALE DE LA ROUTE
CHINA BEIJING
mainroads
WESTERN AUSTRALIA
Thank you

Institutional Integrity and Implications for China

Alexander Walcher, Managing Director of ASFINAG BMG
Michel Demarre, Director General of SEFI-FNTP

Beijing, China 2018

ASFINAG

Agenda

- Some key definitions
- WRA/PIARC´s work on integrity
- The cycle of integrity
- Toolkit of integrity
- International developments after WRA/PIARC's work
- Implications for China
- Conclusions

Breaking News, Latest Stories, Headlines…

Some key definitions

Corruption
The misuse of entrusted power for private or corporate gain

Transparency
Clarity on the basic facts but also the mechanisms and processes leading to a decision

Integrity
Consistency between one's actions and one's principles and methods

Causes in the Infrastructure Sector

Project	• Contractual Structure • Uniqueness • Diversity of Skills • Lack of Transparency • Project Phases • Physical Concealment
National	• Insufficient Reporting & Prosecution • Lack of Government Policy Against Corruption • Lack of Data on Comparative Costs
International	• Lack of Inter-Governmental Co-operation • Lack of Pro-Active Steps by Funders • Lack of Action by Local & International Actors

WRA/PIARC´s work on integrity

Questionnaire Survey – Key Aspects

- Reasons for corruption
- Legal requirements in place
- Management procedures
- Prevention of corruption
- Enforcement of corruption
- Whistleblower protection
- Future developments

Based on Technical Committee B.1 (Good Governance in Road Administrations) Working Group 1 (Integrity) 2008 – 2011

Conclusions on survey

Recognition and increasing importance of institutional integrity and tackling corruption activities

Already **high level of awareness** within organisations

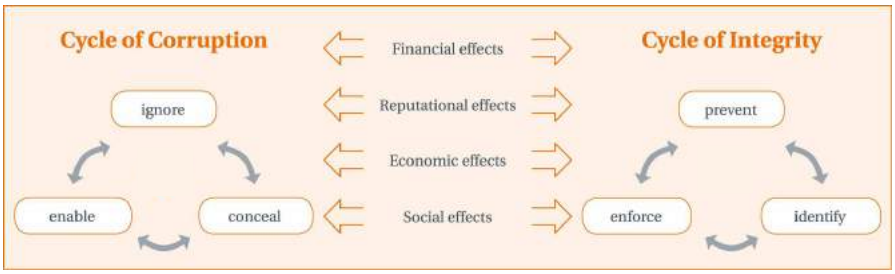
Lower likelihood of occurrence and increased chance of detection through:

- improved working environment (satisfaction of employees)
- developed staff management, management systems, internal control / audit systems
- various internal codes of practice and guidance to employees

Measures at various stages of implementation in practice – more to be done:

- further reduction and prevention of corrupt activities in the long term
- coherent anti corruption measures are shown to be more efficient

Cycle of integrity



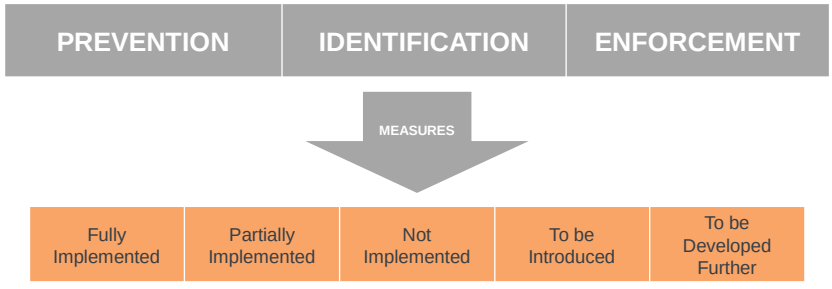
Toolkit of integrity

	Subject Areas	Measures	Description of Measures	Fully Implemented	Partially Implemented	Not Implemented	To be introduced	To be developed further
PART A - MEASURES for the PREVENTION of CORRUPTION								
1	**Development of business ethics and anti-corruption strategy - awareness-raising and educational measures**							
	Theory: In many cases there is a lack of awareness about the definition, nature and consequences of corrupt behaviour ("trivial offence"). Awareness-raising measures therefore need to be provided as a priority for all employees and if possible for all contractors.							
		Ethics guidelines	Ethics guidelines with summary of the organisation's mandatory (and legal) policies and practices in the areas of business ethics and anti-corruption applicable to all departments and all employees Clear definition of what constitutes corruption and rules of conduct in the context of encountering perceived or actual corrupt behaviour Basic understanding of the organisation's ethics philosophy Sources of further advice, information and support	✓				
		Ethics workshops and other dissemination events	Regular completion of ethics workshops and other dissemination events for the training of employees and for the internal discussion of current issues, overview of the current regulatory framework and consequences (e.g. accepting gifts, damage to the organisation, damage to other market participants)		✓			✓

- Can be used as a checklist
- Organisation specific priorities
- Development and implementation plans
- Balanced relationship between prevention, identification and enforcement measures

Toolkit of integrity

Three-step-checklist for measures against corruption



- Overview of possible and effective measures
- Classified in sections of related measures
- Self-check: Necessity of introduction & development

Toolkit of integrity

PREVENTION	IDENTIFICATION	ENFORCEMENT
• Busines ethics and awareness raising • Organisational measures • Management systems • Procurement process • Order processing • Corporate culture and identification with the organisation • Employee statisfaction	• Management control and monitoring systems • Internal and external audit • Reporting systems	• Clear guidelines which are widely communicated • Assignment of responsibility • Consistent implementation of measures • Disciplinary actions

International developments after WRA/PIARC's work

- Alex mentioned a lack of inter-governmental cooperation, in spite of existing international rules :
  - OECD Anti-bribery Convention (1997)
  - United Nations Convention against Corruption (2005)
- However, transparency and fight against corruption have been high on the agenda of many organizations since 2011 :
  - G20
  - OECD
  - Multilateral Development Banks (e.g. World Bank)
  - Individual countries (e.g. France)
- New standards/laws/regulations aimed at both private&public sector

International developments after WRA/PIARC's work

- TC A.1 : Performance of Transport Administrations
  - Working Group A.1.3 : Good governance and anti-corruption and response measures
  - WG A.1.3 terms of reference :
    - ✓ *Outputs : …… Link to external organizations that have looked at the issues*

G 20 (1)

- Composed of the richest countries
  - South Africa
  - Canada, Mexico, United States of America
  - Argentina, Brazil
  - China, Japan, South Korea, India, Indonesia, Saudi Arabia, Turkey
  - EU, France, Germany, Italy, United Kingdom, Russia
  - Australia
- Meets each year in a different country
  - … 2016 China – 2017 Germany – 2018 Argentina
- Initially set up to tackle the financial crisis, progressively extended to other topics, including transparency and fight against corruption

G 20 (2)

- Final communiqué of G20 Germany
  - High Level Principles on the Liability of Legal Persons for Corruption
    https://www.g20germany.de/Content/DE/_Anlagen/G7_G20/2017-g20-acwg-liberty-legal-persons-en.pdf?__blob=publicationFile&v=7
  - High Level Principles on Organizing against Corruption
    https://www.g20germany.de/Content/DE/_Anlagen/G7_G20/2017-g20-acwg-anti-corruption.pdf?__blob=publicationFile&v=7
  - High Level Principles on Countering Corruption in Customs
    https://www.g20germany.de/Content/DE/_Anlagen/G7_G20/2017-g20-corruption-in-customs-en.pdf?__blob=publicationFile&v=4
  - High Level Principles on Combatting Corruption related to Illegal Trade in Wildlife and Wildlife Products
    https://www.g20germany.de/Content/DE/_Anlagen/G7_G20/2017-g20-acwg-wildlife-en.pdf?__blob=publicationFile&v=5

OECD

- OECD is a kind of « Executing Agency » for G 20
- Increasing number of countries apply for OECD membership (e.g. Argentina, Brazil, Bulgaria, Croatia, Peru, and Romania)
- Even though China and other G 20 countries are not OECD members, they are often observers
- Abundant work on transparency and anti-corruption issues
- Plus : a number of OECD countries are toughening their anti-corruption legislation (e.g. France, so-called « loi Sapin II », with the creation of AFA : Anti-corruption French Agency)

ASFINAG

Multilateral Development Banks (MDBs)

- Fight against fraud and corruption high on their agenda
- Cross-debarment between MDBs
- Roads sector of specific concern: see World Bank's paper « Curbing Fraud, Corruption and Collusion in the Roads Sector » (published in 2011);
  http://siteresources.worldbank.org/INTDOII/Resources/Roads_Paper_Final.pdf
- Increasing number of sanctions by World Bank, African Development Bank, etc.
- « Siemens Integrity Initiative » promotes projects around the world that seek to combat corruption and fraud, supporting educational and training programs as well as Collective Action; the World Bank has audit rights over the use of these funds (US$100 million over 15 years, beginning in 2009).

ASFINAG

New International Standards

- ISO 37001 : « Anti-bribery management systems » (published in October 2016)
- More systematic, risk-based approach to anti-bribery, but the rationale is quite similar to the concepts developed by WRA/PIARC in TC B1
- Applicable to all types of organizations : public, private and not-for-profit, which should all develop risk assessment and related due diligence

ASFINAG

Implications for China

- China is deeply involved in the fight against corruption at international level
- At UN level : e.g. ongoing work on « Zero Tolerance Approach to Corruption in PPP procurement » (Public-Private Partnerships)
- China is a member of G 20
- China was a member of the ISO 37001 Committee, and wants to be more and more involved in ISO/TC 309 « Governance of organizations »

ASFINAG

Conclusions

- We have witnessed a huge progress since 2011, with more and more countries and international organizations not only agreeing to fight against corruption, but also putting new tools in place
- WRA/PIARC is highly commendable for putting this topic in their strategic agenda as early as 2008
- Congratulations to the forerunners of Technical Committee B1!

Exchange knowledges and techniques on roads and road transportation

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

WORLD ROAD ASSOCIATION

www.piarc.org

Disrupting the Transport Sector through Technology and Innovation

Beijing, 26th April, 2018

dr. ir. Anne-Séverine Poupeleer

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE AIPCR PIARC

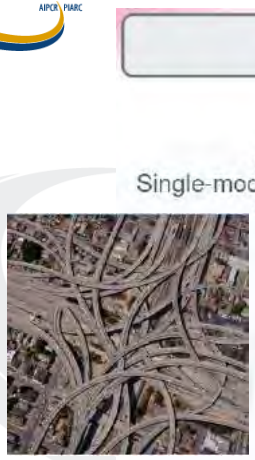
Content

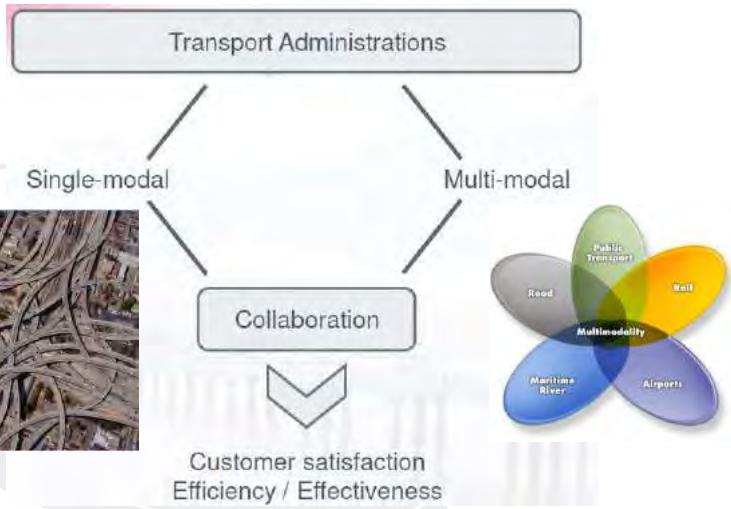
- **Changes**
- **Fast changing world**
- **Open for new ideas**
- **Evolution in transport sector**
- **Projects**
  - Mobil 2040, city of Brussels
  - Ring R0 around Brussels
  - De Lijn – public bus transport in Flanders
- **Conclusions**

1. Changes

link with TC A.1 'Evaluation of the transformation of road administration'

1. Changes

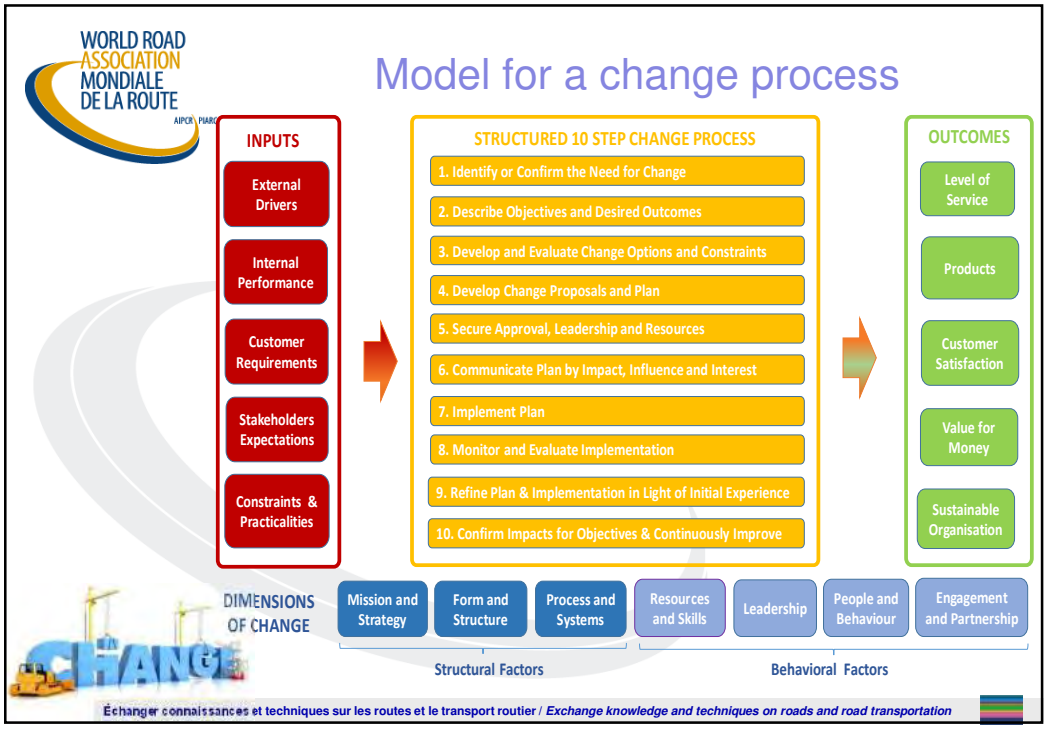




COMMUNICATION is important!

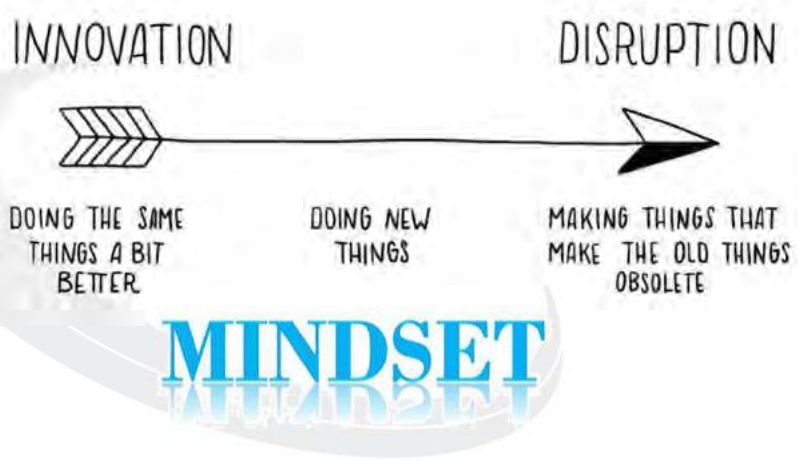
Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*


WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
…the journey starts in our own minds…
Changes are never easy!
Échanger connaissances et techniques sur les routes et le transport routier / Exchange knowledge and techniques on roads and road transportation


WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
Model for a change process
INPUTS
External Drivers
Internal Performance
Customer Requirements
Stakeholders Expectations
Constraints & Practicalities
STRUCTURED 10 STEP CHANGE PROCESS
1. Identify or Confirm the Need for Change
2. Describe Objectives and Desired Outcomes
3. Develop and Evaluate Change Options and Constraints
4. Develop Change Proposals and Plan
5. Secure Approval, Leadership and Resources
6. Communicate Plan by Impact, Influence and Interest
7. Implement Plan
8. Monitor and Evaluate Implementation
9. Refine Plan & Implementation in Light of Initial Experience
10. Confirm Impacts for Objectives & Continuously Improve
OUTCOMES
Level of Service
Products
Customer Satisfaction
Value for Money
Sustainable Organisation
DIMENSIONS OF CHANGE
Mission and Strategy
Form and Structure
Process and Systems
Resources and Skills
Leadership
People and Behaviour
Engagement and Partnership
Structural Factors
Behavioral Factors
Échanger connaissances et techniques sur les routes et le transport routier / Exchange knowledge and techniques on roads and road transportation

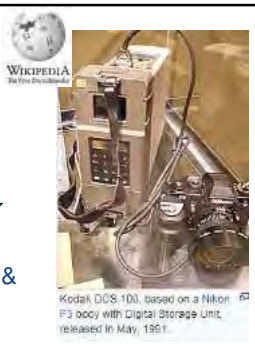
2. Fast changing world

2. Fast changing world



Digital technology

First digital camera in 1975 by Kodak engineer Steven Sasson



Bron: MIT Sloan Management Review

Replacing old technology & impact on organisational-model and eco-system of Kodak – ***Willy Shih***

Sometimes the world is changing so fast, that we do not (want to) see it!

Growing is jumping into the unknown like a child

WORLD ROAD ASSOCIATION

Quick changing world

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

Image source:

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

3. Open for new ideas

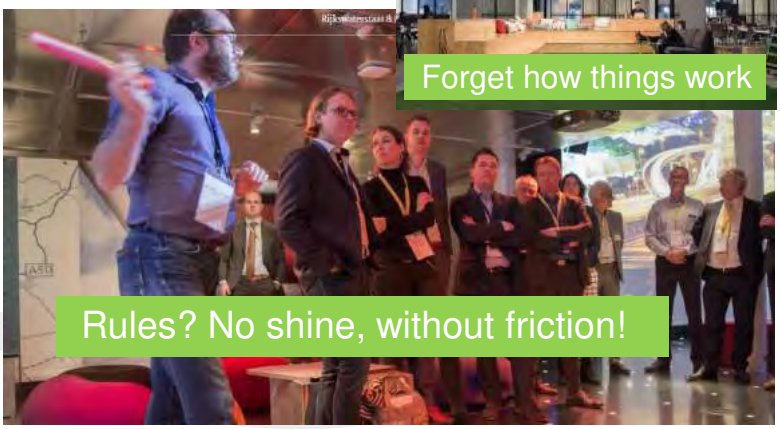
WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

3. Open for new ideas

Think out of the box

Forget how things work

Innovation labs



Rules? No shine, without friction!

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

3. Open for new ideas

KNOWLEDGE CELLS

e.x. Minister of mobility and transport works of Flanders

What? Strategic 'think tanks' ➔ long terms plans

Who? Different experts from several agencies of different modes; workshops

Boundaries? No rules

How? Thinking out of the box, innovation labs, …inspiring speakers, ask many questions,…

Basis? Information, study, analysis,

=> Pilot project

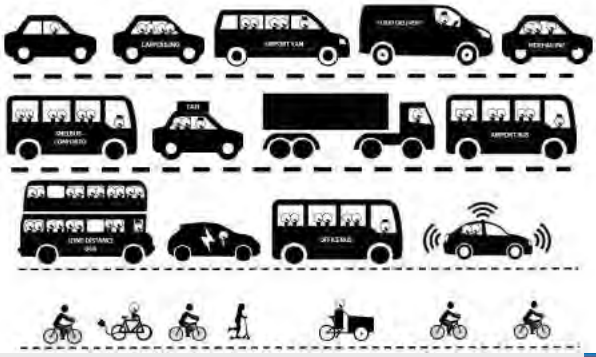
4. Evolution in transport sector

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

4. Evolution

A highway in 2000...

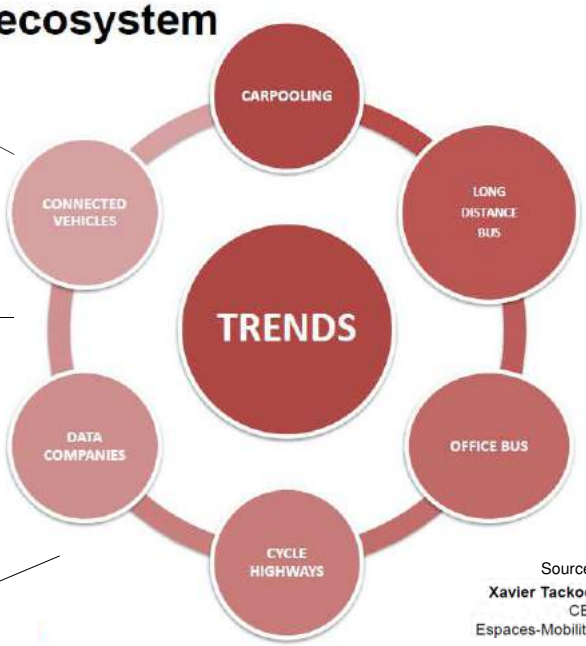
A highway in 2020...



WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

AIPCR PIARC

A new ecosystem



waze

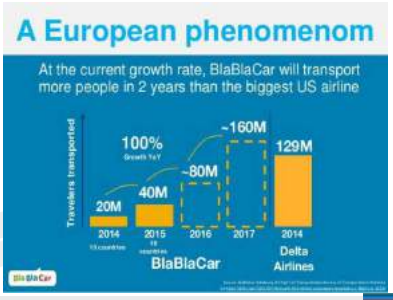
TOMTOM

COYOTE

Source:
Xavier Tackoen
CEO
Espaces-Mobilités

Carpooling ➔ Sharing!

BlaBlaCar is an online marketplace for carpooling. Its website and mobileapps connect drivers and passengers willing to travel together between cities and share the cost of the journey.
The service is available in 21 countries
(Spain, Portugal, France, Italy, Belgium, Luxembourg, Holland, Poland, UK, Russia, Ukraine, Germany, India, Turkey, Hungary, Croatia, Serbia, Romania, Slovakia, Mexico, and Brasil,…)

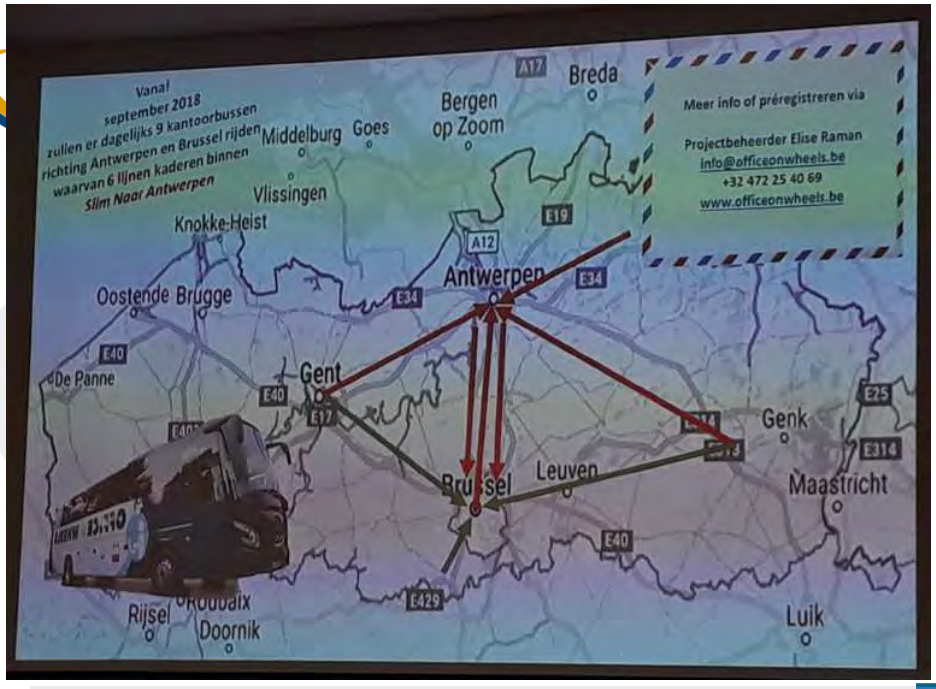


Long distance buses

Long distance buses

Office buses

Office buses



Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

Cycle highways

Cycle highways

- Climate Change / Environmental Sustainability
- Technological advances
- Multimodality

5. Projects

5. Projects

[a] Brussels – MoBil 2040

Prospective study commissioned by Brussels Mobility and done by the Technum consultancy and Espaces-Mobilités.

Mobil2040 proposes new transportation options

For example the urban cable car.
Transportation by cables is less expensive, easily constructed, and rather practical when you think about all the existing obstacles like waterways, highways, railway tracks…

Source: VO citizens

Avenue Louise

Discover today's Avenue Louise and Mobil2040's version in several years. The people are taking over the streets

Source: brussels-of-the-future-mobil2040

The Bourse

The project highlights the pedestrian area around the Bourse and is not unfathomable. Bikes, trams, and metro fill the urban space, creating a completely re-imagined city center.

Source: brussels-of-the-future-mobil2040

Etterbeek Train Station

Yes, you are correct – what you see below is the intersection of the Avenue de la Couronne and Boulevard Général Jacques. Less lanes for automobile traffic, more space for green transportation.

[b] Brussels – ring R0

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

[b] Brussels – ring R0

Preference for environmentally friendly modes of transport!

40 km cycling paths
20 km parallel roads
10km tram lanes
Eco connections

Customers needs?

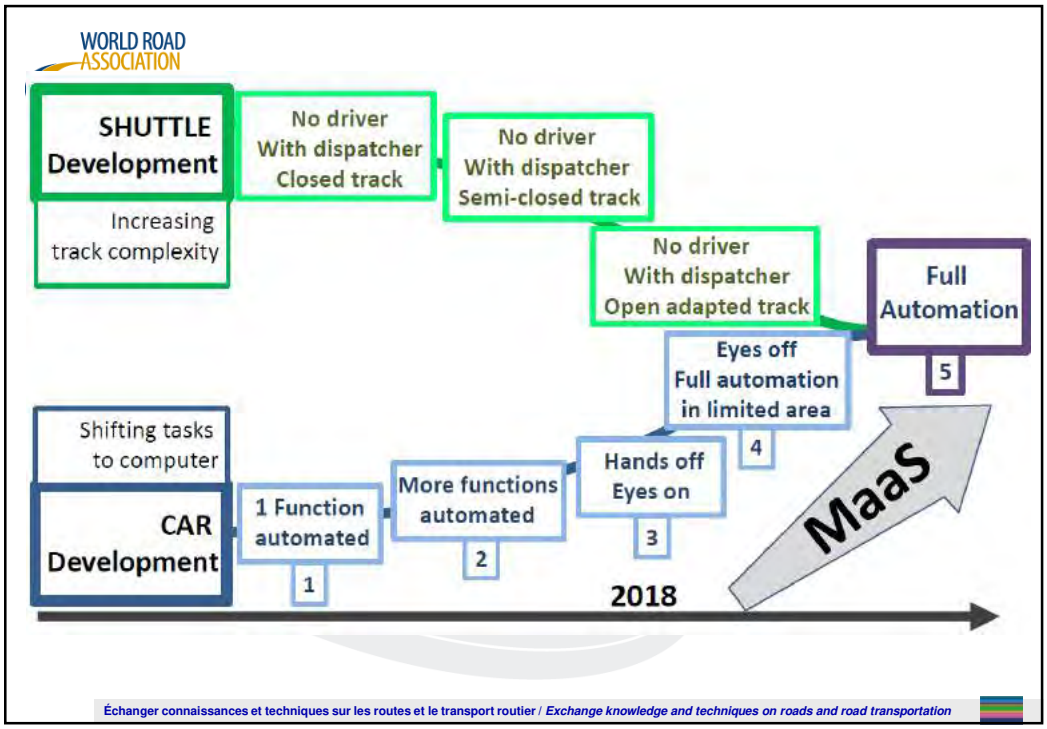
[c] Self-propelled buses in 2020

De Lijn a public transport company in Belgium is working together with Brussels Airport on a pilot project with self-propelled electric buses

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

Advantage for the government:
- Increased safety
- Better use of open space
- Better use of avalable time
- Use of new technology

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*


WORLD ROAD ASSOCIATION
SHUTTLE Development
Increasing track complexity
No driver With dispatcher Closed track
No driver With dispatcher Semi-closed track
No driver With dispatcher Open adapted track
Full Automation
5
Eyes off Full automation in limited area
4
Hands off Eyes on
3
More functions automated
2
1 Function automated
1
Shifting tasks to computer
CAR Development
2018
MaaS
Échanger connaissances et techniques sur les routes et le transport routier / Exchange knowledge and techniques on roads and road transportation


WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC
Evaluation and end pilot project
Safety Case function
…if nececsery
certificate
pieces of evidence
Safety case
Test report
conclusion
no
yes
Test fast, fail fast, adjust fast.
Échanger connaissances et techniques sur les routes et le transport routier / Exchange knowledge and techniques on roads and road transportation

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

6. Conclusions

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

From … Road as an Infrastructure

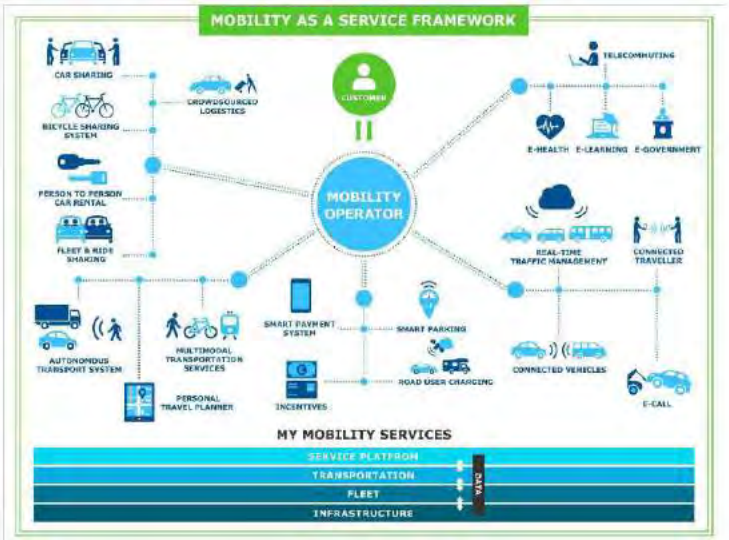
Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

to… Road as a Service (RaaS)

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

Mobility as a Service (MaaS)

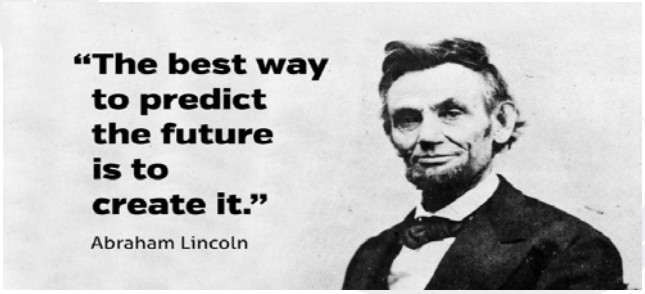


Roads (“tunnels”)….in the air?

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

Go for the changes!



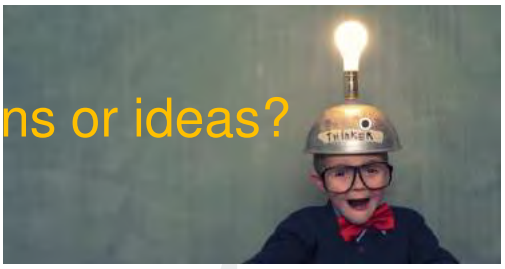
"If you let go, you have two hands free!"

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
AIPCR PIARC

Thank you for your attention!

Questions or ideas?



Beijing China, April 26, 2018

ITS for Safety and Sustainability
应用智能交通技術提升安全和可持续发展

S.K. Jason Chang
张学孔　台湾大学 教授
Professor, National Taiwan University
Vice President, ITS Taiwan
skchang@ntu.edu.tw

臺大先進公共運輸研究中心
Advanced Public Transprotation Research Center

Agenda報告大綱

- Background背景
- ITS Development in Taiwan台灣智慧交通發展
- Future Mobility and ITS^{2+1}未來行動力
- Concluding Remarks 結論

Source: Google (2015)

Source: Chang (2016)

ITS in Taiwan & Taipei台北智慧交通

- Taipei: 3,000 sq km, Pop 7 m
  - Car- 2.5 m, Motorcycle-3.2 m
  - MRT 136 km + BRT 60 km
  - Bike Sharing: 33,800 bikes w/ 820 stns

Taiwan: 36,000 sq km, Pop 23 m

Car- 7.2 m, Motorcycle- 13.8 m

- Mobile phone penetration rate: 113.2% (SP: 80.2%)
- 100% e-Bus; 94% e-tag car; 92% e-payment; 75% e-Taxi
- 18/22 Cities with Traffic Control Center

Freeway: 1,000 Km, ETC- All MLFF Distance-based Charge and Smart Control Centers

- High Speed Rail: b/w Taipei and Kaohsiung (345km) 90 min

MaaS Infrastructure Based on ETC/e-Tag

多元整合出行服務之基礎建設

Smart Taiwan智慧城市

2015 ICF Smart 21 Taoyuan County

2015 ICF Smart 21 Changhua County

2015 ICF Smart 21 Taitung County

2016 ICF TOP 7 New Taipei City

2016 ICF TOP 7 Hsinchu County

2016 ICF Smart 21 Taoyuan City

2016 ICF Smart 21 Kaohsiung City

2016 ICF Smart 21 Taitung County

2017 Top 21
Keelung, Yilan, Taoyuan, Chiayi and Tainan

National Plan
Digi +
Intelligent Community

2006 ICF TOP 1 Taipei City

2009 ICF Smart 21 Taoyuan County

2010 ICF Smart 21 Taoyuan County

2011 ICF Smart 21 Taoyuan County

2012 ICF TOP 7 Taichung City

2012 ICF Smart 21 New Taipei City

2013 ICF TOP 1 Taichung City

2013 ICF TOP 7 Taoyuan County

2013 ICF Smart 21 Hsinchu City

2014 ICF TOP 7 New Taipei City

2014 ICF TOP 7 Hsinchu City

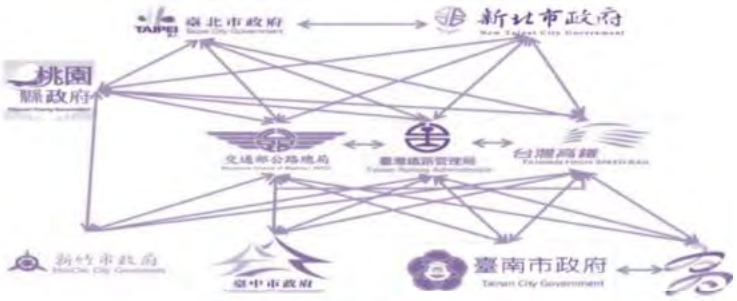
2014 ICF Smart 21 Taoyuan County

source:
Intelligent Community Forum (ICF)

Information Sharing and Service Platform of Public Transport Systems
公共交通信息分享平台

ptx.transportdata.tw

Past N-N



MaaS

Now N-1-N

Smart City Award
MOTC
iisi
Big Data Innovation
APTRC, NTU

7

ptx for Value-added Services加值服務

Google, DOITWELL, Trafi, BusComing....

Official WebSite

Data exchange tuition

Swagger API service

Model Documents

BIG Transport Data Sharing for Innovative Services大數據和創新服務

Strategic Goals策略目標:

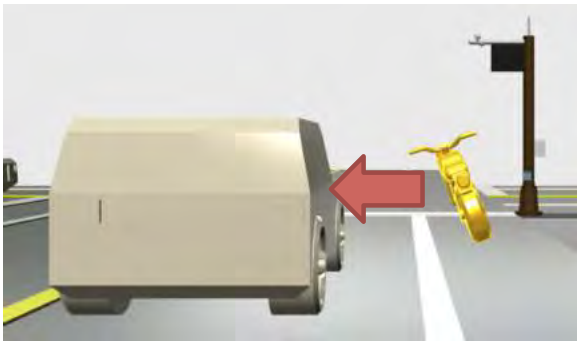
- Service Quality for Passengers 服務品質
- Productivity of Operators (efficiency and cost) 運營效率
- Decision Making決策品質
- Research & Innovation研究創新
- Economy Benefits經濟效益

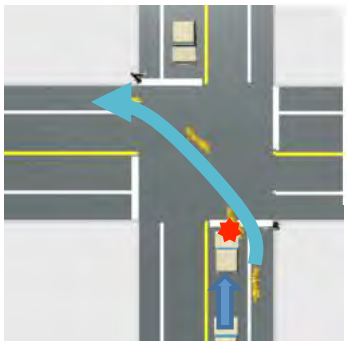
Two-Wheeler Safety兩輪安全專項

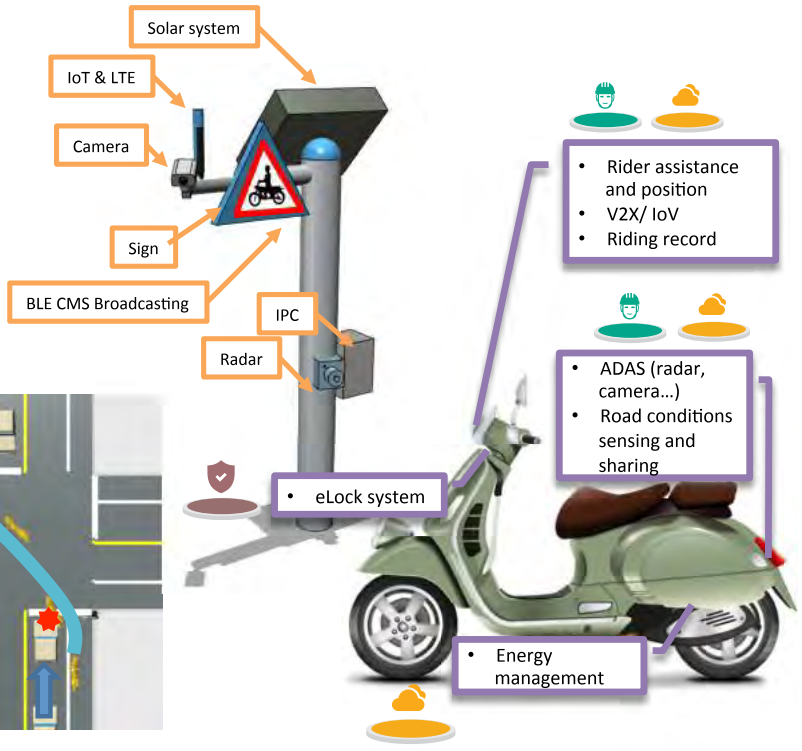
On Motorcycle
- Use sensor and active RFID to broadcast the position

On Car
- Receive the advise from roadside smart pillar
- Predict the motorcycle behavior (Intelligent ADAS)

Roadside Smart Pillar
- Sensor fusion technology to detect motorcycle behavior (not only detect the object)
- Use Edge computing to estimate the dangerous case
- Report traffic condition for traffic management







ITS Plan 2017-2020四年發展方案

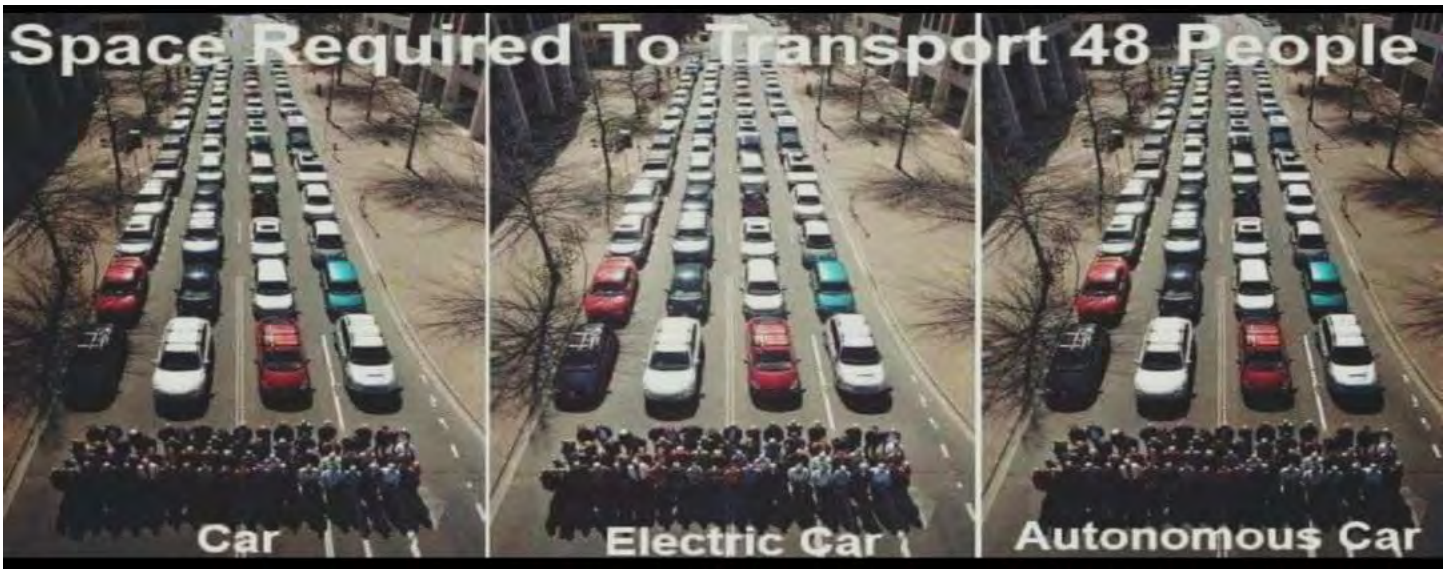
IT5S- Safe, Smooth, Seamless, Sharing, Sustainable

- US$100 Million New Fund for ITS Development 2017-20
  - Smart Road Safety Program
  - Smart Corridor Management Program
  - Rural Area ITS Applications
  - Mobility as a Service (Two Demonstrations)
  - Connected Vehicles and Automated Vehicles
  - R&D

KPI: Traffic accident: -20%; Congestion: -25%; Public Transport: +20%; Accessibility in Rural Areas: +25%; Industry Output: + $10bi

Institute of ACE Vehicles 成立ACE研究中心

Impacts of Autonomous Vehicles

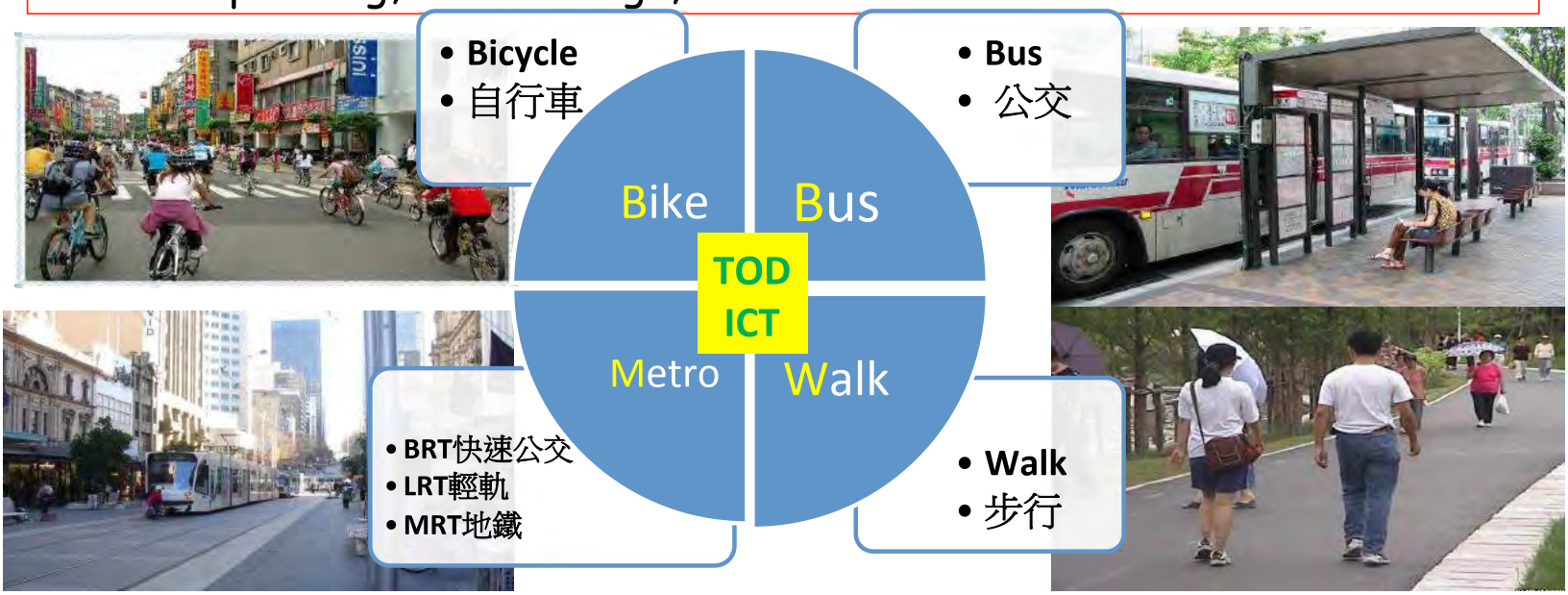


How about Shared Autonomous Electric Vehicles?

BBMW w/ TOD+ICT for Livable Taipei

台北綠色出行與宜居城市

- Integration of Bike, Bus, Metro, Walk and Sharing through land use, urban planning, urban design, and ICT



Public Transport + Active Mobility + Sharing

公共交通 + 慢行交通 + 共享交通

Taipei Policy: Safe, Green, Share, Smart
台北交通政策：安全、綠色、共享、智慧

Smart Sharing Systems of Bike, Scooter and Car 智慧共享系統

U-Motor

gogoro

YouBike

U-Car

- Priority : Poor MRT coverage area and parking supply shortage districts
- Electric motorcycles
- gogoro and WeMo

source: Zipcar

source: car2go

- Coordinate with car purchasing limitation and public housing
- Rental stations at public housing and public parking lots
- Electric vehicles/ Personal Mobility Devices

ATIS, ATMS, APTS and Smart Parking

智慧交通應用: 台北好行

Multi-Smartcard Integration

Island-wide tour just one card in hands

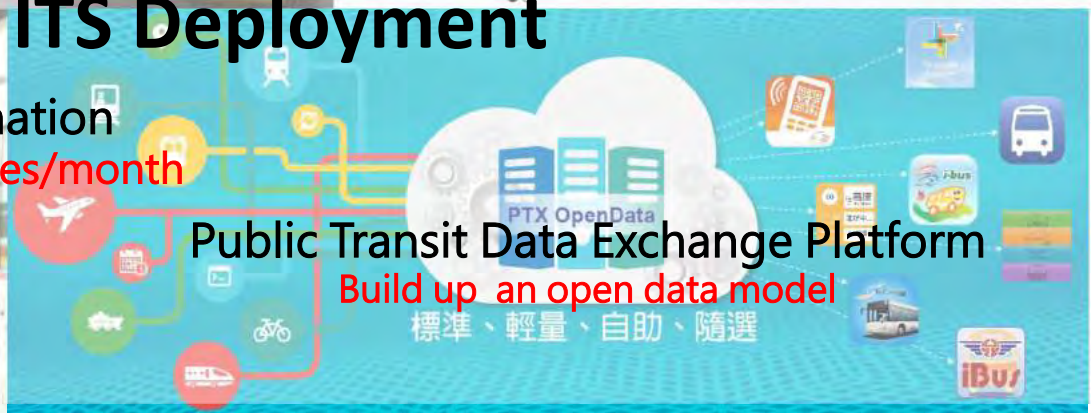
Travel Information Services

Form a mobile phone APP upsurge

ITS Deployment

Bus Real-time Information

More than 30 million queries/month for Taipei City



Public Transit Data Exchange Platform

Build up an open data model

標準、輕量、自助、隨選

Smart Terminal智慧場站

- PPP TOD Project
- Headquarters, Shopping Mall, Department Store, Hotel…
- Multimodality: Metro, Freeway Bus, City Bus, Taxi, Car Parking…
- ICT Applications for Passengers and Visitors

Open Test Zones for Trials自駕車輛測試場域

Autonomous Vehicles

Real Challenges!
真正挑戰

Push & Pull Policy推拉政策

Clear Policy and Management:

- TDM
- No Free Parking
- ATIS, ATMS
- Behavior Change
- e-Enforcement

Before

After

23

Role of ITS on Future Mobility
智能交通技術角色：
提升交通安全、促進可持续发展

Intelligent Transport for Safety

Intelligent Transport for Sustainability

Integrated Transport Solution

ITS^{2+1}

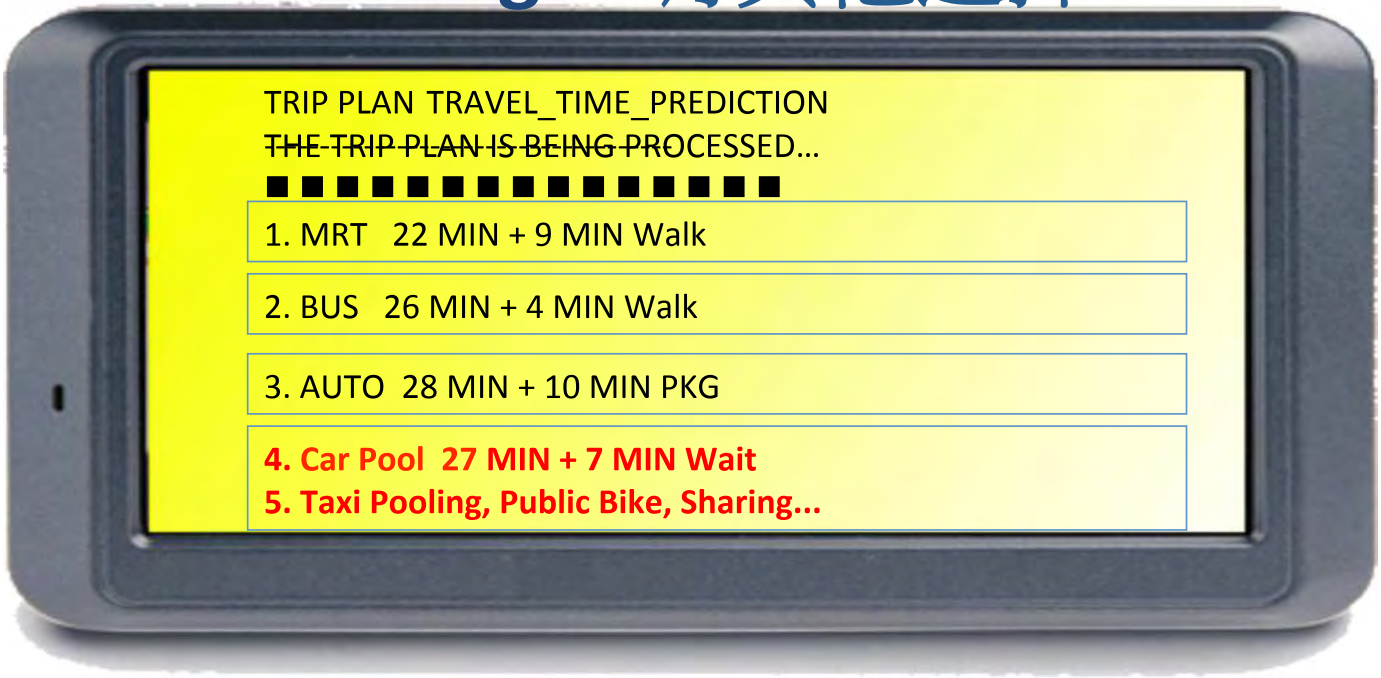
25

Case Study for Smart Mobility智慧出行案例

The Shortest Path based on Historical or Real Time Information最佳路徑

27

We have other smart choices with ITS technologies有其他選擇



28

OR, you may select a taxi (or sharing)

Web Taxi or Cloud Taxi……出租車、網約車

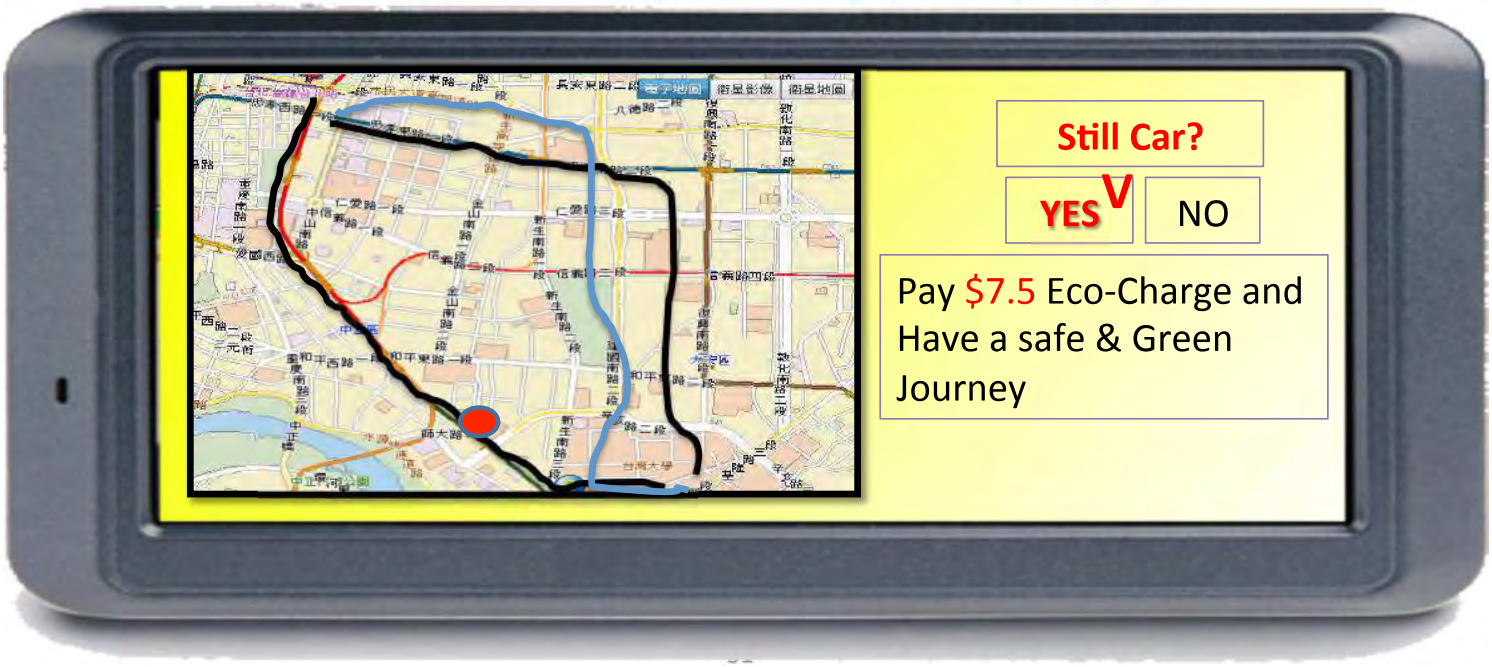
29

NO, I would like to have my car!

若仍選擇開車… 能源、環境、安全風險

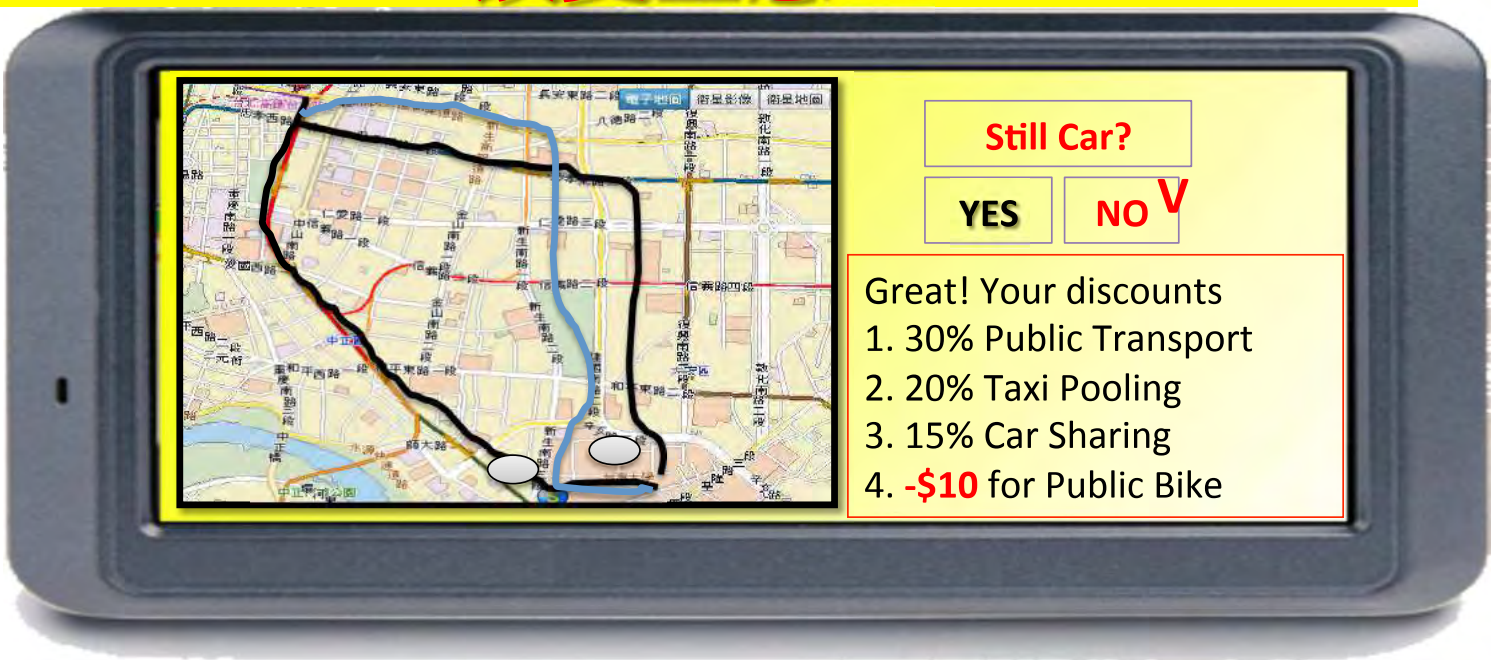
Have a Safe and Green Journey

安全綠色出行… 付出代價



OR, I have changed my mind…

改變主意….



Intelligent Transport for Safety and Sustainability 聰明出行選擇

- **Digital Infrastructure for Smart Choice**

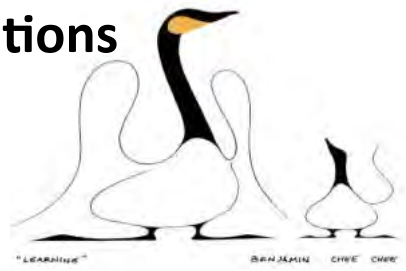
Travelers make the best choices on departure times, modes, routes, and destination with the real time and intermodal information as well as appropriate tax/pricing schemes with considering external effects of safety, environment and public health.

- **Smart Travel and Sustainable Mobility**

33

Concluding Remarks總結

- **Smart Mobility for Livable Cities: Quality of Life and Economy Growth**
  智慧交通for宜居城市：提升生活品質、促進產業發展
- **ITS^{2+1}: Safety, Sustainability and Integrated Solution**
  智慧交通發展目標：安全、可持续＋整合方案
- **Institutional Reform and Innovative Governance**
  管理体制和机制创新
- **International and Multidisciplinary Collaborations**
  共同跨域合作



INTERNATIONAL SEMINAR ON ACHIEVING SUCCESSFUL ROAD TRANSPORTATION TROUGH EFFECTIVE MANAGEMENT AND ORGANISATION

CONCLUSIONS AND TAKE-AWAYS

José Manuel BLANCO SEGARRA
Chair of WRA/PIARC TC A1
"Performance of Transport Administrations"
jmblanco@fomento.es

Even though we, the foreign members of PIARC TC A.1, came to the P.R. of China (PRC) as experts, we leave with more knowledge and very impressed with the **continued progress of the PRC regarding infrastructure and network transformation and the will to continue improving the organisations and performance in the countryside, mega cities and small/medium cities all over China.**

The exchange and sharing of knowledge and information benefits all of us, and has **direct impact on our customers** as we all become better professionals through this knowledge.

The members of TC A1 came away from the Seminar with **six (6) major conclusions:**

CONCLUSIONS AND TAKE-AWAYS

1. Roads are not just a physical asset (infrastructure) but we must start looking at them as a service, "Road as a Service" (RaaS) and part of the "Mobility as a Service" (MaaS) equation. The road network is an economic and social asset.

There has been a great leap forward in infrastructure and modernisation and reform of government agencies and the **focus on transportation and the sharing economy**. There is also a recognition that Transport Administrations need to take a **customer-centric approach** to providing transport services and consider the entire journey not just one aspect of it.

This has included recognition of the **need to adapt to social needs and improving the quality of life of citizens** through the built environment and promoting environmentally friendly modes of transport including cycling and walking.

CONCLUSIONS AND TAKE-AWAYS

2. Good planning across the modes and between agencies, and collaboration between agencies, Central Government directives and local actions and communication, open for new ideas, with long term views of the business is essential:

There is a common desire around **improving freight and logistics** and enhancing the movement of freight to get better efficiencies. There is also a need to redefine the role of ITSs to include Safety, Sustainability and an Integrated Transport Solution and move to « ITS 2+1 ».

There is a strong focus on reform for the future with metro or urban areas focused around looking for a seamless transport network, creating **better urban economies and smart and liveable cities.**

The high-speed rail in RPC: such a big building program of this nature would be a dream come true, **creating the "fast" future**.

CONCLUSIONS AND TAKE-AWAYS

3. There should be no fear of new ideas and disruptive trends and no more doing more of the same. Embrace innovative services and new business models:

We must innovate in order **to stay relevant to our customers** and provide them with **world-class service**.

There is a strong need to focus on **smart transport**, ITS, CAV, cycle hire, ride hailing, green transport, **integrated transport** and revitalised rural areas through transport.

All of this must be done in a fair market environment and with institutional integrity, reporting and **focused towards the customers' needs** and service quality for passengers. All of this is based on **research and innovation and being open minded**.

CONCLUSIONS AND TAKE-AWAYS

4. The sharing economy is coming, and we need to embrace it openly so that we can be stronger together in order to deliver the outcomes of **joint promotion and prosperity.**

There is a great desire to achieve positive outcomes with **"open data"** but it's **a difficult task**. We are all at the beginning of that process, **to share so much data** from so many different systems and sources and achieve **harmonisation**.

Significant difficulties to bringing together the public and private or self-service sectors for outcomes as "one stop service" and "one stop platform" still remain in place.

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

CONCLUSIONS AND TAKE-AWAYS

5. Much remains to be done – the outcomes of tomorrow are determined by the choices we make today:

Evolving from construction to complex operations, regulation and management. Institutional reform and innovation with **clear objectives**.

Reforms to transport governance, regulatory environment, financing and engagement of private sector, creating value chain, and embracing **disruptive technology** with appropriate standards and regulations.

CONCLUSIONS AND TAKE-AWAYS

6. The nearby future:

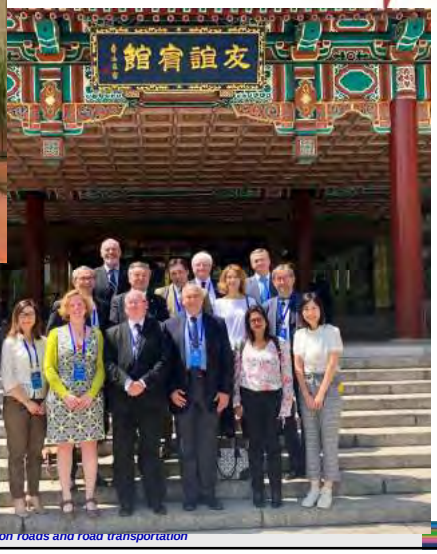
Be part of the **global logistics network** and the interest in having **China being more involved in influencing** the transport solutions for the world in a strong and positive way.

Bringing professionals around a table for sharing ideas builds lasting goodwill and friendships that transcends boundaries and nationalities.

We have a lot to learn from each other. As a collective, we have the opportunity to do great things. Let us build on the good work we have seen today in a positive manner. There is no need to reinvent the wheel.

Échanger connaissances et techniques sur les routes et le transport routier / *Exchange knowledge and techniques on roads and road transportation*

CONCLUSIONS AND TAKE-AWAYS



AND NOW, THE PASSING OF THE TORCH:

We are happy to announce that while attending the Seminar in Beijing, the City of Kiev has joined WRA/PIARC as a regional member and they will be hosting the next TC A.1 meeting and Seminar in Kiev (Ukraine).

PLEASE JOIN US THERE IN OCTOBER of 2018

WORLD ROAD ASSOCIATION
MONDIALE DE LA ROUTE
AIPCR PIARC

CHINA BEIJING
AIPCR-PIARC

感谢您的关注

Thank you CATS for a great TC A.1 meeting and International Seminar!