

INTERNATIONAL ROAD TRANSPORT RESEARCH

FACTSHEET CHINA

Strategic Innovation Policy Goals and Programmes

Until 2040: Provide half of global green energy capacity (5yrs-Plan)¹

2060: Net-Zero Emissions (5yrs-Plan)¹

Become a leader in biofuel production (5yrs-Plan)¹

2025: 80% of the public fleet to be electric²

2025: 20% EV fleet; 2035: fleet half electric, half hybrid (NEDP)²

No phase out planned yet²

2035: Commercialisation of FCVs (NEDP)²

2035: Scale-up of highly automated & connected driving (NEDP)²

2025: AD technology ready (in-vehicle + infrastructure) (NEDP)²

Digitising transport: AI, Big Data, Cloud Computing (5yrs-Plan)¹

Promotion green travelling (Green Travel Action Plan)⁴

Increase traffic & parking efficiency; reduce car-ownership¹

Nat. 1-2-3 Travel Circle: 1h/city, 2h/rural and 3h/city-to-city commute³

Smart, integrated intermodal logistics³

Global 1-2-3 Logistics Circle: 1d/city; 2d/China; 3d/internat. delivery³

Safe, smart transport, infrastructure and logistics³

Road Safety

Bo'ao Dongyu Island V2X project: Road side units for pedestrian and non-motor-vehicle detection and blind spot alert with decreased time lags for communication

This series of factsheets highlights main framework conditions as well as goals and significant future trajectories of road transport research (RTR) for China, Korea, Japan, the U.S. and the EU for the next 10 – 15 years. This is an activity of the EU-project FUTURE HORIZON.

Research Activities

- 2025: Improve hydrogen fuel supply
- 2035: FCV technologies ready
- Monitor air-pollution with drones
- 2022: Demonstration of 50 solid state battery-driven EVs by Dongfeng
- 2035: Develop novel fast charging technologies

Energy & Environment

2025: Improve battery swapping technology

Electrification

- 2035: Produce NEV core technologies at world class levels
- 2025: Reduce energy consumption to 12 kWh/100 km
- Beijing E-Town: Demonstrate integrated smart roads on 60 km², intelligent vehicles, real-time E-Town Agency) cloud, reliable network and precise maps (since 2020, Beijing)
- Innovation in AI, connectivity and automated vehicles driven by various startup companies

Automation & Connectivity

- Different automation approaches being under testing to find out, how far automated driving coordination and computing processes can be centralised
- Bo'ao Dongyu Island V2X project: Smart city trial with intelligent bus stations, robotaxis and robobuses with 5G test tracks in Hainan

Urban Mobility

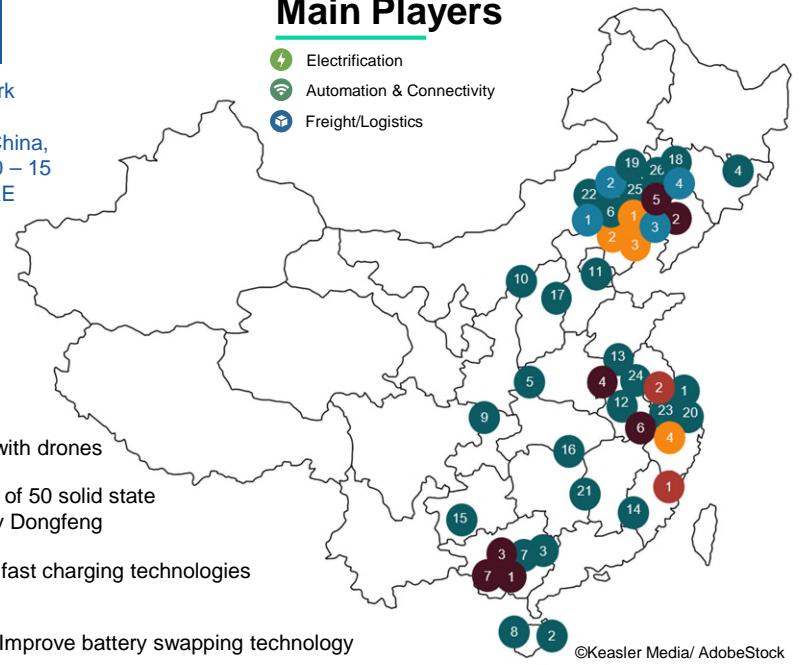
- Demonstrate GPS-controlled parking in dedicated zones for shared bicycles
- Develop on-demand bus transport to reduce car-ownership
- Nudging to steer behaviour is used by companies and governments, e.g. to reduce usage of cars at rush hour through credits
- MaaS-pilots based on digital platforms that integrate green, smart and multimodal transport in Beijing, Guangzhou and Shenzhen Bay-Echo-Tech-Park
- Didi's traffic management and prediction platform Smart Transformation Brain currently develops intelligent traffic lights to reduce commuting hours and CO2 and advanced indoor navigation
- Test the Beijing Bicycle Highway 6,5 Km (Green Travel Action Plan)
- Hangzhou-City: Alibaba tests ET City Brain to decongest the city (already moved from rank 5 to 52 of congested cities in China) through traffic management based on IoT, traffic light control, camera vision e.g. to search for illegal parking

Freight & Logistics

52 Pilot for integrated passenger and freight transport connecting urban-rural areas

Main Players

- ⚡ Electrification
- 📶 Automation & Connectivity
- 🚚 Freight/Logistics



Research Institutes

- National Technical Committee of Auto Standardization (NTCAS)
- Vehicle Emission Control Center (VECC) of the Chinese Research Academy of Environmental Sciences (CRAES)
- Electronics and Telecommunications Research Institute
- Tongji University

Suppliers

- CATL
- Gotion

Mobility Service Providers

- WeRide
- Pony.ai
- Baidu
- T3 Mobile
- Didi
- Alibaba
- Tencent

Innovation Policy

- MOT
- MPS
- MIIT
- MOST

OEMs

- SAIC Motor
- Sinotruk
- BYD
- FAW Group
- Dongfeng
- BAIC
- GAC
- Geely
- Changan
- Shaanxi
- GWM
- Chery
- JAC
- Fujian
- Liuzhou Wui.
- JMCG
- Yutong Gr.
- VW

OEMs Startups

- NIO
- Xpeng
- Li Auto
- WM Motor
- Byton
- Singulato
- Neolix

Socio-Economic Developments

- Tradable car-permits and payments for car usage at peak-time
- Social Scoring and credit-based nudging have been established across different domains such as insurances
- China became the biggest EV market (more than 5 million NEVs) and the world's biggest producer of EVs and batteries
- Chinese big-data companies thrive the smart city development

Impacts from COVID-19

- Lockdowns lead to decrease or even stops in production, especially in the chip industry and material sourcing as well as processing, e.g. for batteries

Conclusions

Start-ups are driving the automation of vehicles and provision of intelligent infrastructure, whereas OEMs focus more on electrification. Synergies between automated driving and electric mobility are not particularly pushed through state goals, but are occasionally considered.

The uptake of automated driving might possibly happen according the goals at similar speed as for electrification due to the economic connection between cities/regions and major enterprises.

Overall, the government strives to reduce the amount of cars, causing congestion, emissions and safety issues, through credit-based nudging, the diffusion of Mobility as a Service and the promotion of resilient public transport as well as public-private partnerships on smart cities. Big-data companies advance AI and their application in smart cities. However, despite the focus on connectivity and smart cities there are no trials of linking automated vehicles to the cloud (e.g. city brain).

References

- Five-Year Plan (2021-2025)
- New Energy Vehicle Industrial Development Plan for 2021 to 2035
- China Academy of Transportation Science (2021). Report on Sustainable Transport in China.
- Green Travel Action Plan (2019-2022)

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