การเตรียมพร้อมเชิงนโยบายและโครงสร้างพื้นฐาน ด้านการคมนาคมขนส่ง เพื่อส่งเสริมการใช้งานยานยนต์ขับขี่อัตโนมัติและการเชื่อมต่อ

วันพฤหัสบดีที่ 31 มีนาคม 2565 เวลา 9:30 – 11:30 น.
ITS Thailand HIGHLIGHT

- Center of Excellence in Thailand
- Coordinated with many sectors (Government, Private, Academics)
- Strategic planning for technology development and supporting ITS implementation
- Representative of Thailand on ITS World conference

Since 2008
2019 ITS Thailand activity

- CAV roundtable
2021 ITS Thailand activity

- CAV Policy Roadmap
2021 ITS Thailand activity

- ITS Korea
- Smart City and CAV in Thailand
- July 2021

Smart City and CAV initiatives in Thailand

Associate Professor Dr. Sorawit Narupiti
Department of Civil Engineering, Chulalongkorn University
President, ITS Thailand
Questions

01 ITS and Future Mobility
02 Suitable ITS/Mobility for ASEAN
03 CAV recent reports
04 CAV Policy Recommendation
01 ITS and Future Mobility
ITS Today

Area Traffic Control System (ATC)

Commercial Vehicle Operations (CVO)

Travel Information System (TIS)

Advanced Public Transportation Systems (APTS)

Automation Traffic Enforcement (ATE)

Electronic Toll Collection (ETC)

System upgrade

Supply-driven infrastructure

Technology enhancement

Private-driven service improvement
Current ITS in Asia Pacific

**Advanced Traveller Information Systems**
- a) Real-time traffic information system
- b) Variable message sign
- c) Parking guidance and information system

**Advanced Public Transport Systems**
- a) Electronic fare payment system
- b) Automatic vehicle location system
- c) Automated passenger information system

**Advanced Traffic Management Systems**
- a) Adaptive signal control system
- b) Automatic traffic enforcement system
- c) Road weather information system
- d) Traffic incident management system
- e) Ramp metering system
- f) Electronic toll collection system
“Next Generation” ITS technologies

- Connected vehicles and Cooperative ITS
- Autonomous vehicles
- Smart City (Smart Mobility)
Evolution of Transport

Non-intelligent $\rightarrow$ Intelligent = technology driven

**Transport**
- Supplier-centred and public-driven services
- Uniformed and minimum level of service

A CHANGE IN PERSPECTIVE (QUALITATIVE CHANGE)

**Mobility**
- User-centred services
- Diverse types of services
- Private sector participation

A CHANGE OF TECHNOLOGY (QUANTITATIVE CHANGE)

**Smart mobility**
- Applicable to vulnerable areas
- Intelligent and automated services
- Private-driven services
Mobility → Smart Mobility

- Mobility technology
  - Real-time information
  - V2V, V2I, V2X
  - Autonomous driving
- Mobility mode
  - Passenger vehicle
  - Public transit
  - Personal mobility/bicycle
- Mobility service
  - Car sharing/car pooling
  - Demand-responsive transport
  - Ride sharing/ride hailing
Future Mobility
Suitable ITS, Mobility for ASEAN
We want ITS to enhance ......

01 Safety
02 Mobility
03 Comfort
04 Sustainability
05 Productivity/work performance
06 .....
We want ITS to enhance mobility, comfort, sustainability, productivity/work performance, and safety.
CAV recent reports
Facilitating the deployment of highly and fully automated vehicles in road traffic along the Asian Highway Network

UNESCAP

Autonomous Vehicle (AV) level 0-5

Connected Vehicle (CV) and Cooperative ITS (C-ITS)

Smart City (Smart Mobility)
“Guiding Opinions of the Ministry of Transport on Promoting the Development and Application of Road Traffic Autonomous Driving Technology”

by 2025, (1) positive progress shall be achieved in the research on the basic theory of autonomous driving; (2) important breakthroughs shall be made in key technologies and products such as intelligent road infrastructure and vehicle-infrastructure cooperation; (3) a series of basic and key standards for autonomous driving shall be issued; and (4) several national-level autonomous driving testbeds and pilot demonstration projects shall be established to promote the large-scale applications and industrialisation of autonomous driving technology.
“National Strategy of China for Innovation and Development of Intelligent Vehicles” provides for the following main goals:

- By 2020 - intelligent vehicles will account for 50% of new cars in China; commercialisation of middle and high-level intelligent vehicles will have been achieved; 90% of the expressway and big city roadways have been covered with wireless telecommunication networks for vehicles;
- By 2025 - almost 100% of new vehicles will be intelligent vehicles; scalable high-level intelligent vehicles will be on the market; new generation wireless telecommunications network for vehicles (5G - V2X) will meet the needs to allow for the development of intelligent vehicles;
- By 2035 - Chinese standard intelligent vehicles will earn a global reputation and China becomes a powerhouse of intelligent vehicles.
China

Legal and Regulatory Framework

“Guideline for Developing National Internet of Vehicles Industry Standard System (Intelligent & Connected Vehicle)”

“Intelligent Connected Vehicle Technology Development Roadmap of China”

“Mid-term and Long-term Development Plan for the Automobile Industry”

“AV industry is one of seven major industries that the Chinese government support”
CAV Policy Recommendation
Political

1. Clear and inclusive national guidance to support the introduction of HFAVs.
2. Explicit government policies or programmes for the development of HFAVs.
3. International cooperation to support the operation of HFAVs.
4. Adequacy of roadside facilities for HFAVs.
5. Different technical requirements and procedures in place for border control points.
7. Precision issues of satellite-based positioning system.
8. Technical capacity of operators for HFAVs.
9. Concerns on potential cybersecurity from HFAVs.
10. Technical barrier between different modes of transport for multimodal transport.
11. Transport and traffic rules for the operation of HFAVs.
12. Legal fundamentals for the insurance of liability for HFAVs.
13. Data protection laws for the use of HFAVs.
14. Specified customs regulations for HFAVs.
15. Regulatory/legal frameworks for HFAVs.
16. Formalised process of the service and maintenance of HFAVs.
17. Customs rules and procedures for HFAVs in international transport.
Economics, Social, Environmental

18. Affordability to purchase HFAVs due to higher capital costs.
19. Increased cost of infrastructure to support HFAVs.

20. Social hesitance to accept HFAVs.
21. Concerns on unemployment due to replacement of human drivers with HFAVs.
22. Increased safety and mobility by technological advancement from HFAVs.

23. Difficult climatic conditions that may hinder the operation of HFAVs
18. Affordability to purchase HFAVs due to higher capital costs.
19. Increased cost of infrastructure to support HFAVs.
20. Social hesitance to accept HFAVs.
21. Concerns on unemployment due to replacement of human drivers with HFAVs.
22. Increased safety and mobility by technological advancement from HFAVs.
23. Difficult climatic conditions that may hinder the operation of HFAVs.
3.4 Key Takeaway เรื่อง การส่งเสริมการใช้งานยานยนต์อัตโนมัติในระดับสูง (ระดับ 3+)

สร้างความคุ้นเคย
เตรียมความพร้อมโครงสร้างพื้นฐาน
เตรียมกฎระเบียบ
การเตรียมพร้อมเชิงนโยบายและโครงสร้างพื้นฐาน ด้านการคมนาคมขนส่ง เพื่อส่งเสริมการใช้งานยานยนต์ขับขี่อัตโนมัติและการเชื่อมต่อ

วันพฤหัสบดีที่ 31 มีนาคม 2565 เวลา 9:30 – 11:30 น.