We will start at10:00 am (Brussels Time)

China ICV Standardization

Dr. Betty Xu

- ✓ You are ***muted***
- ✓ Use the ***Q&A or Chat Panel*** to submit your questions
- ✓ Keep your questions ***short and concise***
- ✓ Your questions will be answered after the presentation
- ✓ ***Slides and recording*** will be sent to you afterwards
- ✓ Contact us: assistant@sesec.eu
- ✓ Welcome to our website: www.sesec.eu

Seconded European Standardization Expert in China (SESEC) Project

SESEC V

China ICV Standardization

Dr. Betty Xu

SESEC INTRODUCTION

A Project co-funded by EC, EFTA, CEN CENELEC & ETSI

- **Promote** European and International standards in China
- **Improve** contacts between Project Partners and different levels of the Chinese administration, industry and standardization bodies
- **Enhance** visibility and understanding of the European Standardization System (ESS) in China.
- **Gather** regulatory and standardization intelligence
- **Undertake** technical lobbying

Goals

- The SESEC initiative supports **EC policy** and **ESOs strategic objectives** in China.
- Our ultimate goal is the enhancement of **EU-China dialogue and cooperation** in the field of standardization.
- It is notably expected to support the Framework Cooperation Agreement in place **between the ESOs and SAC.**

SESEC V LAUNCHED IN OCT 2022

Goals and Tasks

Call for stakeholders' Strategic Comments on Standardization Cooperation with China

Please contact

SESEC team via assistant@sesec.eu .

Ms. Zhuohua Chen zchen@cencenelec.eu in CEN/CENELEC Management Centre,

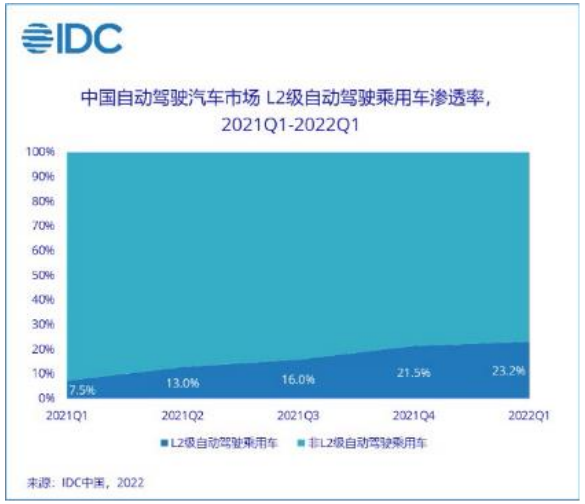
Ms. Margot Dor margot.dor@etsi.org in ETSI,

Ms. VACCARO Silvia Silvia.VACCARO@ec.europa.eu in European Commission, and Ms. Gudrun Rögnvaldardóttir, gur@efta.int in EFTA, for more details of SESEC project.

Part 1 New stage of ICV’s industrialization: transitioning from testing and pilot projects toward commercial application

Steady increase in the market penetration rate of combined driver assistance system.

Major automobile enterprises have all installed the combined driver assistance system.



In the Q1 of 2022, the market penetration rate of new cars with the combined driver assistance system reached 23.2%, showing that the whole market is shifting L2 to L3.

Automated driving has stepped into a new stage of commercial trials from testing and demonstration.

2021

In 2021, Hongda Legend Hybrid EX equipped with the L3 automated driving system was officially released.

2021.11

In November 2021, Baidu, Pony.ai, and other enterprises participated in the commercial trial of automated driving services in Beijing.

2021.12

In December 2021, Mercedes Benz vehicles with L3 automated driving system gained official approval and entered German market in May, 2022.

Part 2

Phased guidance from government for the application of ICV related products

Policies released by the governmental authorities at ministerial level

Phase 1: Road Testing	Phase 2: Pilot application	Phase 3: Market Access
Ministry of Industry and Information Technology, the Ministry of Public Security and the Ministry of Transport jointly issued: *Rules for the Administration of the Road Testing of Intelligent Connected Vehicles (for Trial Implementation)* (2018.4)	Ministry of Industry and Information Technology, the Ministry of Public Security and the Ministry of Transport jointly issued: *Rules for the Administration of the Road Testing and Demonstrative Application of Intelligent Connected Vehicles (for Trial Implementation)* (2021.7)	Ministry of Industry and Information Technology issued: *Opinions on Strengthening the Access Management of Intelligent Connected Vehicle Manufacturers and Products* (2021.8)

Part 2

Phased guidance from Government for the application of ICV related products

Policies released by major municipal governments

Phase 1: Road Test	Phase 2: Demonstrative application	Phase 3: Market Access
Detailed Rules of Beijing Municipality on the Administration of Road Testing of AutomatedVehicles (for Trial) issued in 2017 and amended twice in 2018 and 2020 respectively	*Detailed Rules of Beijing Municipality on the Administration of Implementation of Commercial Trials of Automated Driving Travel Services in the Policy Pilot Area for Beijing Intelligent Connected Vehicles (for Trial)* issued in November 2021	
Administrative Measures of Shanghai Municipality on Road Testing of Intelligent Connected Vehicles (for Trial) issued in 2018 and amended in 2019	*Implementation Measures of Shanghai Municipality on Testing and Demonstration of Intelligent Connected Vehicles* issued in October, 2021	
Opinions of Shenzhen Municipality on the Implementation of the Adminstrative Regulations on Road Testing of Intelligent Connected Vehicles (for Trial) issued in May 2018	*Guidance of Shenzhen Municipality on Promoting the Demonstrative Application of Intelligent Connected Vehicles* issued in August 2020	*Adminstrative Regulations of Shenzhen Special Economic Zone on the Intelligent Connected Vehicles* issued in July 2022.
Guiding Opinions of Guangzhou on Road Testing of Intelligent Connected Vehicles issued in 2018 and amended in 2020		

Part 3 Taking ICV as the core carrier, the construction of the national standards system for the Internet of Vehicle (IoV) industry is completed.

Construction of the national standards for Intelligent Connected Vehicles (general requirements)

Part 3 Taking ICV as the core carrier, the construction of the National standards System for the Internet of Vehicle (IoV) industry is completed.

Timeline: Construction of National Standards System for the IoV Industry

Release of ICV Standardisation System

The standards system covers function evaluation, human-machine interface (HMI), function safety, information security, communication protocols and others.

Release of Intelligent Vehicle Management Standaridisation System

The standards system covers registration management, identity authentication and security, coordinated control of road and vehicle, etc.

Release of Cybersecurity and Datasecurity Standardisation System

The standards system covers function evaluation, HMI, function safety, information security, communication protocols and others.

Release of Information and Communication Standardisation System

The standards ststem covers communication protocols and equipment, services and applications, cybersecurity and datasecurity, and others.

Release of Electronic Products and Service Standardisation System

The standards system covers electronic products for vehicles, network equipment, services and platforms, as well as electronic information, etc.

Release of Intelligent Transport Standardisation System

The standards system covers the cybersecurity of terminals and facilities, security of internet communication, datasecurity, security of internet communication services, security and support, etc.

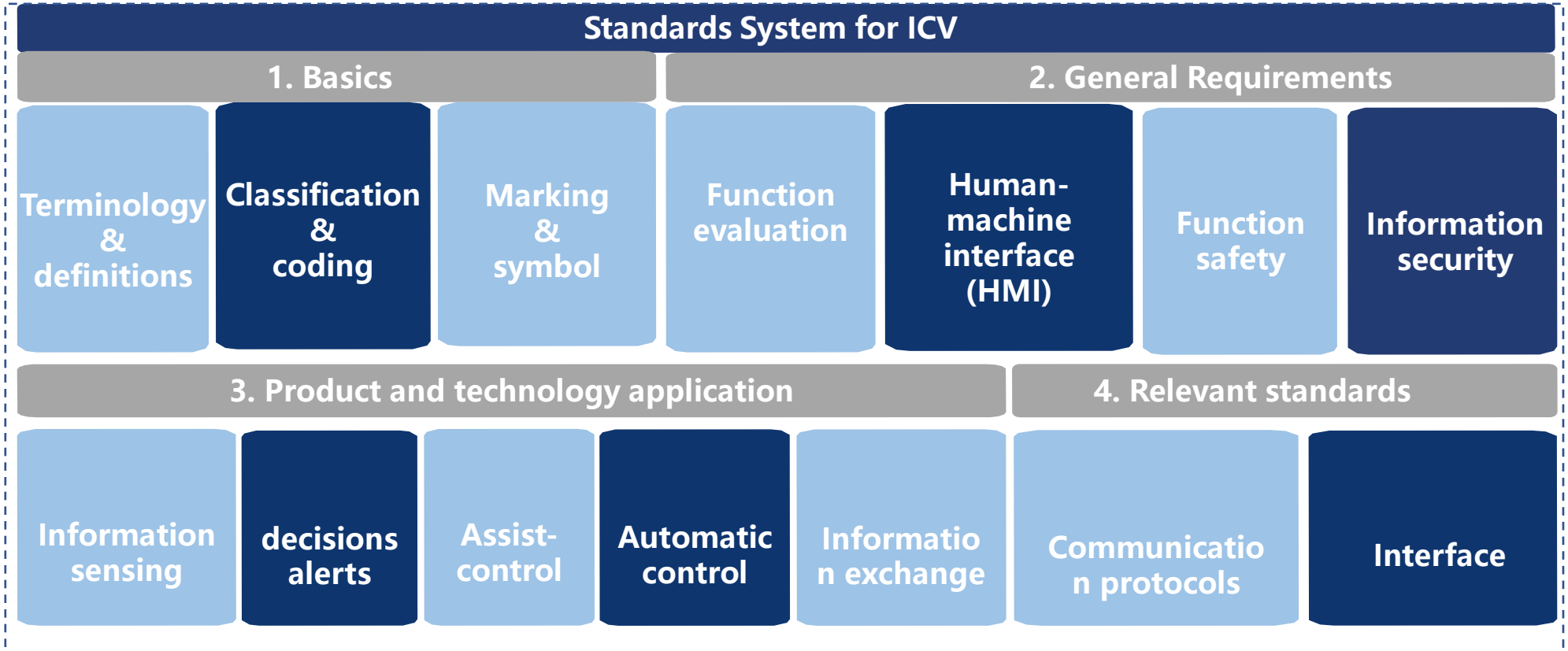
9

Part 4 Objectives achieved in the first phase of the standards system construction

Standards system for ICV that can support driver assistance and low-level automated driving has been initially established.

4. 1 Achievements in the first phase

In **6** subdivided technology fields, **39** standards have been approved and issued; **42** standards project have been initiated and relevant standards have been drafted; the outcome of **31** research projects on standardisation needs have been put into practices; more than **40** standard-related tests have been completed.



Part 4 Objectives achieved in the first phase of the standards system construction

Standards system for ICV that can support driver assistance and low-level autonomous driving has been initially established.

4.2 Progress in harmonizing international standards

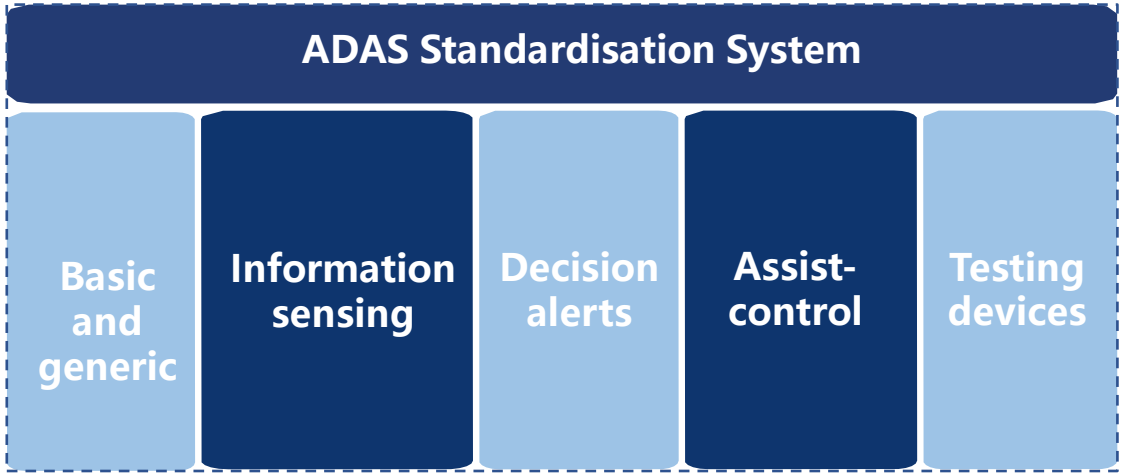
United Nations Economic Commission for Europe

- MIIT is re-elected as the Vice-Chair of the Working Party on Automated/Autonomous and Connected Vehicles (WP.29) (GRVA) (for **4** consecutive terms);
- MIIT is re-elected as the Co-Chair of the Informal Working Group on Functional Requirements for Automated and Autonomous Vehicles (FRAV) (for **3** consecutive terms);

ISO

- Serving as one of the convenors of ISO/TC22/SC33/WG9 Working Group on Test Scenarios for Automated Driving Systems and taking the lead in drafting two international standards;
- Participating in the work of ICV-related fields under ISO/TC22/SC31, SC32, SC33 and SC39.

Part 5 Driving Assistance Systems



Basic and generic: ADAS terms and definition, symbols for controls & indicators

Information sensing: night vision and panorama image

Decision alerts: blind spot detection, door-opening alert, rear cross traffic alert, and driver's attention monitoring

Assist-control: emergency braking, lane keeping, intelligent speed control, intelligent parking, longitudinal control, emergency steering, and combined driver assistance

Testing devices: sensing function used to dectect objects (rear passenger cars, pedestrians, 3D passenger cars, cyclists)

Standards related to driving assistance are advanced in an orderly manner to meet the actual needs of government management and industry applications

Part 5 Driving Assistance Systems

Highlights

Support for the Intelligent vehicle management

- Several standards, such as the *Performance Requirements and Test ing Methods for Lane Keeping Assist System of Commercial Vehicles*, were cited by GB7258.
- The *Performance Requirements and Testing Methods for Combined Driving Assistance System of ICV* supports the industry management of the competent authorities.

Fill the international gap in standards

Several standards accepted as international standards, including:

- *Road vehicles — Advanced driver assistance stytems — Terms and definitions*
- *Performance requirements and testing methods for night vision system of passenger cars*
- *Performance requirement and testing methods for door open warning system of passenger cars*

Harmonise with international regulations

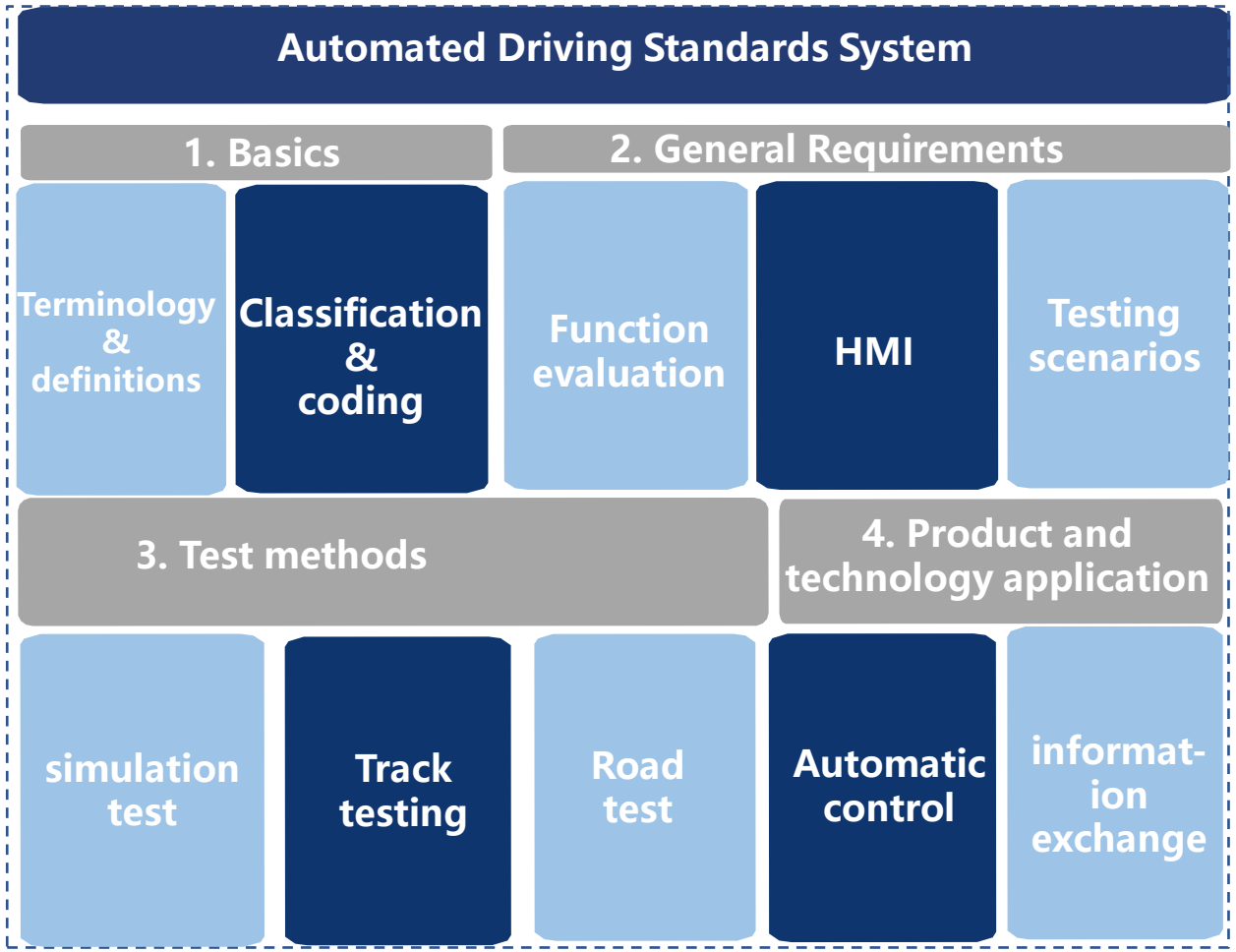
Based on the achievements of the national standards system, China proposed the international regulatory framework for ADAS, and contributed to UN's establishment of a new Task Force Working Group on ADAS.

30. The expert from China supported the establishment of a new Task Force on ADAS. He proposed that such a Task Force should not only address longitudinal and lateral assistance, but also warning systems. He added that one of the first steps should be to clarify the scope of ADAS vs. ADS and also ADAS *versus* conventional safety technologies. He mentioned that China had done research on ADAS and that 23 standard projects were in progress in China (among which five had already been published as national standards). He concluded that China was pleased to update GRVA on China's status and that China was willing to contribute to the development of UN Regulations or UN GTRs on ADAS at GRVA.

Propose international standards projects

Pedal motorcycles with of Chinese characteristics is included in the application scope of the draft of the international standard ISO19206-5.

Part 6 Automated Driving Standards



- Basics: terminology and definitions, classification of driving automation
- General requirements: general technical requirements for automated driving, ODC, test scenarios of automated driving systems, and HMI
- Test methods: track testing, road test, and simulation test
- Product and technology application: autonomous parking, ports, terminal distribution, vehicle event data recorder system (GB 39732-2020), positioning, and sensing fusion

Part 6 Automated Driving Standards

Highlights

Support for the Intelligent vehicle management

- *Intelligent and connected vehicle-Data storage system for automated driving (GB)*
- *Intelligent and connected vehicles — General technical requirements for automated driving system (GB/T)*
- *Intelligent and connected vehicles—Track testing methods and requirements for automated driving functions (GB/T)*
- *Intelligent and connected vehicles—Methods and requirements of road test for automated driving functions (GB/T)*

Fill the international gap in standards

- proposing the automated driving technology that meets the general requirements of the whole scenario.
- completing the standard research on automated driving track testing and road test.
- conducting researh on standard demands regarding automated driving scenarios, such as at ports and in terminal distribution.

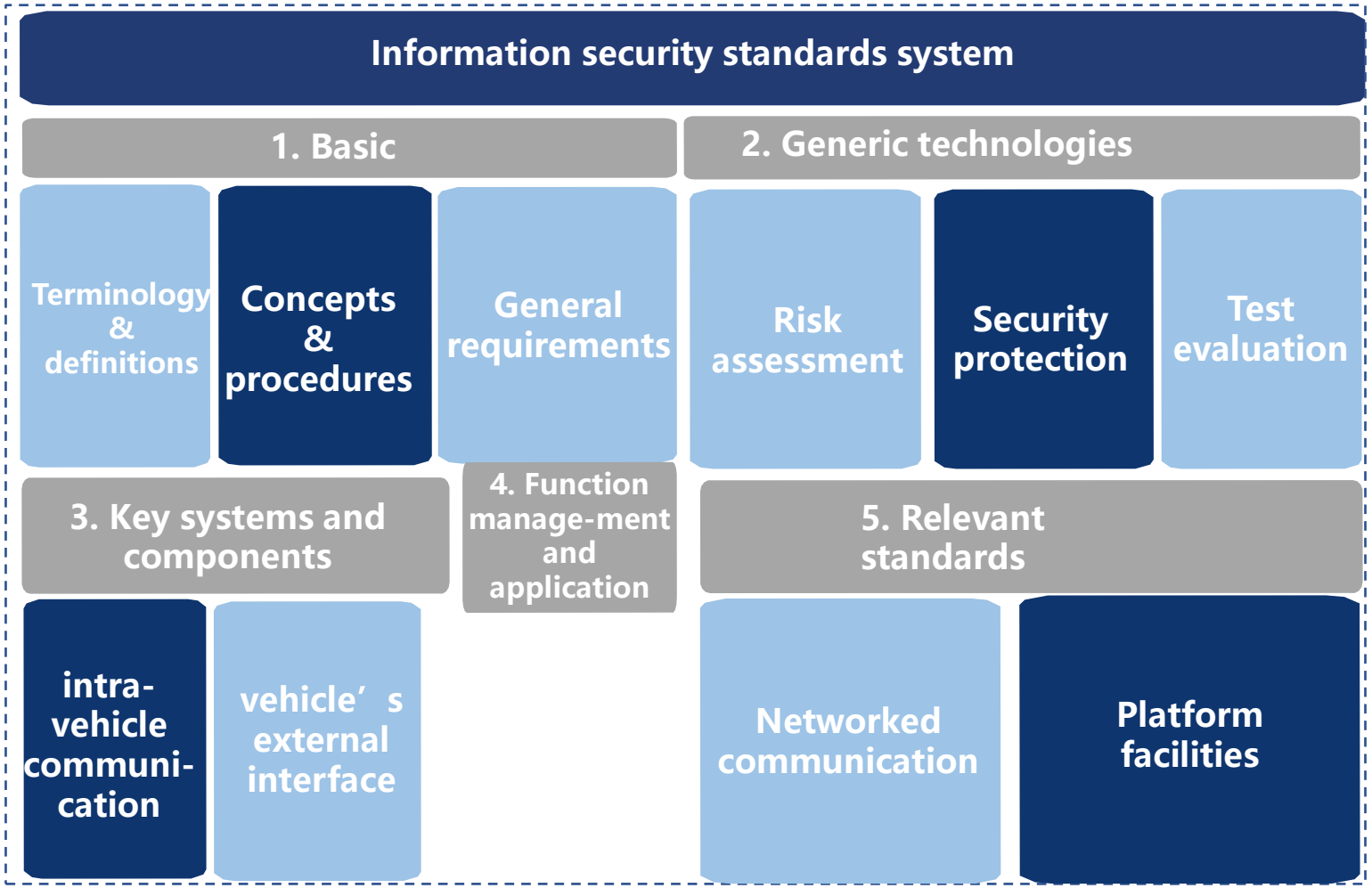
Harmonise with international regulations

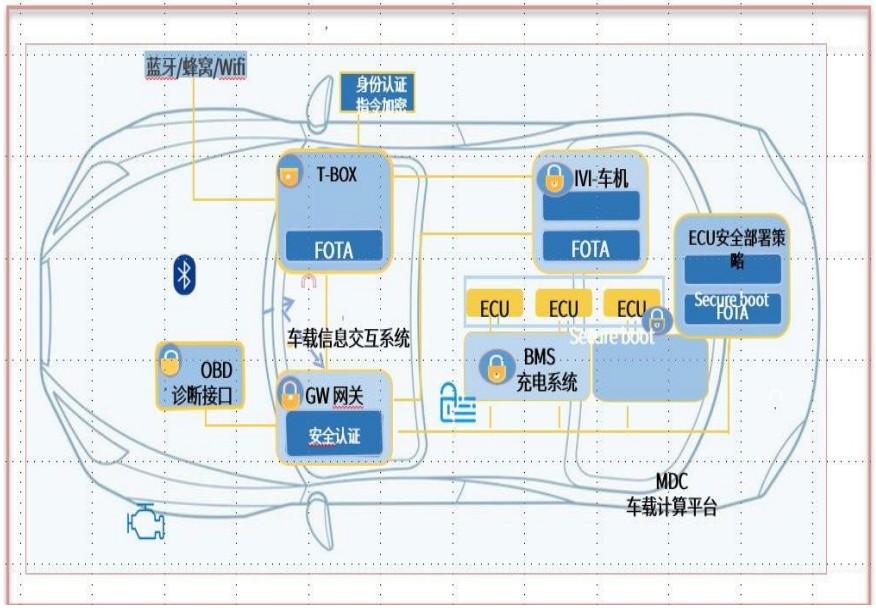
- supporting Chinese experts to hold important posts in the field of United Nations WP.29 based on the research results of domestic automated driving system.
- submitting several international standard proposals to support the UN's research on exterior light signals of automatic driving, OEDR, etc.

Propose international standards projects

- submitting various international standard proposals, based on the research outcome of China's automated driving standards system.

Part 7 Information Security Standards System





Part 7 Information Security Standards System

Highlights

System construction

- Release of **the first batch of four** automobile information security standards;
- Progress in formulation of two mandatory national standards regarding automobile **information security** and **software update**, and;
- Construction of standard system and formulation of key standards in response to issues concerning information security and data security.

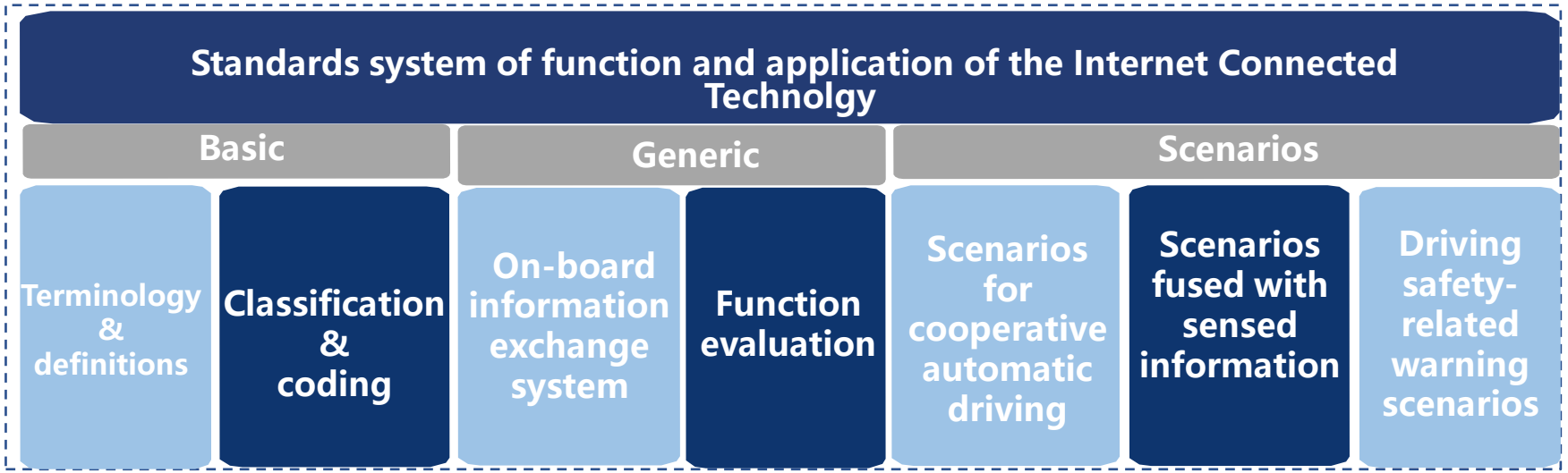
Standard trials and pilots application

- conducting verification of automotive information security and software update **management system trial**;
- exploring the demonstrative application of recommended international standards and promoted the implementation of standards.

Harmonize with international standards and regulations

- carrying out technical-related communications with stakeholders on the UN R155 and submitting proposals and suggestions;
- serving as the co-chair for the key chapters in **ISO PAS 5112 project**;
- promoting of the release of key international standards for information security.

Part 8 Networking Functions and Application Standards



LTE-V2X

Safety warning scenarios

Car keys

Short-range wireless communication

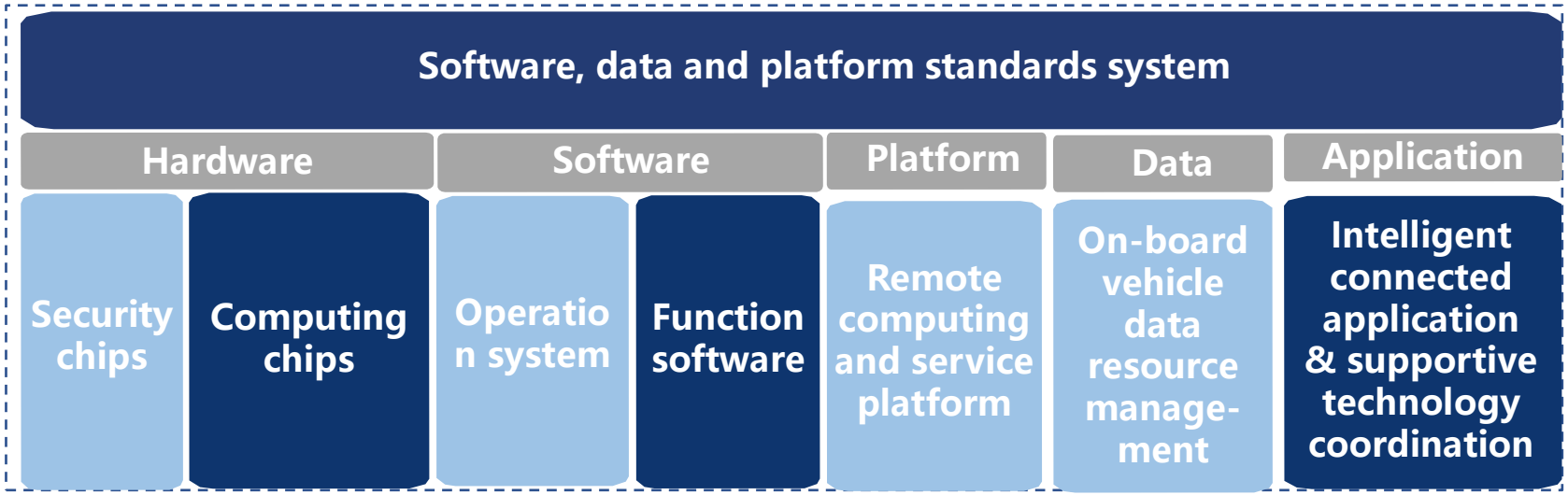
Limited high-speed media

Highlights

Wide application of the internet connected technology in vehicles:

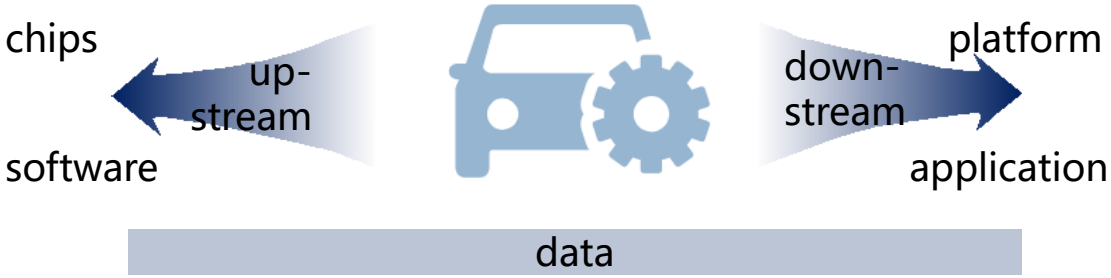
- Application of LTE-V2X in vehicles
- Vehicle application scenarios based on IoV technology

Part 8 Networking Functions and Application standards



Highlights

The standards system has been expanded alongside both ends of the ICV industry chain.



Vehicle control OS

On-board OS

General requirements for data

Data compliance

Structure and interface

Biological identification

Intelligent cockpit

Part 9 Vehicle- and Electronic-related Standards

Function safety	**Basics and general requirement**	Functional safety, requirements and verification & confirmation methods for functional safety, functional safety review and assessment methods, ASIL ratings, functional safety and artificial intelligence (AI), expected functional safety, requirements and verification & confirmation methods for expected functional safety, expected functional safety review and assessment methods, analysis methods for system theory process, expected functional safety scenarios and methods for testing & evaluation, expected functional safety and artificial intelligence (AI)
	System components	BMS functional safety, functional safety of drive motors, functional safety of coordinated control by vehicle-road-cloud integration, functional safety of electromagnetic compatibility, function safety in longitudinal/sideways/vertical motion, expected functional safety of sensing system, expected functional safety of on-board computing platform, expected functional safety of coordinated control by vehicle-road-cloud Integration
Electro-magnetic compatibility	**Mandatory standards**	GB 34660 GB/T 18387
	Basics and general requirement	Radiated immunity of the whole vehicle/component, Electrostatic discharge of vehicle / components, component conduction and coupling, lightning effect, complex electromagnetic environment, body protection label
	System components	Key system components EMC, SISO-OTA, MIMO-OTA
Environment assessment & reliability	**Environment assessment**	12V/24V parts, class B voltage parts, IP protection level
	Electrical loads	12V/24V parts, class B voltage parts, IP protection level, low voltage power supply system of the complete vehicle

Part 9 Vehicle- and Electronic-related Standards (Continued)

Electronic components	**Mandatory standards**	AECS EDR TPMS ETC DVR
	Components	Camera, millimeter wave radar, lidar, ultrasonic, active/passive infrared, wireless communication terminal, satellite positioning, inertial navigation, display terminal
	Systems	Hands-free communication and voice interaction, HUD, keyless entry, in-car biodetection, streaming rearviewmirror, alcohol interlock
	Diagnostic communication	Ethernet, CAN, K-line, LIN, unified diagnostic services, emissions-related diagnostics
Automotive chips	**Basics**	Terms and definitions classification and grading
	General requirements	Functional safety, information safety, environment and its reliability, electromagnetic compatibility
	Product application	Control chip, computing chip, sensing chip, communication chip, memory chip, security chip, new energy chip
	Match test	System component level, complete vehicle

Part 10 Participation in the Harmonisation of UN Regulations

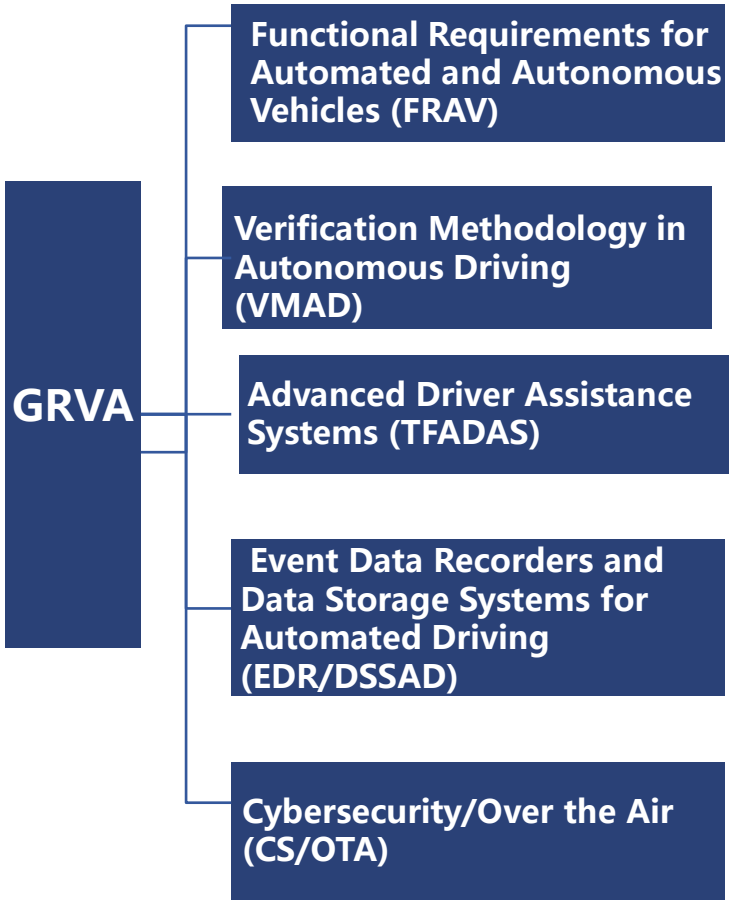
Fulfill responsibilities

United Nations
Economic Commission for Europe

The Ministry of Industry and Information Technology is re-elected as Vice Chairman of the United Nations Working Party on Automated/Autonomous and Connected Vehicless (GRVA). (4 consecutive terms)

Ministry of Industry and Information Technology Co-Chair of the Informal Working Group on Functional Requirements for Automated and Autonomous Vehicles (FRAV) (3 consecutive terms)

Active participation



Contributions

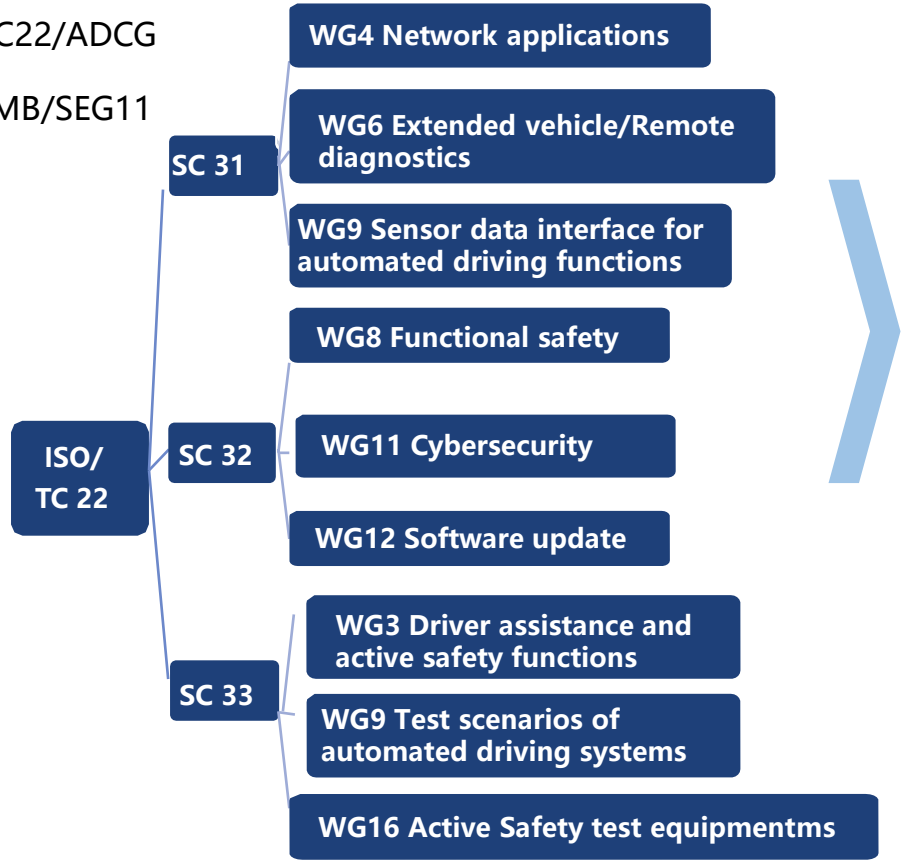
- Parcipating in the formulation of the *Functional Requirements for Automated and Autonomous Vehicles* and serving as the chair in the ORU task force working group, responsible for research such as AD external light signals and OEDR;
- Participating in the research and development of the framework document on the requirements for new evaluation methods for autonomous driving, and making simulation reality proposals based on China's practices;
- Promoting the establishment of TFADAS, as well as supporting and planning its working scope and regulation development;
- Participating in the development of regulations on data recording systems for autonomous driving; and introducing China's DSSAD standard ideas and suggestions;
- Supporting the formulation of intepretative documents on information safety and software update, thus laying the foundation for later formulation of technical documents applicable to the 98 countries under the agreement.

Part 11 Participation in the Formulation of International Standards

Follow up International Standards

- Participation in the research of international standards related to intelligent connected vehicles organized by ISO

- Member of ISO/TC22/ADCG
- Member of IEC/SMB/SEG11



Promotion of Standard setting

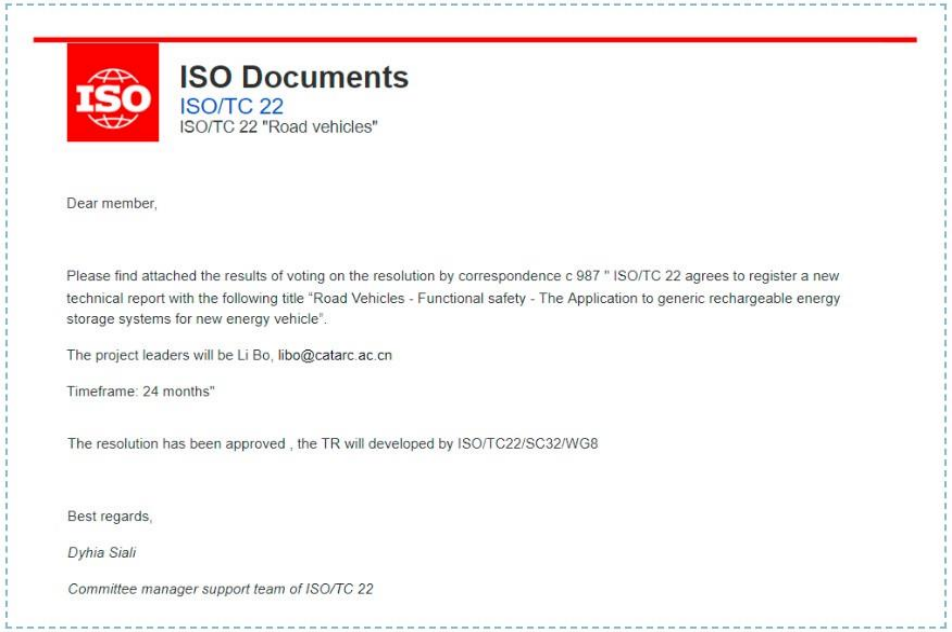
- Under the support of all stakeholders, great progress has been made in ISO/TC22/SC33/WG9's *Test scenarios of automated driving systems*.

ISO No.	Title	Led by	Stage
ISO 34501	Road vehicles — Test scenarios for automated driving systems — Vocabulary	China	FDIS
ISO 34502	Road vehicles — Test scenarios for automated driving systems — Scenario based safety evaluation framework	Japan & Germany	FDIS
ISO 34503	Road Vehicles — Test scenarios for automated driving systems — Taxonomy for operational design domain	U.K & Japan	DIS
ISO 34504	Road vehicles — Test scenarios for automated driving systems - Scenario categorization	Germany & Netherland	CD
ISO 34505	Road vehicles — Test scenarios for automated driving systems — Vocabulary. Abstract Preview	China & U.K	Projects approved

Part 11 Participation in the Formulation of International Standards (Continued)

Actively Contribute- Projects that China takes the lead

- China's first time to take the lead in an vehicle safety related ISO project (See the picture):
  - ✓ *Road Vehices-Functional satety-The Aopicaon to genenc rechargeable energy starage systems for new eneray vehicle* (poject proposal gained approval)
- The following three ISO international standards for automotive radars that have passed the PWI (pre-research) led/co-led by China have been voted through:
  - ✓ ISO/PWI 13228 Road vehicles - Test method for automotive LiDAR General informations;
  - ✓ ISO/PWI 13389 Road vehicles - Test method for detection performance of millimeter-wave radar, and;
  - ✓ ISO/PWI 13377 " Road vehicles - Guidelines for cooperative interference mitigation of automotive millimeter - wave radar".



ISO Documents
ISO/TC 22
ISO/TC 22 "Road vehicles"

Dear member,

Please find attached the results of voting on the resolution by correspondence c 987 " ISO/TC 22 agrees to register a new technical report with the following title "Road Vehicles - Functional safety - The Application to generic rechargeable energy storage systems for new energy vehicle".

The project leaders will be Li Bo, libo@catarc.ac.cn

Timeframe: 24 months"

The resolution has been approved , the TR will developed by ISO/TC22/SC32/WG8

Best regards,

Dyhia Siali

Committee manager support team of ISO/TC 22

Part 11 Next steps

New stage of ICV industry

1. Steady improvements in the commercial application of advanced sensing and driving assistance technology;
2. Faster development of automatic driving;
3. Constant expansion of application scenarios for networked communicarion;
4. Greater contributions of softwares and chips in automobile value chains;
5. Greater significance of data resources in product exploration and application;
6. Greater significance of function safety and information security.

New demands in the systematic support

+ Safety assurance (information security, Function safety)

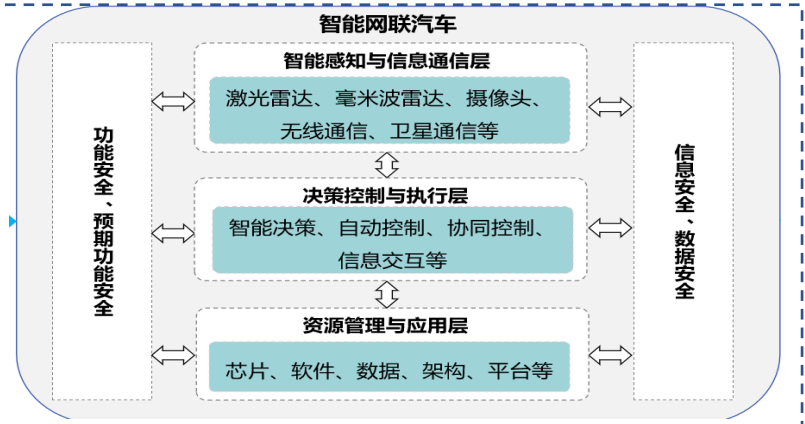
+ IoV empowering

- Emergency driving assistance
- Partial driving assistance

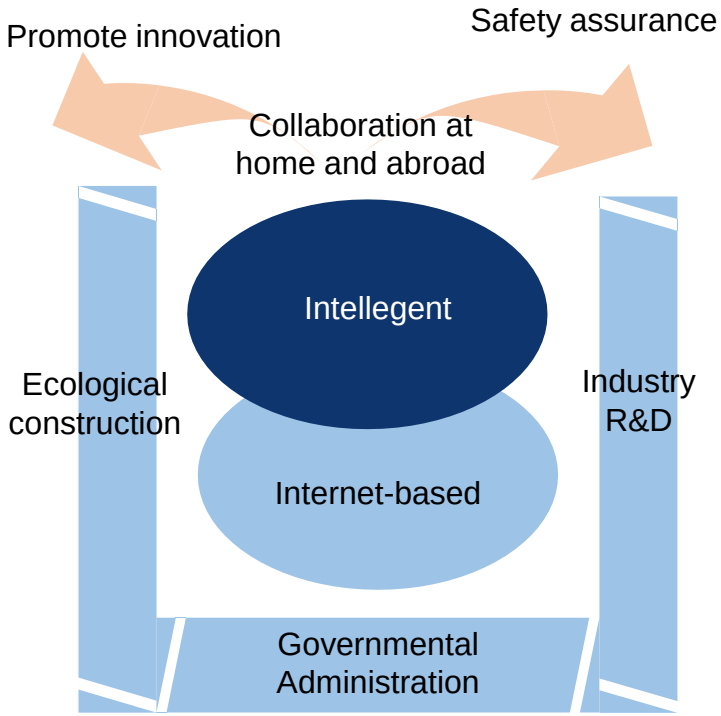
Combined driving assistance

Automated driving

New ideas in technical logic



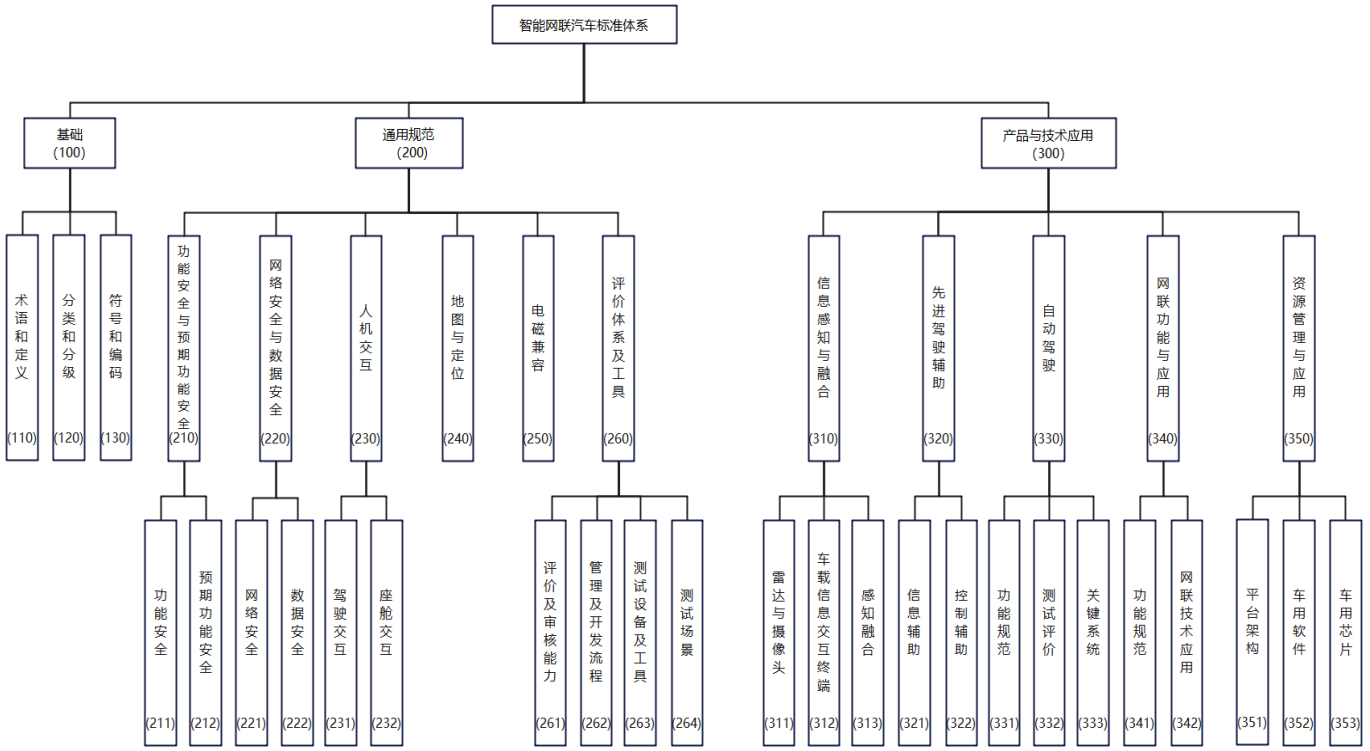
New standards system to be established



Part 12 New-type ICV standards system is to be established.

Guidelines for the Construction of the National Standards System for ICV Industry (2022) (Draft for Comments)

- **Specific plans** were proposed for the construction of the standards system in 2025 and 2030.
- **The connection** between ICV and mobile devices, infrastructure, smart cities, travel services and innovative technologies has been strengthened.
- **The number of standards** has increased from 99 to 137. Among those standards, the data security, as well as the evaluation system and tools sections are added in general requirements; Products and technology applications are subdivided into information fusion and sensing, advanced driving assistance, automated driving, network functions and applications, resource management and applications, covering key common technologies such as platform architecture, data applications, software and chips for vehicle operating system, and other key generic technologies.



Thank you!

Dr. Betty Xu

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