



全国汽车标准化技术委员会

National Technical Committee of Auto Standardization

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# Development status of ICV industry and standard system in China

China Automotive Technology and Research Center Co. Ltd

National Technical Committee of Auto Standardization

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2023.3.16

➤ The largest professional technical committee under the SAC, There are **29** specialized subcommittees with more than **1000** members.



SAC



MIIT

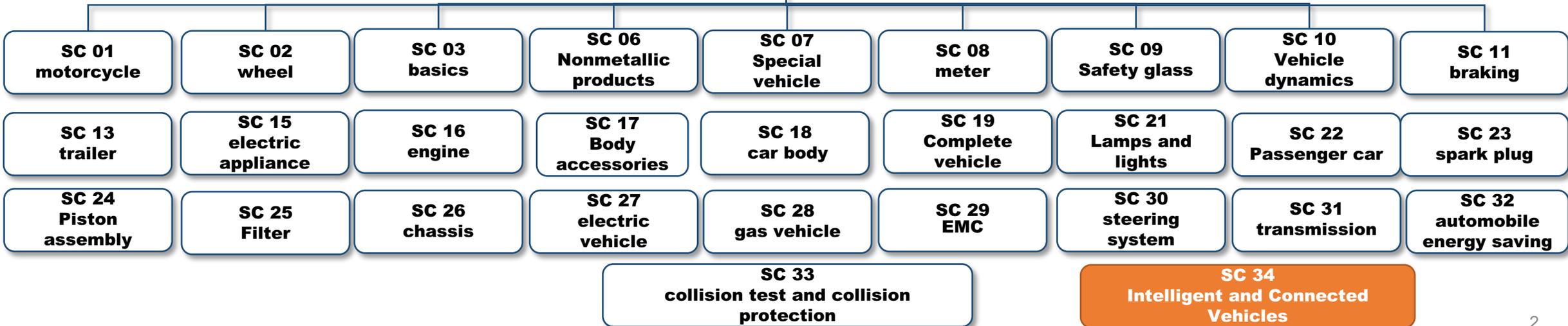
Industry standard (QC)



national standard(GB)



SAC/TC114(NTCAS)

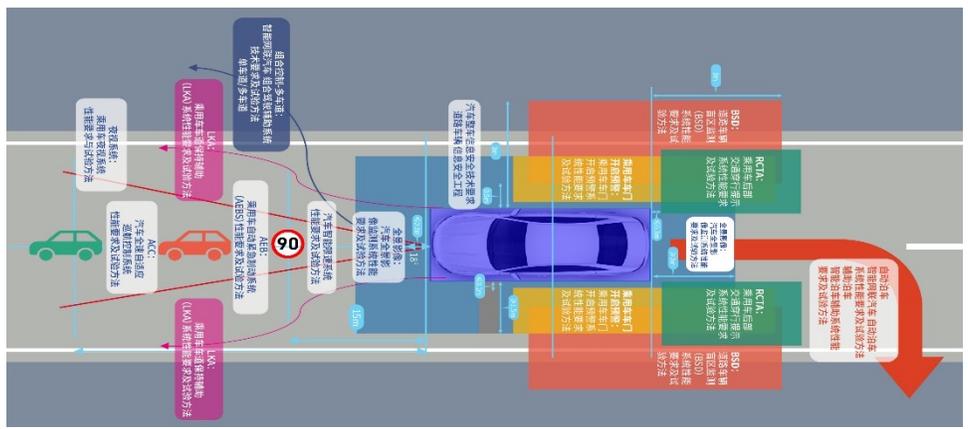


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- 02 Development status of the ICV industry in China
- 03 ICV standard system construction in China
- 04 Questions about standardization

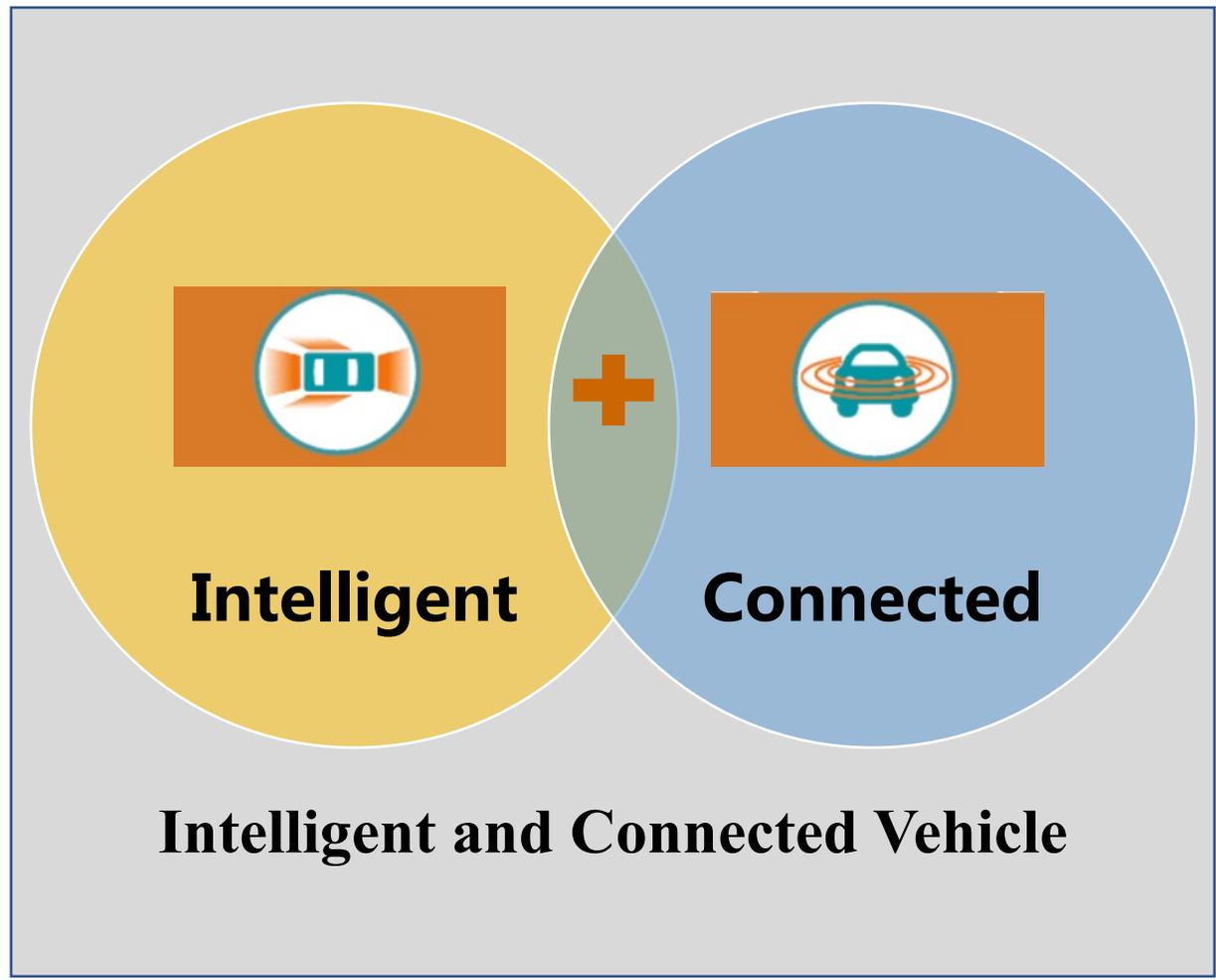
**Definition :** vehicles that are capable of conducting information interaction with external entities, or designed with advanced features including environmental perception, self-decision-making and automated control, or further to the inclusion of realizing systematic cooperative control.



### Similar Concepts:

- ✓ Automated driving vehicles
- ✓ Automated and connected vehicles
- ✓ Smart cars
- ✓ Future networked cars

Similar, but Different...





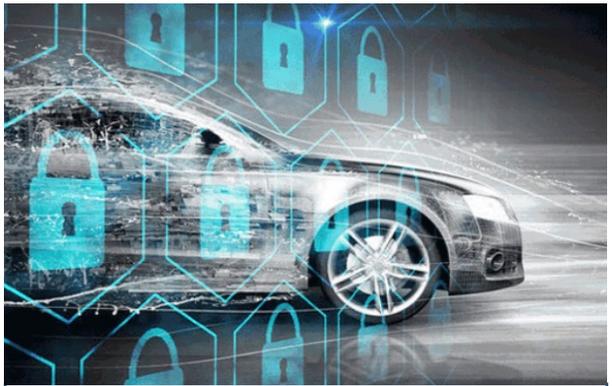
## ADAS

- AEBs
- BSD
- LKAs
- Lane Keeping
  - ACC
- Emergency automatic steering
  - Automated Parking
  - Driver Monitoring
  - Intelligent speed control



## Automated Driving

- DDT
- OEDR
- Taxonomy of automation
  - Perception fusion
  - DSSAD
- New test methods for simulation, proving ground, and real environment
  - HD map



## Cybersecurity Functional Safety

- Risk assessment
  - cybersecurity
  - System audit
- Digital certification
- Automotive cryptology
  - functional safety
    - SOTIF
  - Test method



## V2X

- LTE-V2X
- V2V, V2I, V2G, V2P
  - Message set
  - Data format
- Automotive positioning
- Wireless communication
  - Remote control

# Automotive Electronics

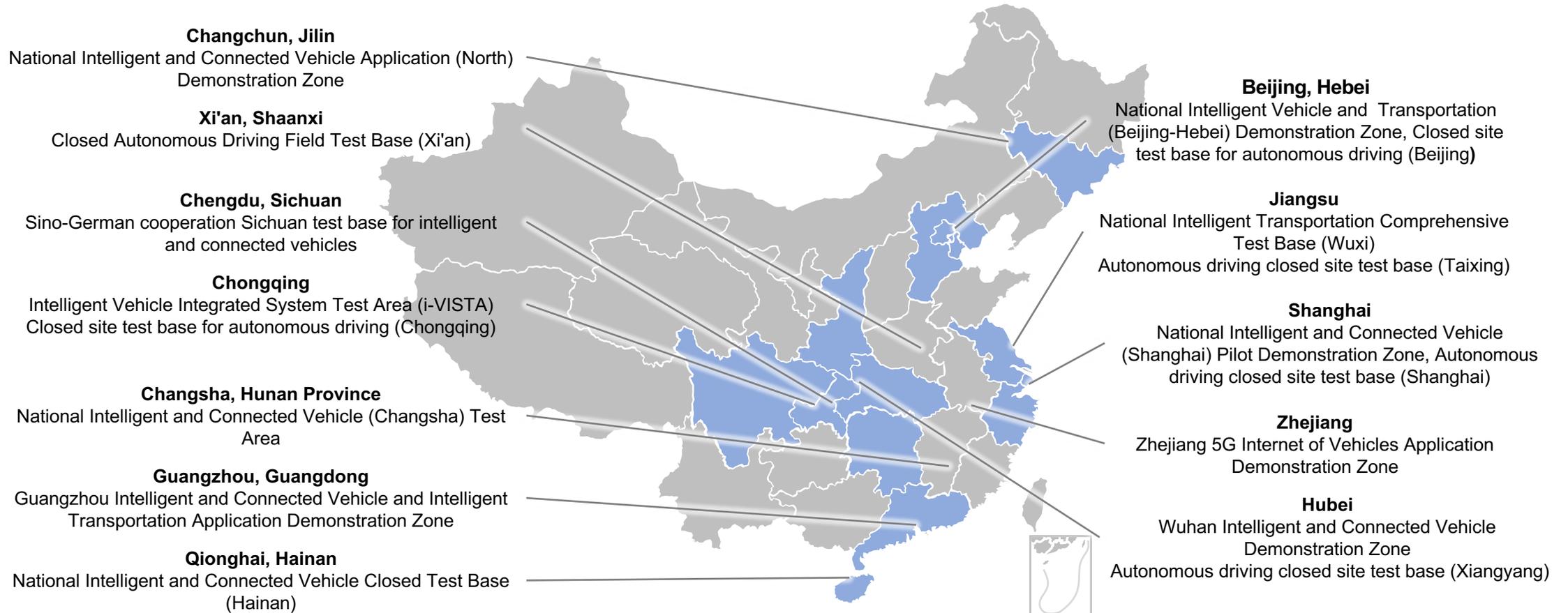
Radar, Camera, Electronic components, EMC

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- The Ministry of Industry and Information Technology, the Ministry of Public Security, and the Ministry of Transport actively support the construction of ICV pilot zones for testing and demonstration, and 17 national-level test sites have been built so far; In addition, there are more than 20 local testing sites supporting by local governments.**



China is systematically promoting the coordinated development of "dual intelligence"(intelligent vehicles+smart cities)

Take **Beijing** as an example



**14** companies **87** test licenses **2,213,400 km**  
of public road tests

**200**  
roads

中华人民共和国住房和城乡建设部办公厅  
中华人民共和国工业和信息化部办公厅

建办城函〔2020〕594号

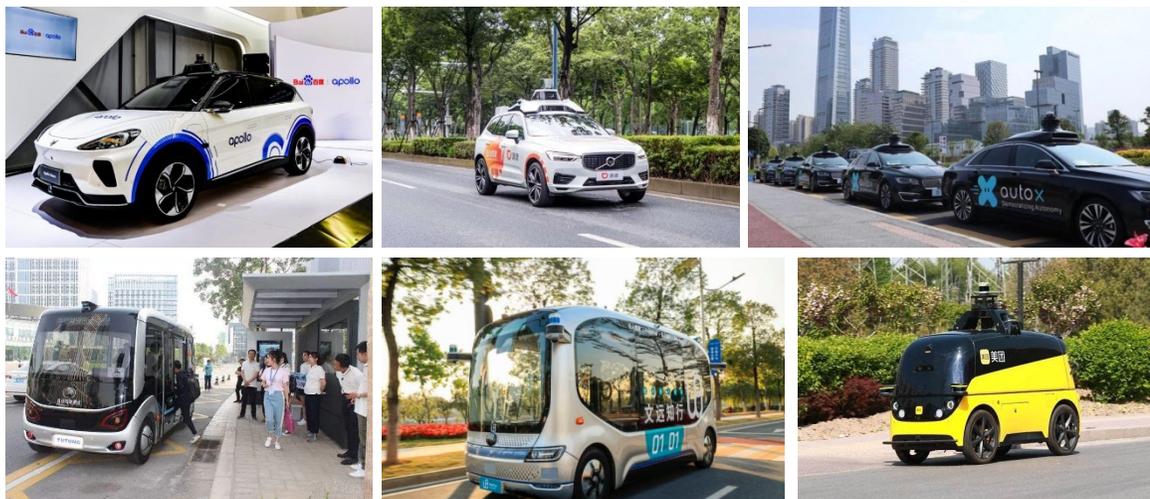
住房和城乡建设部办公厅 工业和信息化部办公厅  
关于组织开展智慧城市基础设施与智能  
网联汽车协同发展试点工作的通知

The first batch of "Dual Intelligence" pilot cities:

**Beijing, Shanghai, Guangzhou, Wuhan, Wuxi, Changsha**

The second batch of "Dual Intelligence" pilot cities:

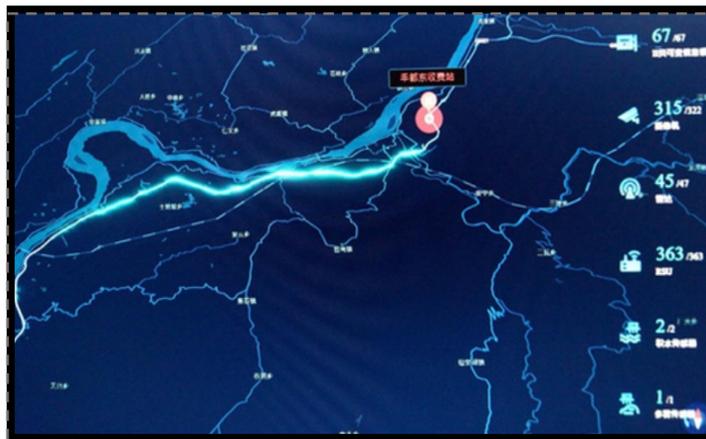
**Chongqing, Shenzhen, Xiamen, Nanjing, Jinan, Chengdu,  
Hefei, Cangzhou, Wuhu, Zibo**



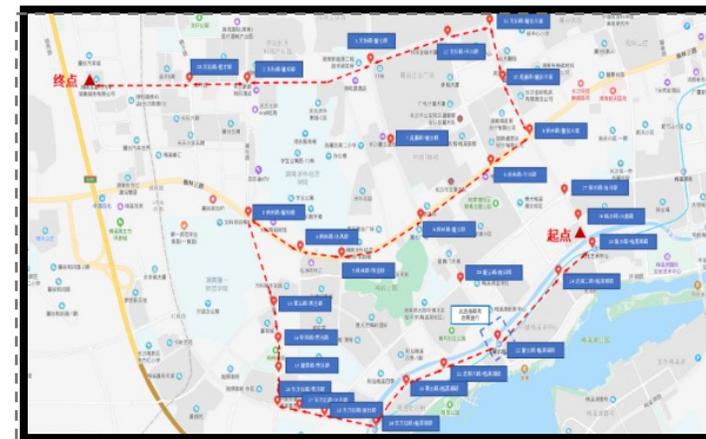
More than 6,000 sets of roadside units have been built in various parts of China



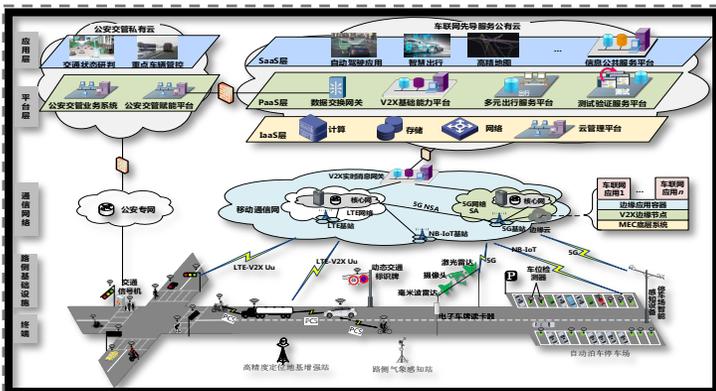
Beijing Network Cloud Control High-level Demonstration Zone



Chongqing Shiyu Intelligent Expressway



Changsha smart bus line



Wuxi city-level demonstration application architecture



Intelligent connected expressway in Shandong Province



Hunan Xiangjiang New Area 100km smart high-speed project

■ A number of auto manufacturers in China have announced mass production of vehicles equipped with C-V2X functions, and the industry is in the stage of exploring collaborative automated driving.

## Mass-produced model equipped with C-V2X technology

Brand	Equipped models	Communication mode
SAIC-GM	GL8Avenir	LTE-V2X
SAIC Feifan	MarvelR	5G+LTE-V2X
	FeifanR7	5G+LTE-V2X
Chinese Express	GaoheHiPhiX	5G+LTE-V2X
GAC AION	AION V	5G+LTE-V2X
FAW Hongqi	E-HS9	LTE-V2X
NIO	ET7	5G+LTE-V2X
Changan Ford	Sharp PLUS, Explorer, Mustang	4G
WM	W6	5G
Geely	Xingyue L	5G+LTE-V2X
GWM	WEYmocha ( E )	5G+LTE-V2X
Audi	A7L、A6L	5G+LTE-V2X

## Examples



GAC Trumpchi AION V



FAW Hongqi E-HS9



BAIC ARCFOX αs



SAIC Marvel R



GWM WEY Mocha



Geely Xingyue L

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## Laws

- Traffic Law
- Cybersecurity Law
- Act on Data Protection

**Mandatory**

## Regulations

- Regulation on road traffic management
- Regulation on ADV public road test
- Management requirement on OTA report
- Local regulations

**Mandatory**

## Guidelines

- Guideline on ICV standard system(road map)
- Guideline on ICV industry development
- Instructive advice on ICV market access

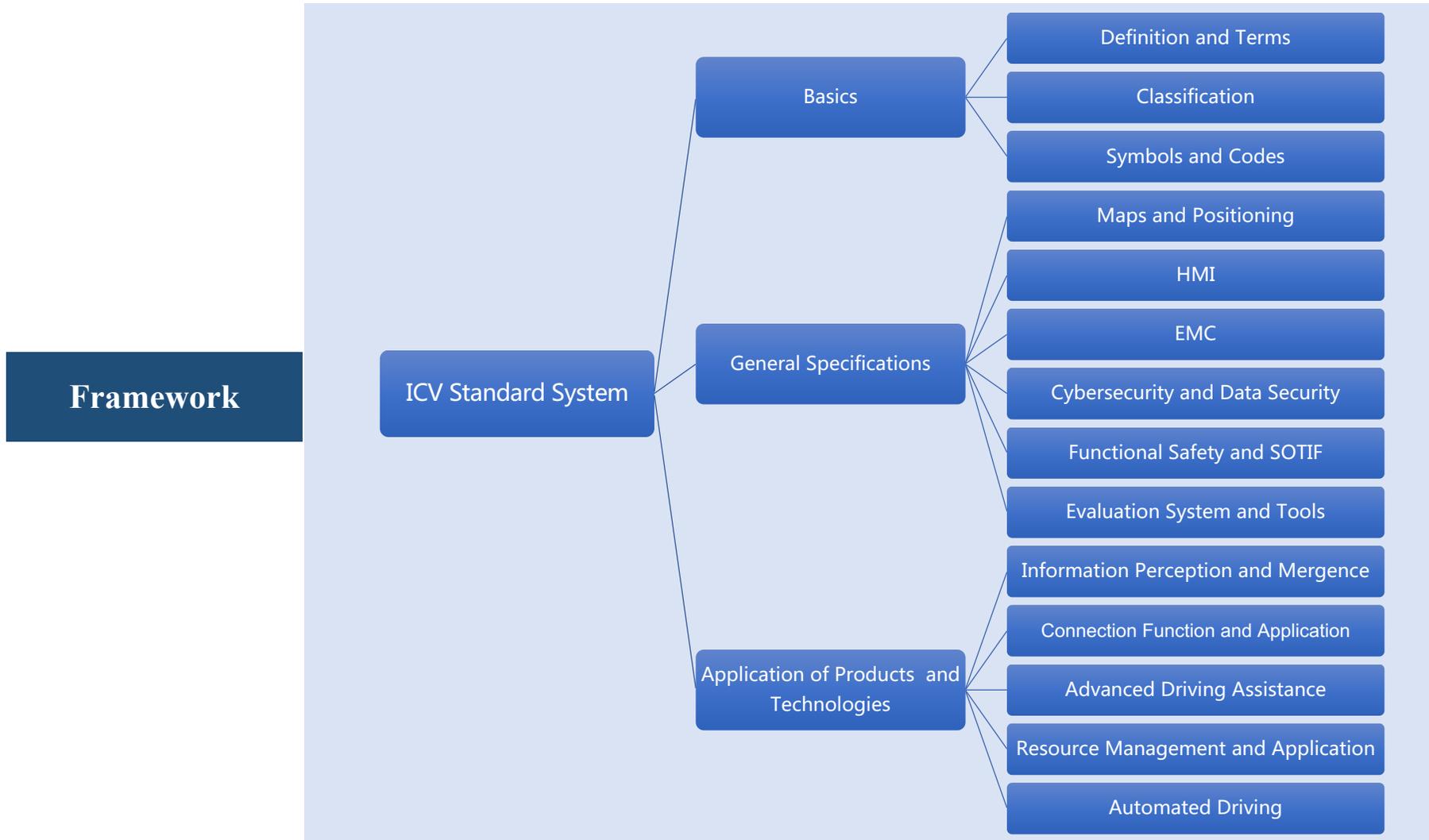
**Voluntary**

## Standards

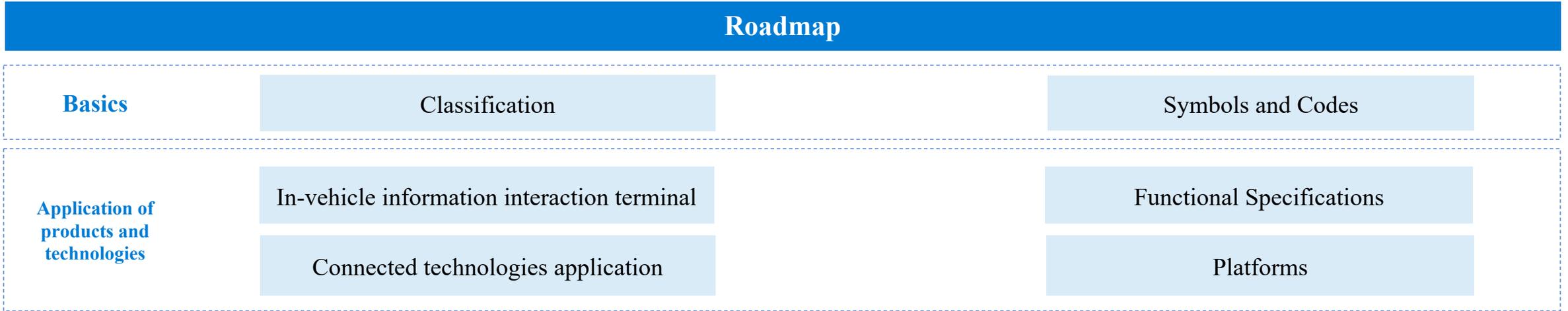
- Technical requirement and test method for ICV
- Technical requirement for vehicle cybersecurity
- Data storage requirement of ADS (DSSAD)

**Mandatory**

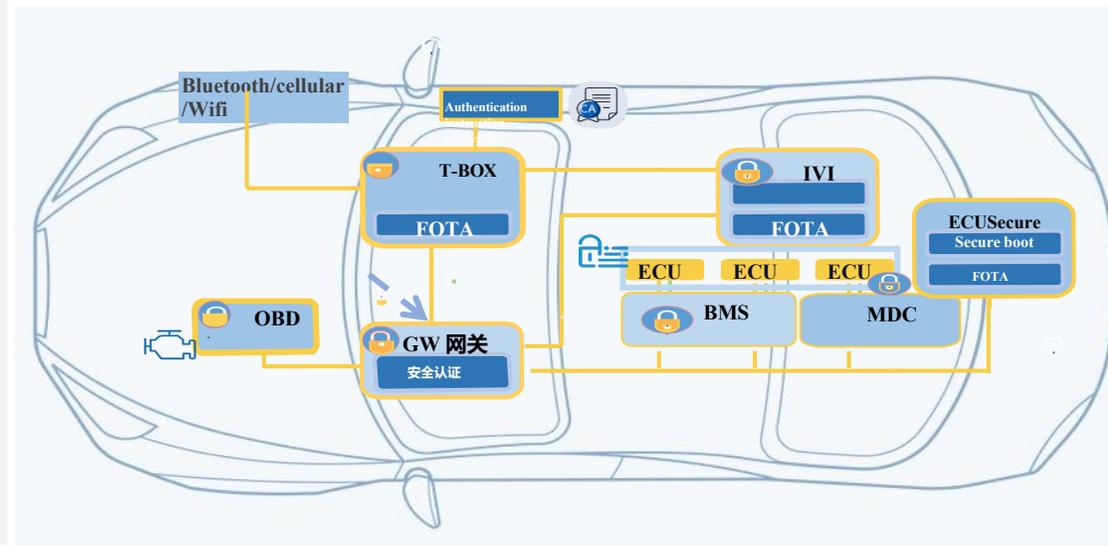
**Voluntary**



- The roadmap for connected function standards includes categories of basic, application of product and technology, etc.
- There are 9 standards being developed and applied for connected functions.



	Connected Vehicles General information Published	Connected Vehicle Design Guidelines Published	Vehicle wireless communication terminal Approved
In progress	LTE-V2X Technical requirements for interaction systems project proposed for registration	Connected technical information assistance system project proposed for registration	
	Digital keys project proposed for registration	Wireless short distance transmission new project registered	
	Accident emergency call system on board project proposed for registration	Vehicle antennas preliminary research	



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What's the role of standards on the development of ICV technology and industry? To promote, guide or regulate?

How to accurately adapt to the diversified needs of technology and industrial development?

The ICV involves vehicles, transportation, communication, smart city and other related stakeholders, how do they coordinate in the formulation of standards?



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