

South Korea

Regulatory developments and roadblocks

Key Korean government agencies and their roles

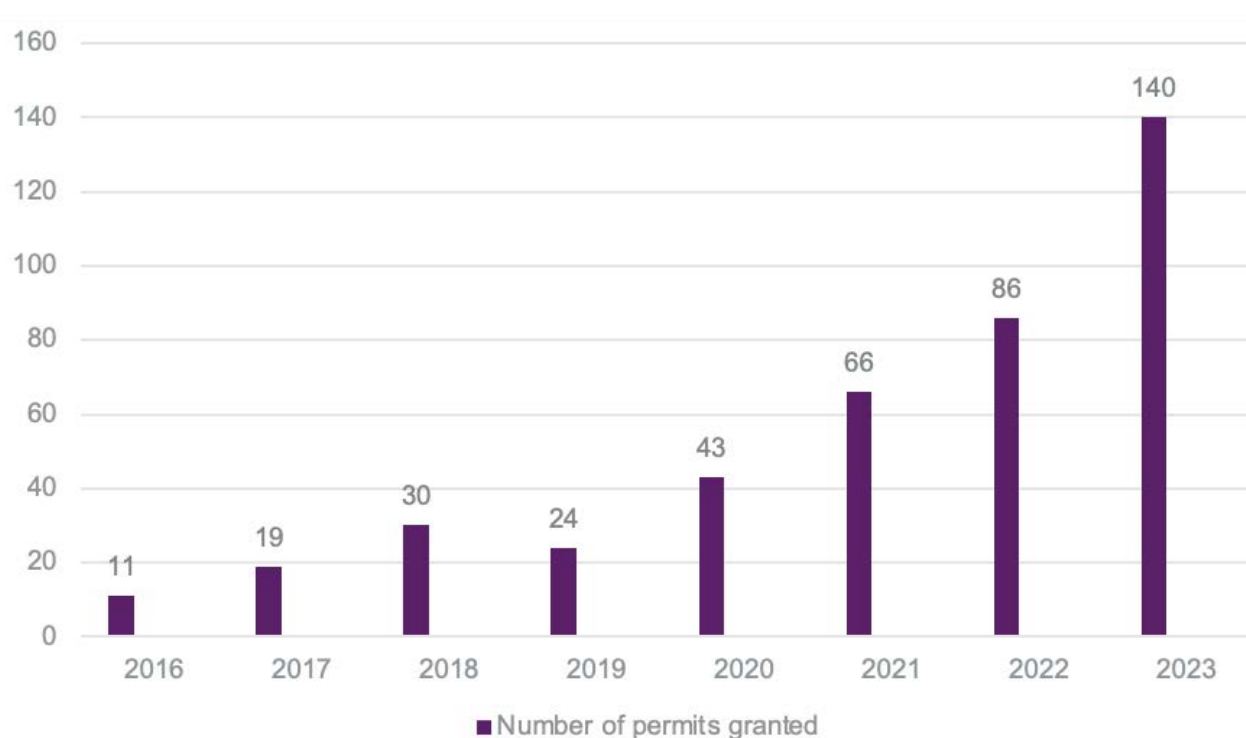
Government agencies	Role	Governing/Relevant Laws
Ministry of Land, Infrastructure and Transport (MOLIT) (n.b. KATRI (Korea Automobile Testing & Research Institute) is an institution under MOLIT)	Provides ITS (Intelligent Transport Systems) services and platforms. ¹³³ Makes Laws & Regulations (e.g., Announces safety standards for Level 3 AVs).	Motor Vehicle Management Act This is a law governing the management, performance quality and safety of automobiles. It serves as the basis for operating AVs, e.g., provides the definition of AV, allows test driving, etc. The Enforcement Decree of this Act stipulates the requirements for safe driving and test driving of autonomous vehicles. Guarantee of Automobile Accident Compensation Act This is a law that governs compensation for damage caused by the operation of automobiles. The Act specifies the obligations of the car owners, e.g., to subscribe to an insurance policy. (A requirement for insurance, even for the operation of test-driving, is stated in this law as well).
Ministry of Science and ICT (MSIT)	Information and Communication Technology Infrastructure ICT Service/Platform Frequency Distribution	Transport for NSW
Korean National Police Agency (KNPA)	Governs/regulates matters occurring on the roads (e.g., accidents). Issues driving licenses / Verifies authenticity of the licenses. Builds high-tech infrastructure in response to development of AVs (Currently in the process).	Road Traffic Act Amendment This is a law that aims to resolve traffic problems on the road and regulate safe driving. From April 20, 2022, a partial amendment to the Road Traffic Act became effective. The new amendment adds the definition of a "self-driving motor vehicle" as a motor vehicle (i) which can move on its own without the control of a driver or passenger, and (ii) is equipped with a self-driving system. A "self-driving system" means automated equipment, software and all other related devices that enable the motor vehicle to move by recognizing and judging surrounding circumstances and road information on its own without the input of a driver or passenger. In addition, using vehicles, horse-led carts, or trams on the road through a self-driving system is also included in the definition of "driving."

¹³³ Major ITS services and platforms designed and provided by MOLIT include AFC (Automatic Fare Collection), ETCS (Electronic Toll Collection System), and ATES (Automatic Traffic Enforcement System). The government provides national ITS data collected as such to the private sector to help the private sector with enhancing and expanding their ITS services.

Government agencies	Role	Governing/Relevant Laws
Ministry of Trade, Industry, and Energy (MOTIE)	<p>Advancement of Autonomous Technology</p> <p>Commercialization of Technology</p> <p>SME Globalization & Trading Support</p>	
Korea Transportation Safety Authority (TS)	Conducts research before the government makes laws.	
(Korea Automobile Testing & Research Institute)	Involved in drafting and publishing transportation-related policies.	

Rules, regulations, laws and guidance at the federal level

Autonomous Vehicle Act



Source: Number of permits granted in the past years, Korea Transportation Safety Authority

Effective from May 1, 2020

- Objectives: Provides necessary support/ infrastructure for introduction, spread and safe operation of AVs. Regulates necessary requirements in relation to AVs. Ultimately, the Act aims to contribute to the improvement of the public's living conditions and the development of the national economy by promoting and supporting the commercialization of AVs. (Paraphrased Article 1)

Key parts of the act

- (1) Designation of autonomous driving safety zones: The act offers a basis for the Minister of Land, Infrastructure and Transport's authority to designate "autonomous driving safety zones" and certain places on public roads where people can operate their vehicles autonomously.

In designating the zones, the Minister can consider whether the infrastructure has been created to support safe operation of AVs (Article 6 of the Act). In line with this provision, the Enforcement Decree of this Act provides the regulations on the standards and procedures for designating autonomous driving safety zones. More specifically, the Enforcement Decree requires that road structures, autonomous driving cooperation systems and the construction status of detailed road maps be considered when designating such safety zones. When designating or changing such safety zones, the authority shall notify autonomous vehicle manufacturers, etc. (Article 5 of the Enforcement Decree of the Act).

- (2) The Autonomous Vehicle Act enables the designation of AV pilot zones in which paid passenger ride and delivery services using AVs are allowed.
- Unconventional vehicles not complying with the Korea Motor Vehicle Safety Standards (KMOVSS),¹³⁴ such as delivery robots, will be allowed if safety measures are provided by the operating entity.
- Pilot tests of the new V2X technology will also be allowed in the AV pilot zones.
- **Designation procedure:** Application by municipal & provincial governors Committee Review (chaired by MOLIT minister) Designation of AV pilot zone.

Three guidelines were announced on December 15, 2020

“Guidelines’ currently, and thus, do not have binding effect – persuasive/recommendation only. Published as government publications with the statement “considering the complex nature of the matter [AVs], it is hard to institutionalize in a short period of time” (press release by MOLIT on December 15).

1. The Ethics Guideline for AVs and Stakeholders

Press release:

“The principal rule is that AVs shall be designed and manufactured in a manner such that protection of human life can be prioritized. Accordingly, rules such as ‘human lives shall be prioritized over property’ and ‘if avoiding accidents completely is impossible, [devise a method to] minimize the loss of life’ are included in the Guideline. Also, there are some ethics guidelines in relation to the user of the AV, such as ‘one’s operating an AV should not infringe others’ freedom and rights’ and ‘the user is required to take safety education to operate an AV properly.’”

2. The Guideline for Cyber Security

- Based on the UNR No.155 introduced in June 2020, MOLIT has written the Guideline for Cyber Security focusing mainly on a recommendation for automobile manufacturers. The guideline was announced on December 15, 2020.
- According to the guideline, a manufacturer should “preserve security by utilizing cybersecurity management procedures, for example, by “detecting and notifying users of risks, based on a ‘risk evaluation process’; reducing the level of risk by utilizing a ‘security measures process’; carrying out a ‘verification process’ to confirm the adequacy of the security measures.” (press release)

¹³⁴ KMOVSS refers to the corresponding standards of the Automobile Management Act of Korea. (a.k.a. Motor Vehicle Management Act) – See Chapter III of the Act for further details.

- MOLIT is planning to revise the relevant law to incorporate the guidelines and obligate the relevant parties to take actions to preserve cybersecurity. (According to a press release dated December 15, 2020, the government plans to implement a law incorporating this guideline in July 2022)

(3) The Guideline for the Manufacture/Safety of Level 4 AVs

- The government provided a system for commercialization of Level 3 AVs in July 2020 and is currently in the process of introducing one for Level 4 AVs. The guideline was announced on December 15 to promote technology development for AVs by providing recommendations on necessary requirements for the safe operation/design/manufacture of AVs before the government's official enactment of the law.
- **The guideline is composed of three parts**
 - i. System security area;
 - ii. Safe operation area;
 - iii. and Safety education and ethical considerations.

Part (i) provides guidelines to minimize design defects and malfunctions of the AV and to protect the AV from cyber threats. **Part (ii)** aims to minimize the risk of accidents in the operation stage by providing guidelines for safe interaction among the users of the road (e.g., pedestrians, other cars, etc.) under diverse road conditions. **Part (iii)** concerns proper design and operation of AVs.

Key governmental policies on AVs

Regulations for Drivers of Self-Driving Motor Vehicles

- Drivers of self-driving motor vehicles that are not equipped with a complete self-driving system will be required to immediately respond to the demand of the system to drive the car in person. The drivers must take direct control of the steering wheel and braking system to assume driving. A violation of this obligation may be subject to a fine of up to KRW 200,000 or detention or penalty.
- In the case of a road without a center line among roads where sidewalks and roadways are not separated, drivers of self-driving motor vehicles have obligations such as maintaining a safe distance, slowing down, or temporarily stopping to protect pedestrians.

Act to Support Mobility Innovation and Revitalization

Instituted in April 2023, the "Act to Support Mobility Innovation and Revitalization," a specialized regulatory sandbox covering all sectors related to means, infrastructure, services, and technology has been introduced, establishing a new support system for the commercialization of new mobility technologies. This legislation is designed to establish a legal framework to address a range of emerging transformations, extending beyond just autonomous driving technologies. Numerous Korean companies are gearing up to deploy new modes of transportation across various sectors, including air taxis, robots, and automated cars. Notably, firms with strong technological foundations in areas like semiconductors and mobile communications are making significant advancements. The South Korean government is actively working to establish a robust future mobility ecosystem. Despite these efforts, there are still considerable challenges in expanding beyond the limited Korean business market.

"The regulatory sandbox system included in the Mobility Innovation Act is broadly composed of

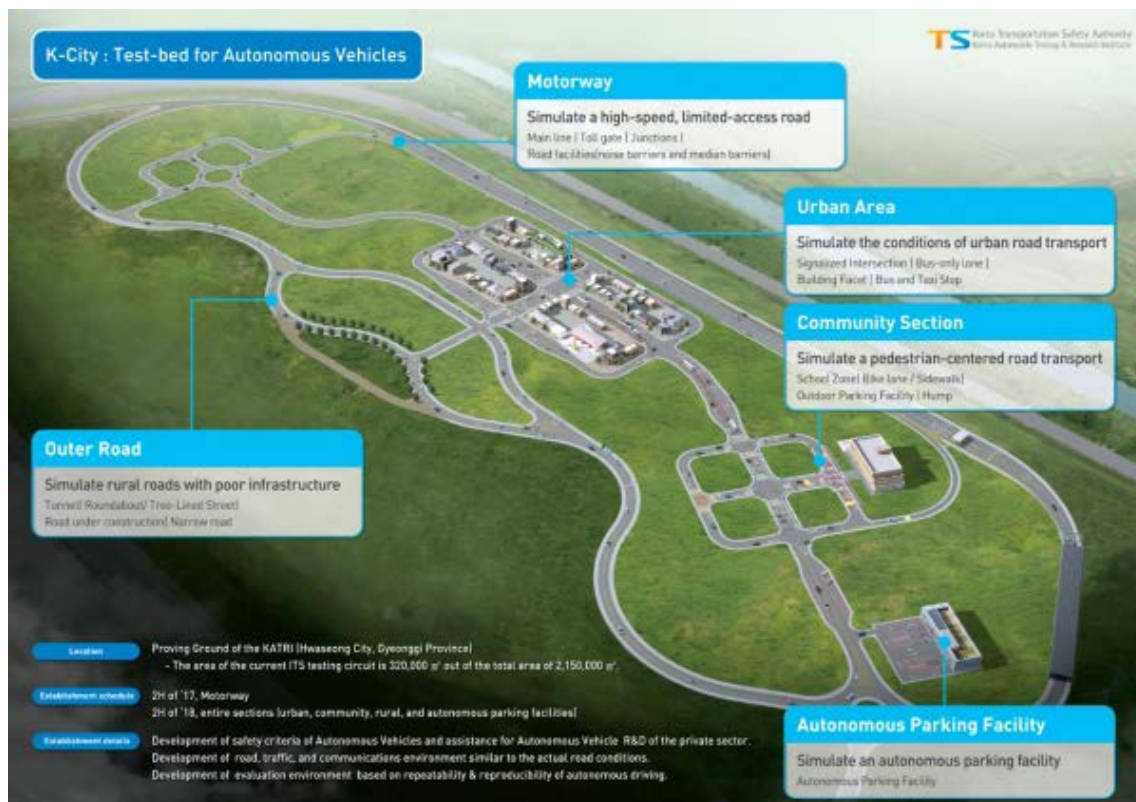
1. A system for rapid confirmation of regulations, and
2. A system for exceptional demonstration, with their specific details as follows.

Quick Confirmation (Article 11)

This system allows businesses related to new mobility means, infrastructure, services, and technology to request MOLIT to confirm whether licensing or permits are necessary for their operation. The Ministry is required to respond within 30 days, and if there is no response within this period, it is considered that the matter is not under the jurisdiction of the Ministry or that no license or permit is required.

Exceptional Demonstration (Articles 12 to 14)

1. This system allows businesses to operate within a certain area, period, and scale in cases where there are no relevant standards, specifications, or requirements in the licensing or permitting basis laws for the particular mobility means, infrastructure, services, or technology (ambiguity),
2. it is inappropriate to apply the standards, specifications, or requirements according to the licensing or permitting basis laws (unreasonable),
3. it is impossible to apply for licensing or permits under other legal provisions (prohibition). Typically, the validity period is set for within two years, and if the laws are not revised before the expiration of the validity period, it can be extended for up to two more years. The business operator can request the revision of related laws."



Source: 'Test-bed' plan, Korea Transportation Safety Authority

'ICT Regulatory Sandbox'¹³⁵

The aim of this scheme is to help the market entry of new technologies and services that are acknowledged to be innovative and safe. The scheme allows technology and service developers to conduct demonstration tests (albeit with restrictions as to time, place, and scale).

Key contents/system

- **(1) Prompt Confirmation:** When a company is starting a new technology/industry, it can inquire whether any relevant regulations exist and whether a permit is required. The government agency will reply within 30 days. (If it receives no reply from the government within 30 days, then the company making the inquiry may assume there is no regulation that applies to its case).
- **(2) Temporary License:** Where companies providing new products/services are having difficulties in releasing their products/services in the market because of the ambiguous or unreasonable regulations, notwithstanding the safety and innovation of such products/services having been proven, a temporary license may be granted. Once the temporary license is granted the products/services are not subject to the existing regulations upon satisfying certain conditions. Licenses can be granted to cover a maximum of 2+2 years, with the approval of the "Public-Private Regulatory Special Case Deliberation Committee" (allowed for a two-year term, which may be extended for another two years, subject to an obligation to improve the relevant laws and regulations within the period of the license).
- **(3) Demonstration Exception:** When testing and verification of new products/new services are required at a time when relevant laws and regulations are ambiguous and unreasonable or when there are some prohibitive regulations, etc., testing of new technologies or services is permitted, despite the existing regulations, under certain conditions (e.g., within a limited area/scale/period). This exception can be allowed for a maximum of two plus two years with the approval of the "Public-Private Regulatory Special Case Deliberation Committee" (allowed for a two-year term, which may be extended for another two years, subject to an obligation to improve the relevant laws and regulations during that period. When delayed, a temporary license may be used).

A case that benefited from the system is the Siheung Bae-got New Town Life Park and its Autonomous patrol vehicle "Goalie." While the release was delayed, the project received permission for test-operating through the ICT sandbox system.



¹³⁵ This Regulatory Sandbox scheme is being governed by the Ministry of Science and ICT of Korea, thus often referred to as ICT Regulatory Sandbox in a short form. (<https://www.korea.kr/special/policyCurationView.do?newsId=148857563>)

'Land Transportation Innovation Fund'

Operation began in 2020 with an investment of approximately KRW 17 billion but has since expanded. According to the Minister of Land, Infrastructure and Transport, it created KRW 340 billion of general and specialized sub-funds, recruiting private management companies for the No. 4 and No. 5 sub-funds of the "Land Transportation Innovation Fund" to support the innovative growth of small and medium-sized enterprises and ventures with promising technologies in the field of land transportation. The sub-funds are earmarked as follows:

- **1) General (No. 4):** Invest more than 70 percent in small and medium-sized venture companies that possess, develop, or commercialize land transport technology in the land transport industry and related industries.
- **2) Specialization (No.5):** (i) Drone, (ii) Smart logistics, (iii) Autonomous vehicle (including ITS), (iv) Smart city, (v) Smart construction (including digital engineering, architectural BIM, etc.), (vi) Invest more than 60 percent in small and medium-sized venture companies in the field of green remodeling.



Establishment of an 'Innovative Growth Support Center'

- The government invested KRW six billion to start the establishment of an Innovation Growth Support Center which is slated to be completed in early 2022. This two-story center will be as large as 2000m2 and will be equipped with self-driving R&D facilities, such as a vehicle maintenance garage, security garage and a data analysis facility. This is a policy that enables small and medium-sized enterprises, for whom it has been difficult to equip their own vehicle storage facilities and research facilities, to develop and secure technologies without incurring large costs.

Cross-ministry R&D plan for Commercialization of Level 4 AVs (investing approximately KRW1.1 trillion) commenced in 2021

Government stance/government representatives' statements

Overall attitude: Supportive and willing to cooperate

- Many regulatory obstacles remain, but government/relevant authorities are making efforts to alleviate them by implementing policies such as regulatory sandboxes.
- The Ministry of Land, Infrastructure and Transport has collaborated with the Korea Transportation Safety Authority (KOTSA) to upgrade facilities of K-City, an autonomous vehicle testbed in Hwaseong some 40 kilometers (24.8 miles) southwest of Seoul, to provide various environments that can simulate low-visibility weather conditions such as heavy rain and thick fog. The new testbed will be usable in the first half of 2022. The establishment of the next-generation intelligent transportation system (C-ITS) as well will be initiated soon, so that it can be built on major highways and national highways by 2022.”¹³⁶
- In June 2021, the Korea Transportation Safety Authority established the AV Transportation and Logistics Master Plan 2025 to commercialize autonomous driving-based transportation and logistics systems through the commercialization and proliferation of autonomous vehicles.

AV Master Plan 2025

Vision: The era of autonomous driving commercialization begins in 2025.

Goal:

1. Provision of autonomous driving commercial service on highways and major branches;
2. Development of technology based on autonomous driving service (BRT, on demand); and
3. Regulation improvement and infrastructure establishment for AV service.

Strategy:

1. Advancement of autonomous driving service technology;
2. Expansion of an autonomous service demonstration;
3. Creating the autonomous driving service business;
4. Reinforcement of autonomous driving safety; and
5. International cooperation related to autonomous driving job expansion.

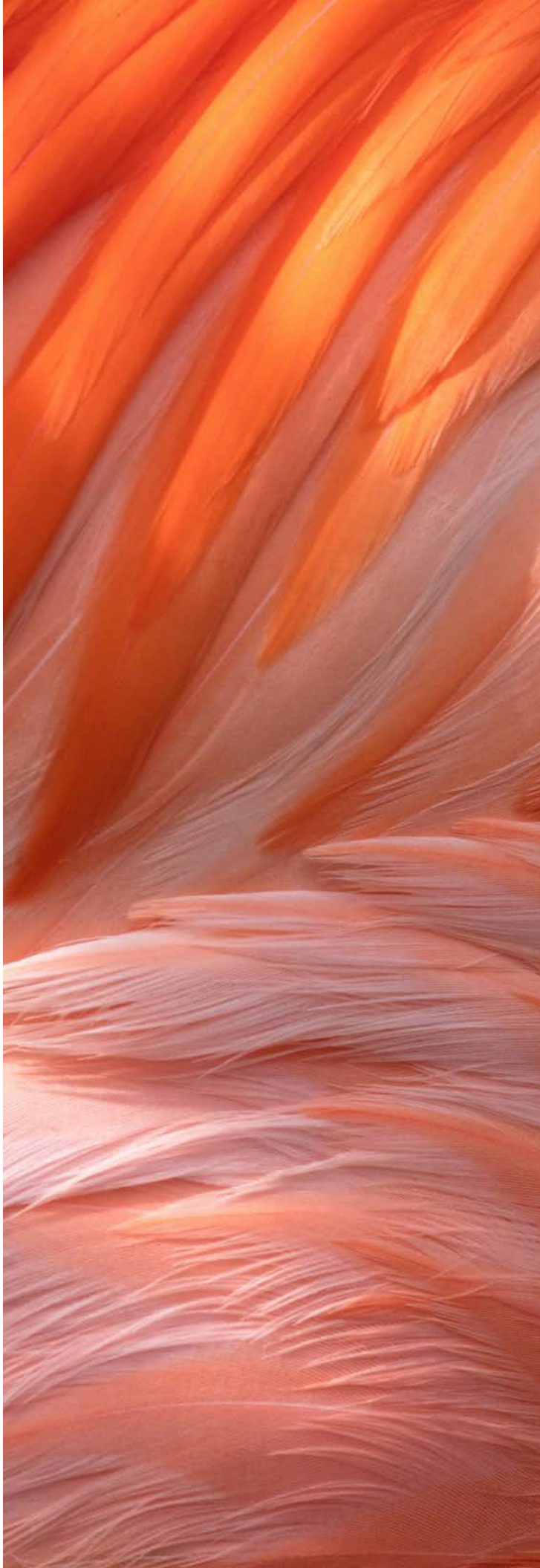
¹³⁶ Resource: Article titled “Government will speed up to support the AV-developing companies ... ‘Innovative Growth Support Center’ construction commenced” (dated June.19, 2020) published on the website, “Republic of Korea Policy Briefing (www.korea.kr)”; (<https://www.korea.kr/special/policyCurationView.do?newsId=148857563>)

Driverless vehicle testing and deployment

The Korean government has been operating a “temporary permit scheme” since 2016 to support the development of autonomous-driving technology. The scheme allows test-operation/test-driving of qualified AVs on public roads.

In 2020, 119 AVs from 41 entities received permits and the distance driven in Korea has exceeded 1,170,000 km. As of November 2022, the Ministry of Land, Infrastructure and Transport (MOLIT) gave temporary permits to 258 self-driving cars. The number of pilot zones has also increased to 14 including Seoul, Sejong City, Gwangju, Daegu, Jeju, and Pangyo. The pilot zones are areas where various commercial autonomous vehicle-related services such as car-hailing services are demonstrated.

STRADVISION, a trailblazer in deep learning-based vision perception technology for the automotive industry, has recently established a new 'Autonomous Driving Workshop' in Dongtan, Gyeonggi-do, South Korea. This workshop is focused on enhancing vehicle object recognition technology. Spanning nearly 18,000 square feet, STRADVISION's facility is dedicated to the optimization and calibration of cameras and sensors for autonomous vehicles. The workshop boasts facilities for testing and advancing camera-based autonomous driving, as well as other sophisticated technologies like lidar and radar, facilitating a variety of research and development projects tailored to different levels of autonomous driving technology. Designed as a standalone facility, it can accommodate up to 40 engineers working concurrently on 6 test vehicles for simultaneous testing and development.



Breakdown of permits issued across various entities

Total permits: 420

Number of permits issued across various entities

The MOLIT announced that it will establish and operate a weekly traffic safety training course for self-driving car test drivers (safety management personnel) to prevent safety accidents caused by self-driving car test operations.

Self-driving car test drivers are those who check driving conditions and normal operation inside and outside autonomous vehicles and take emergency safety measures. The MOLIT seeks to ensure safety by designating test drivers and imposing management obligations for safe driving. The curriculum is expected to strengthen self-driving stability by further enhancing test drivers' expertise and ability to cope with situations even in the face of the recent increase in self-driving cars.

Key revisions to note

- Breakdown the category of AVs into three types; (A) the traditional type of AV; (B) AV without a driver's seat; and (C) Unmanned AV.
- Under the current procedures, type (B) and (C) AVs are not eligible to obtain a temporary permit. (In the case of type (B), a permit is obtainable only when an exception in the law applies.) After the revision occurs, both type (B) and (C) will be eligible to receive a permit.

- Tailored permitting requirements will apply for each type of AV. For example, for type (B) AVs, a temporary permit may be granted only if the AV has incorporated certain functions – e.g. an emergency stop button for passengers, emergency controls, automatic stop function in case of breakdown, etc. For type (C) AVs, emergency control buttons on the left and right side of the AV.

Temporary permits and other requirements for test driving

Currently, only autonomous vehicles that have received a temporary driving permit (upon the condition that a driver is on board) are allowed to operate on the roads across the country.

At least a "temporary driving permit" from the Minister of Land, Infrastructure and Transport is required for test driving of autonomous vehicles. Also, a preliminary test drive of 5000 km in accordance with the "Regulations on the Safe Driving Requirements and Test Driving of Autonomous Vehicles" is required.

Since February 2016, permits have been granted only to vehicles that meet the "minimum safe driving requirements."

"Minimum safe driving requirements"

[See "Regulations on the Safe Driving Requirements and Test Driving of Autonomous Vehicles" (Chapter 2, para 1)]

- Vehicle must be certified to meet minimum safe driving requirements through a self-certification process by eligible manufacturers, or by the government (Article 30(3) of the VMA; and Article 34 of the Enforcement Decree of VMA).

- Any car owner or party who has the right to use the car, who wishes to obtain a temporary driving permit for the purpose of testing/ researching AVs (“applicant for autonomous vehicle temporary driving permit”), is liable for damages for personal injuries arising from the operation of such vehicle. In addition, he/she must subscribe to adequate insurance to ensure payment of damages.
- The applicant for an AV temporary driving permit must conduct sufficient pre-driving (5000 km) at a test facility, etc. to confirm the operation of the autonomous vehicle functions.
- The applicant for an AV temporary driving permit must submit a list of test products and related data to the performance test agent. The test products and related data which must be submitted include: the vehicle subject to the permit application, descriptions of technical stages, structures and functions of such vehicle, insurance and other subscription certificates, pre-test driving report, etc.
- To obtain a temporary driving permit to operate an AV, an “AV test drive” notice must be posted on the rear of the vehicle. The size of the letters must be at least 70 mm in length and width, respectively, and such notice must be attached to a position of an appropriate height that can be easily seen by a driver behind such vehicle and must be identifiable at night.
- Permitted zones/areas for operation: Since November 2016, it has been possible to operate on all roads in the country except for protected areas for the transportation of vulnerable people (e.g., children protected areas). (Article 26-2(1)3 of the Enforcement Rules of the Vehicle Management Act).
- For any vehicles that have difficulty meeting the safety driving requirements and safety standards (“Vehicle Rules”) due to their technical features (e.g., autonomous shuttle bus has no available driver’s seats – thus, particular regulations such as the safety driving requirements and safety standards based on the existence of a driver’s seat cannot be fulfilled), temporary operation thereof is permitted by applying special regulations.¹³⁷

Test driving of autonomous vehicles on the condition that the driver will be on board was permitted by Ordinance of the Ministry of Land, Infrastructure and Transport (the Vehicle Management Act and the Enforcement Decree of the Vehicle Management Act).

The test driver is responsible for any accidents that occur during temporary operation.

- **Scope of liability:** If a driver causes injury to another person, the driver is liable to compensate for the damage (injury) caused by the accident (Guarantee of Automobile Accident Compensation Act). However, in terms of criminal liability, AVs are not subject to punishment as an AV does not fall within the scope of ‘vehicle’ under the Act on the Aggravated Punishment, etc.

¹³⁷ See Article 114 of the Regulation on the Performance and Standards of Automobiles and Automobile Parts; and Article 22 of the Regulation on Safe driving Requirements of AVs and Test-driving.

Personal Information Safe Zone

The PIPC intends to create a "Public-Private Joint Personal Information Regulation Innovation Group" with the goal of enhancing the private sector's capacity to utilize personal data. This will involve the elimination of redundant and overlapping regulations between the PIPA and related laws, as well as establishing a single point of access for addressing corporate grievances. Additionally, the PIPC aims to promote the adoption of pseudonymized data by setting standards for pseudonymizing unconventional data, operating support platforms, and transforming the Pseudonymized Data Use Support Center into a Personal Information Use Support Center.

In the latter part of 2023, the PIPC plans to actively recruit and provide support to startups and initiatives that leverage pseudonymized data within specialized industries in various regions. Furthermore, for the purposes of AI research and the development of autonomous driving technology, the PIPC will introduce a "Personal Information Safe Zone" to facilitate unrestricted analysis and utilization of personal information in a secure environment.

AV testing at the 'test-bed' (K-City)

AV proving ground, K-City, officially opened in December 2018. K-City provides a real-world environment, including highways, urban and suburban roads, parking lots with 35 experimental facilities such as tollgates, crosswalks, BRT lanes, intersections, WAVE and 5G stations.

Workspaces for participating companies and new facilities to simulate extreme weather and GPS shadowing will be added by 2022.

Pedestrians and traffic will simulate a busy city road using robots. Self-driving cars will be evaluated based on their ability to avoid traffic and counteract unexpected situations.

Mobility Innovation Roadmap

On September 19, 2022, the Ministry of Land, Infrastructure and Transport (MOLIT) established the 'Mobility Innovation Committee' to identify key technologies and prepare a future roadmap. The committee consists of experts from the private sector working solely in transportation, consumer products, and IT fields. The MOLIT plans to enlarge and reorganize the Mobility Innovation Committee into a public-private joint organization for the smooth implementation of the mobility roadmap, to check the implementation status of the roadmap, and to discuss discovering new tasks and supplementing existing ones.

The introduction of Level 3 autonomous vehicles in 2023 marks the start of the fully autonomous driving age. It is anticipated that Level 4 autonomous vehicles will hit the market in 2027, followed by Level 5 autonomous vehicles in 2035. In preparation for these advancements, the MOLIT aims to establish safety regulations and an insurance framework for Level 4 autonomous vehicles' debut in the country by 2025. Based on this future scenario, by 2030, a total of 40 regulatory innovation tasks will be prepared, including 20 new tasks in three areas: vehicle, infrastructure, and service. In order to enable free demonstration of autonomous driving technology and services, the MOLIT will designate autonomous vehicle trial operation districts by 2025 through the introduction of a system for designation of autonomous vehicle trial operation districts, and after that, a specific area will be designated.

The key targets under the roadmap were as follows:

1. A Level 3 autonomous car would be released by 2022 becoming the third country in the world to do so, after Germany and Japan.
2. Autonomous buses will be launched on public roads by 2025 and cars by 2027.
3. The country will also change car insurance, driver's license, and traffic-related laws to fit Level 4 automation.

4. By 2030, real-time communication infrastructure will be built on national roads (about 110,000 km), and congested areas such as downtown areas. A nationwide real-time communication infrastructure on national roads on a direct communication method (WAVE or C-V2X) will be established, but for non-congested areas, a hybrid method will be promoted, such as using the existing mobile communication network (V2N method).

The above target for release of a Level 3 autonomous car was changed to late 2023. However, as of late November 2023, testing is still continuing.

- **Short-term (2022–2023) major tasks:**
(1) Allowing autonomous driving software over-the-air update (OTA); (2) Providing pseudonymization standards to promote the use of autonomous driving image data; (3) Establishing an authentication management system to strengthen the security of the autonomous driving cooperation system; (4) Expanding special cases for autonomous mobility service.
- **Mid-term (2024–2026) major tasks:**
(1) Complementing safety standards for Level 4 autonomous vehicles and Level 3 commercial vehicles (buses, trucks); (2) Establishing an administrative sanctions system for traffic violations; (3) Revising driver concepts and deregulation of mandatory requirements; (4) Supplementing Level 4 autonomous vehicle insurance regulations; (5) Deregulating autonomous driving vehicle classifications to respond to the new mobility.
- **Long-term (2027–2030) major tasks:**
(1) Establishing a Level 4 autonomous vehicle inspection/maintenance system; (2) Allowing new autonomous vehicles a simple license; (3) Deregulating the classification system for a passenger transportation business to introduce new services.

Connected vehicles and logistics

Liability

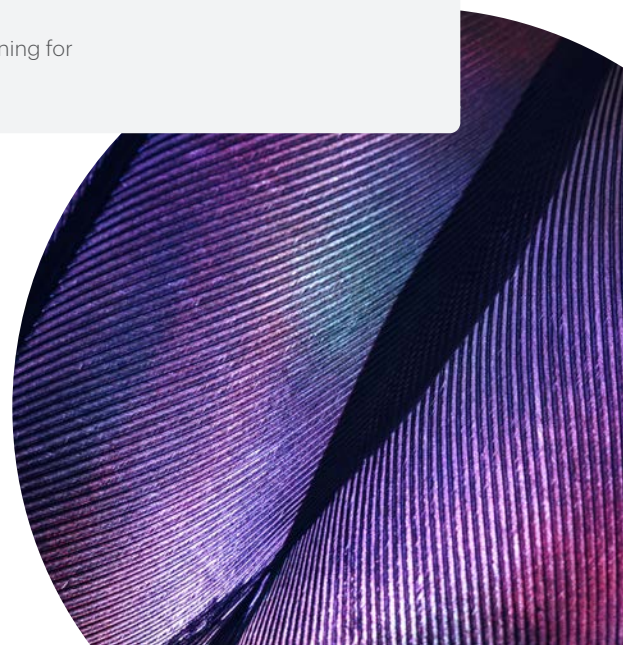
Responsibilities of the actors

The *Monthly KOTI Magazine on Transport* (2020.10) summarizes responsibilities of the relevant actors, set out in the Ethics Guideline for AVs and Stakeholders, as follows:



Government agencies	Role	Governing/Relevant Laws
<i>Design Authorities - who design the AV utilizing relevant soft-ware and hardware technologies.</i>	<ul style="list-style-type: none"> Design authorities must design AVs in a manner such that the vehicles can store driving records, etc. Design authorities must design AVs in a manner such that the vehicles may prevent accidents as much as possible. In the event of an unavoidable accident, AVs should be designed to minimize damage to the passengers and other parties. 	
<i>Manufacturers - who develop the AV technologies or manufacturers who assemble the cars</i>	<ul style="list-style-type: none"> Manufacturers must produce AVs in a manner such that the vehicle can record and store any driving-related data. Manufacturers must produce and sell AVs in compliance with certification standards, bioethics, information & communication ethics and engineering ethics. Manufacturers are responsible for any damage caused by manufacturing defects of AVs. Manufacturers are obligated to provide AV owners and users with instructions (e.g. cautions in using certain functions of AVs and guidelines on safe driving) - they must provide the relevant information in writing and faithfully respond to any inquiries from the drivers and users. Manufacturers must be equipped with a cyber security system and must always provide drivers and users with information on any changing matters. 	Product Liability Act (by FTC): This law governs the liability of manufacturers for any damages caused by defects in products. AVs correspond to a product under the Product Liability Act, but the software (system/program used in AVs) therein cannot be considered as a product and therefore cannot be held responsible for the product. However, liability may be imposed if such software can be interpreted as embedded software.
<i>Service Authorities - who provide services in response to the demand in the market, utilizing the AVs made by the manufacturers. (e.g. Siheungsi (City) provides patrol services with the 'Goalie' manufactured by Mando; Incheon Airport provides transport services with the autonomous trains and carts manufactured by Incheon Airport Corporation and domestic SMEs.)</i>	<p>Service authorities must protect the safety of users and shall not infringe or harm the interests of others or public interests.</p> <p>Service authorities must keep the software of AVs current to the most recent version available.</p> <p>Service authorities must protect the personal information produced in the course of providing services.</p> <p>Service authorities should make efforts to minimize any illegal use and abuse.</p>	
<i>Drivers</i>	<ul style="list-style-type: none"> Drivers must drive AVs according to the vehicle's intended purpose and functions. Drivers must not make any arbitrary or illegal modifications that could cause safety problems in AVs. Drivers must complete a sufficient amount of training for safety before driving. 	

At least for now, the statutes/laws of Korea are silent on issues concerning allocation of liability in case of accidents (the AVA only going so far as to stipulate a narrow insurance requirement).



Additional liability imposed on the manufacturers under the UN regulation

- A new UN regulation will soon require vehicle makers in South Korea (together with those in Japan and EU) to secure connected vehicles from cyber security threats.
- Concern on cyber security threats: Hackers remotely accessing autonomous vehicles, posing a risk to public health and security.

UN regulation

- Aim: Ensure manufacturers take adequate steps (e.g., take action and respond when consumers' cars get hacked) to protect their vehicles and customers from these types of threats.
- Manufacturers must address specific threats, such as potential malware infiltration of servers, which could give hackers access to troves of connected vehicle data.
- Manufacturers must document ways they will protect vehicles from specific threats, how they will up-date authorities on the success of their efforts at least once annually, and how they will report pertinent data on cyberattacks.
- While the date of implementation varies by region, in South Korea the regulation was incorporated into the "Guidelines for Cyber Security," which was announced by MOLIT on December 15, 2020.

Data privacy and security

Exemption from general data privacy rules in the context of AV operation, subject to anonymization under the AVA

Generally, under the data protection laws of Korea, activities/businesses that collect and use personal information are subject to strict restrictions, such as consent requirements, use for consented/specified purposes only, etc. Traffic information of pedestrians, other drivers, and drivers of AVs, fall within the scope of 'restricted' information as those are personal information as well.

However, the Autonomous Vehicle Act (AVA) provides an exemption from data restrictions in the Korean data protection laws. More specifically, Article 20 of the AVA provides that the three Korean data protection¹³⁸ laws are not applicable to the use of personal information¹³⁹ collected during the operation of AVs, provided that the information is anonymized. *

- Implications of the AVA: Collecting and using personal data may not necessarily trigger general data protection requirements under the relevant laws.
- **Note***: Providing an exemption for the data protection laws as such does not mean that use of the data is unconstrained throughout the interval between the collection of data and the anonymization of such data.
 - i. The AVA does not, by itself, clarify (to) what scope/extent the handling of such data is exempted from the restrictions before anonymization is done.
 - ii. Where personal data is collected outside Korea and anonymization is done outside, whether you need 'con-sent' to use such data or are permitted to use it without consent remains unclear.

138 Personal Information Protection Act, Act on the Protection, Use, etc. of Location Information, and Act on Promotion of Information and Communications Network Utilization and Information Protection, ETC.

139 Personal information' here means (i) personal information within the meaning of Article 2-1 of the Personal Information Protection Act, (ii) location information of individuals within the meaning of Article 2-2 of the Act on the Protection, Use, etc. of Location Information, and (iii) other information designated as personal information by Presidential decree.

The Guidelines for Cyber Security (announced by MOLIT on December 15, 2020)

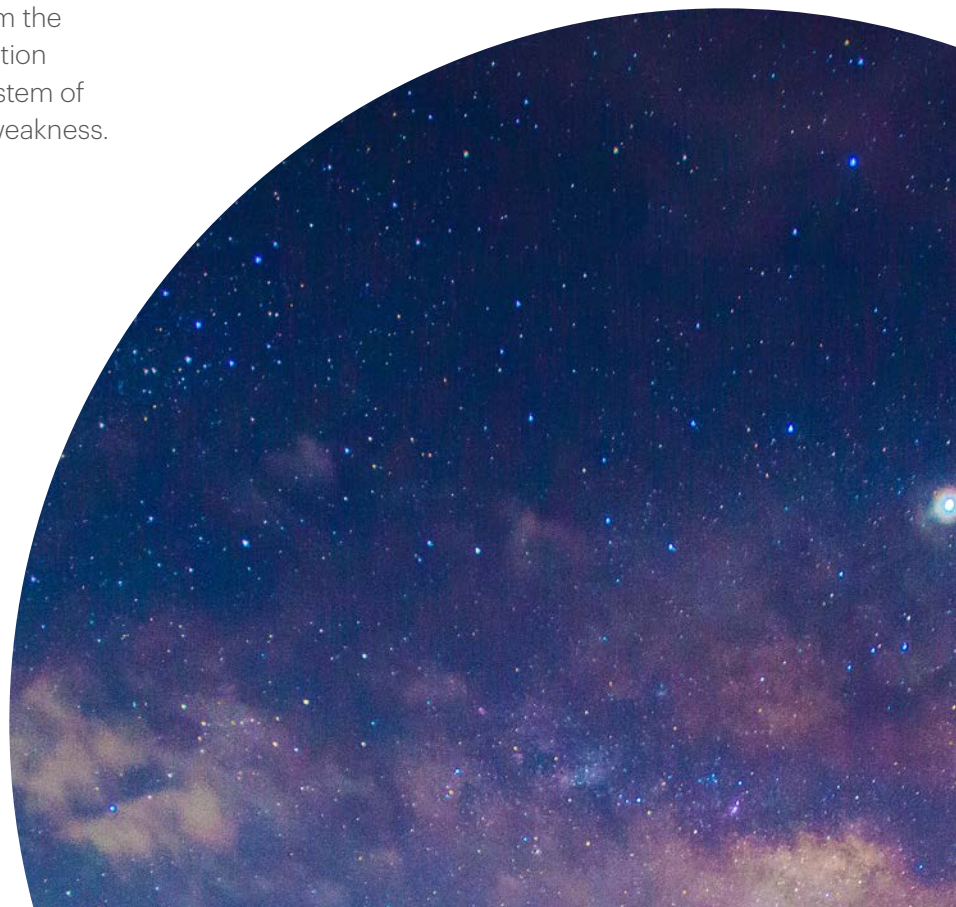
- Legal status of the guidelines: 'Recommendations' (i.e., not yet a 'law' and thus, persuasive only and not binding).
- However, the government stated in the Guidelines published on December 15, 2020, that this is just a first step. The government is planning to enact laws/legal standards regarding cybersecurity, with the goal of implementing such laws.
- The guidelines have been made based on the UN Regulation on Cybersecurity (UNR No.155).

Key contents:

- Manufacturers are recommended to adopt a CSMS (Cyber Security Management System).
- To preserve cyber security, manufacturers are recommended, *inter alia*, to:
 - set a deadline within which the risk can be managed and respond as soon as possible to cyber threats to prevent/minimize the damages; and
 - continue monitoring the system after initial registration of the car and be equipped to detect cyber threats/attacks from the information collected (e.g., information collected from the data storage system of the car) and analyze the system's weakness.

Global Information Security Standard

- Hyundai Motor and Kia are strengthening in-car cybersecurity features. They have earned certificates of the cyber security and management system (CSMS) to meet the United Nations Economic Commission for Europe (UNECE) regulation R-155 for new car releases starting in July 2022 and changed the entire work process for establishment and operation of the CSMS during the entire life cycle of cars.
- LG Electronics received 'TISAX (Trusted Information Security Assessment Exchange)' certification in all major areas of the electronic devices business to strengthen competitiveness in the automotive parts business.
- TISAX is a global information security certification created by a German automobile industry association to standardize the different security evaluation criteria of different automobile manufacturers. It evaluates security in four aspects: information security system, partner security system, data protection system, and prototype protection system.



Telecommunications and 5G

"5G+ Strategy"

In April 2019, the Korean government announced a "5G+ Strategy" to realize innovative growth based on 5G technology, through cooperation among related departments and agencies. The government selected 10 "core industries" and 5 "core services" as strategic 5G industries and introduced support plans customized to each industry, based on market maturity and demand.

'5G vehicles-to-everything (V2X)' was selected as one of the ten "core industries," while 'autonomous vehicles' was selected as one of the five "core services."

For the selected "industries" and "services," the government is supporting the development of the technology and under such support some major Korean companies are devoting significant resources to its development.¹⁴⁰

Development/progress currently

October 2022: On October 3, 2022, Hyundai Mobis, a South Korean auto parts and mobility solution maker, developed a 5G-based communication module for cars, a core part for autonomous driving and connected car systems that enables real-time, large-volume data processing.

- The new module combines communication and memory functions, as well as a radio frequency circuit and GPS, based on ultra-high speed, ultra-low latency and hyper connectivity technology.

- Hyundai Mobis will apply the 5G communication module in the vehicle's telematics service – a technology that connects the vehicle to the external control center to offer drivers with safety information and infotainment services. Examples of telematics services include Over The Air (OTA) update, real-time traffic information, and eCall service, through which the vehicle can make an emergency call following a collision. Also, the new module will be also used in various aspects of Advanced Driver Assistance Systems (ADAS), pairing with radar, LiDAR and camera sensors.
- Hyundai Mobis will create a new, integrated solution using 5G communication modules and already-developed vehicle-to-everything (V2X) technology, to target the global market. This integrated 5G communication module and V2X solution will be applied in technologies such as collision avoidance systems, automatic speed control near school zones, vehicle control during emergencies, which are all still in the initial development stage.



¹⁴⁰ Further details available at <http://www.businesskorea.co.kr/news/articleView.html?idxno=30733#:::text=The%2015%20industries%20consist%20of,%2C%20information%20security%2C%20edge%20computing%2C>

Electric Vehicles

Key Trends and Government Support

South Korea aims to significantly boost production of electric vehicles to more than double domestic carmakers' global market share to 12 percent by 2030. From 2009 to the first half of 2022, the government has helped by installing 52,400 EVs and the number is anticipated to go over 80,000 by the end of 2022. The government vowed to provide tax incentives and various supportive measures to promote carmakers' investment worth about a combined 95 trillion won (US\$66.03 billion) by 2026, according to the Ministry of Trade, Industry and Energy. The government also pledged to deploy 20 electric shuttle buses for commuting to government offices, medical institutions and other welfare purposes.

EV Charging Changes

Korean electric vehicle owners will be allowed to lease their electric vehicle (EV) chargers if government proposed legislative amendments are passed. In other words, EV chargers will soon be shared like houses on Airbnb. If the amendments to the Electric Utility Act are passed, privately owned EV chargers will be able to generate revenue. Installing EV charging facilities at gas stations will also be permitted, and areas where drones can be flown freely will also be gradually increased.

Under the current law, car owners can lease an EV charger only if they register as an EV charging company. The new law would allow for private EV chargers to be rented out in the form of online services or applications. As of now, temporary easing of regulations on some sharing services are being implemented, but when this ends, the sharing restrictions will be more relaxed.

Additionally, it will become easier to install EV chargers inside gas stations. Since gas stations are regulated for internal combustion vehicles, currently standards such as requiring EV charging facilities to be placed more than a certain distance from gas pumps are very rigid. These standards are to be relaxed. The government is proposing an improvement to the relevant standards, so that EV charging facilities can be installed inside gas stations taking into consideration the structure of gas stations and situations surrounding safety measures.¹⁴¹

Driving forces

Further developments

SK Telecom expands self-driving pilot zone to test advanced smart transportation system, June 2022, Korea-EU Research Centre: SK Telecom (SKT) has expanded a pilot driving zone for autonomous vehicles in Sangam, a western residential and commercial district of Seoul. Its purpose is to test a cooperative intelligent transport system (C-ITS) that provides real-time information such as traffic conditions, so that individual vehicles can share data and prevent traffic accidents. The smart road system incorporates smart vehicle and connected car technologies such as vehicle-to-everything (V2X) and internet of things (IoT) communications.

¹⁴¹ Further details available at <https://koreajoongangdaily.joins.com/2022/09/05/business/industry/Korea-regulations-electric-vehicles/20220905183538425.html>

SKT will test an advanced system in the 32.3-kilometer section. SKT will provide additional services for safe driving such as child protection, pedestrian notification, and CCTV images of unexpected situations. Self-driving cars can receive safe driving information by installing V2X terminals. SKT will use digital twin technology to create a virtual autonomous vehicle testing zone where researchers can use a control tower system to test the safety and efficacy of digital clones of their self-driving vehicles. Various weather conditions such as rain and snow can be simulated. The virtual zone will include actual roads, school zones, street trees, traffic lights, and real-time traffic.¹⁴²

COVID-19 impact

Support policies as to COVID-19

Largely two types of support have been provided by the Korean government:

1. Production Support

- a. Simplifying the import procedures for auto parts
- b. Special extension of work hours by allowing more than 52 hours per week

2. Liquidity Support

- a. Employment Retention Subsidies
- b. R&D Support for localization of auto parts
- c. Loan and credit guarantee program for SMEs
- d. Extension of debt maturity periods

In Korea, it appears that COVID-19 has sped up AV legislation and adoption.

- **Incheon International Airport.** Introduced autonomous trains (and cart robots) - In operation since October 14, 2020; implemented without delay.
- **On October 14, 2020,** Incheon International Airport Corporation introduced and is operating the world's first indoor autonomous trains and cart robots. Each of the two autonomous trains are in operation in the duty-free area of the arrivals hall at Terminal 1 and the duty-free area in the Departures hall at Terminal 2 respectively. The trains assist vulnerable users (e.g. the elderly, pregnant women, disabled, etc.), while the six cart robots are supplied to transport passengers' luggage and/or certain cargos. Both autonomous trains and cart robots were developed by Incheon International Airport Corporation in cooperation with domestic SMEs.
- **Siheung Baegot New Town Life Park:** Autonomous patrol car "Goalie" will be in operation soon. An autonomous patrol car "Goalie" was developed by Mando, the second largest auto parts maker in Korea. The Goalies will be deployed in Siheung Baegot New Town Life Park to patrol the area at nighttime and video-record CCTV blind spots, sending the recordings to the control center. The project was partially necessitated by relevant regulations rather than COVID-19 concerns. However, the ICT Board for regulatory sandboxes has allowed the test operation of Goalies to proceed and the project was given a temporary respite from regulatory regimes until March 2022.

¹⁴² Further details available at

<https://k-erc.eu/sk-telecom-expands-self-driving-pilot-zone-to-test-advanced-smart-transportation-system/>

- **“AV Pilot Zone” scheme:** A new system introduced under the Autonomous Vehicle Act (Effective from May 2020).
 - **AV Pilot Zone:** A special regulatory district to support the demonstration of autonomous driving services. If a district is selected as an AV pilot zone, self-driving manufacturers can carry out the simulation of a real-life situations (and actually receive fares/consideration). Moreover, a diverse range of (special) exemptions from regulations are available for private manufacturers who are willing to test-operate in the AV pilot zone (e.g., they can obtain a permit for test-operating without meeting the vehicle safety standards). This provides an opportunity for a manufacturer to gauge market reaction and the government can collect relevant data and ideas that may be useful in making further policies/institutional improvements.
 - Pursuant to the new law, **“AV Pilot Zones”** were designated¹⁴³ for the first time in November 2020. The regions that were selected and some key services that were allowed are as follows:



¹⁴³ Under the supervision of the Ministry of Land, Infrastructure and Transport, the “Autonomous Vehicle Demonstration District Committee” was created to designate AV pilot zones. (The committee consists of six commissioners from public sectors (vice-ministers of the Ministry of Land, Infrastructure, and Energy/ Ministry of Economy and Finance/Ministry of Science and Technology/ Ministry of SMEs and Startups /National Police Agency, as well as the Minister of Land, Infrastructure, and Energy) and 12 commissioners from private sectors (experts in automotive/transportation/communication/ city))

No.	City/Province	Area designated as 'AV Pilot Zone'	Autonomous driving Services to be provided include
1	Seoul	Area of 6.2km ² range in San-gam-dong area, 3.4 km range circuit in downtown Seoul	Shuttle service between DMC station and commercial/residential/park areas.
2	Chungbuk/Saejong (Jointly applied)	About 22.4km of Osong-Saejong Terminal route of BRT. ¹⁴⁴	BRT service between Osong Station and Sejong Terminal.
3	Sejong	22.9km of BRT circular route; and Area of approx. 25km ² in living zones 1-4.	Demand-responsive shuttle bus service circulating within Sejong Government Complex.
4	Gwangju	Area of approx. 3.76km ² in 2 zones in Gwangsan-gu.	Road cleaning cars, Waste collecting cars.
5	Daegu	Area of approx. 2.2km ² in Suseong AI-pha City; Area of approx. 19.7km ² of Technopolis and Daegu National Industrial Complex; and Approx. 7.8km route of the road connected to industrial complex.	Shuttle service within Suseong AI-pha City (Samsung Lions Park-Daegu Museum of Art route). Demand-responsive taxi service in Technopolis and the National Industrial Complex.
6	Jeju	Certain parts of the route between Jeju International Airport and Jungmun Tourist Complex (38.7km); and Area of approx. 3km ² within Jungmun Tourist Complex.	Airport pickup shuttle services (Jeju International Airport-Jungmun Tourist Complex route)
7	Pangyo	Area of approx. 1.34km ² of Techno Valley, 2 Valley, and connection section	Unmanned shuttles and robot taxis in Pangyo Techno Valley

Based on an announcement of the Ministry of Land, Infrastructure and Transport made on June 24, 2022

144 BRT, which stands for Bus Rapid Transit, is a transportation system in Korea, offering express buses-only lanes, convenient transit services, etc.

Summary

Since the outbreak of the pandemic, the need and demand for so-called 'untact' services has increased greatly in Korea, as in other countries around the world. Accordingly, the government has been supporting (and cooperating), more actively than ever, in relevant projects/businesses of AV manufacturers.

Many Korean companies developing AV systems had been forced to stay at a demonstration stage, even after sufficient technology development, due to regulatory obstacles. However, it seems that the situation has improved for those manufacturers because the government is being more supportive and relaxing certain regulations to meet the increased demand for untact services (e.g. taxis without drivers) within Korea.

The government intends to take a phased approach by adding and upgrading regulations and laws related to technology, communications and insurance in steps in order to satisfy the standards and structure associated with operating autonomous vehicles. Between 2024 and 2026, the government intends to focus on devising a legal framework for Level 4 self-driving vehicles in terms of insurance policies and traffic systems to provide clear standards for legal responsibilities. To further realize its vision, the government also plans to establish real-time telecommunications systems for communication between autonomous cars along 110,000 km of roads in major cities by 2030.

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