CITY-YUWA PARTNERS

Autonomous Vehicles — An Overview of the Current Situation in Japan

This article provides an overview of the measures being taken in Japan such as legislative amendments and related initiatives to further promote the widespread adoption of autonomous vehicles. The sound and sustainable introduction of autonomous vehicles is a critical issue for Japan, contributing both to the continued growth of the automobile industry, a core sector of the economy, and to the development of infrastructure that responds to the country's declining population.

As companies around the world are involved in the development of autonomous vehicle technologies, this article aims to outline the current situation in Japan and help deepen the understanding of Japan's market among overseas enterprises engaged in global expansion. Through this mutual exchange and cultivation of knowledge, we anticipate that autonomous vehicles in Japan will become increasingly user-friendly and vibrant.

This article was prepared at the initiative of the associates' group at City-Yuwa Partners. Our firm will continue to make every effort to further strengthen our expertise in this practice area.

I. Regulatory Development and Roadblocks

1. Overview of Japanese Laws and Regulations Related to Motor Vehicles

The principal laws and regulations applicable to automobiles in Japan are as follows, and these also apply to autonomous vehicles.

(1) Vehicle Related Regulations[1]

- ✓ Road Transport Vehicle Act

  The Road Transport Vehicle Act prescribes the technical standards related to the structure of motor vehicles and the equipment installed therein (including the equipment used in autonomous driving) to ensure the safety of motor vehicles[2] and road traffic, and for other purposes. These technical standards are called Safety Standards (保安基準 *Hoankijun*)[3].

  Safety standards have also been established for the components required for autonomous driving and the operation (including autonomous driving) of motor vehicles and equipment that is not

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1 In addition to the regulations addressed in this article, there are other laws and regulations such as fuel economy, emissions, noise, and recycling regulations. At the time of writing, none of these contain regulations specific to autonomous vehicles, but compliance of such regulations will be required when selling or operating autonomous vehicles in Japan.

2 Please note the categorization of motor vehicles varies depending on the statute. The Road Transport Vehicle Act categorizes motor vehicles as standard motor vehicles, small motor vehicles, light motor vehicles, large-sized special motor vehicles, and small-sized special motor vehicles (Road Transport Vehicle Act, Art. 3), while the Road Traffic Act categorizes motor vehicles as large motor vehicles, mid-sized motor vehicles, semi-mid-sized motor vehicles, standard motor vehicles, large motorcycles, standard motorcycles, special large motor vehicles, and special small motor vehicles. Furthermore, there is a category of motorized bicycles for vehicles with a small output under the Road Transport Vehicle Act and Road Traffic Act. Motorized bicycles are not addressed in this article.

3 https://www.mlit.go.jp/jidosha/jidosha_fr7_000007.html.

safety standard compliant is prohibited in Japan (Road Transport Vehicle Act, Art. 40 and Art. 41).

(2) Regulations Related to Traffic Rules and Use of Motor Vehicles[4]

✓ Road Traffic Act

The Road Traffic Act provides the traffic rules for pedestrians and vehicles, the obligations of vehicle drivers and users, the driver's license system, and other matters.

✓ Road Transportation Act and Motor Truck Transportation Business Act

The Road Transportation Act and the Motor Truck Transportation Business Act regulate the transportation of people and cargo utilizing roads and motor vehicles (including rental car operations). In some areas of business, additional obligations and guidelines[5] may be implemented to ensure transportation safety in the use of autonomous vehicles. Also, in case of operating certain businesses (regardless of autonomous vehicles are used), it is required to obtain permission or file a notification.

2. Japan's Legal Regulations Regarding Autonomous Vehicles

(1) Assumptions

The legal regulations on autonomous driving in Japan are being established in accordance with classifications prescribed by the Society of Automotive Engineers (SAE) in SAE J3016[6][7].

Accordingly, confirmation of which SAE J3016 classification will be applied to the autonomous vehicles you are developing or planning to sell is helpful when considering which regulations are applicable to that autonomous vehicle in Japan.

Below, we will provide an overview of Japan's legal regulations regarding automated driving features classified as the Level 3 and above in SAE J3016, as of the time of writing this article.

(2) Regulations Regarding Manufacture and Modification of Vehicles

As addressed above, the Road Transport Vehicle Act establishes technical standards regarding the structure of vehicles and the equipment installed therein.

However, for a long time in Japan, technical standards were not established for the equipment used in autonomous driving, which created obstacles to installing them in vehicles.

As such, the Road Transport Vehicle Act was amended in May of 2019 (and the amendment has

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4 In addition to the regulations addressed in this article, there are other law and regulations related to use of motor vehicles such as the Act on Securing Compensation for Automobile Accidents that mandates enrollment in compulsory insurance when using of motor vehicles.

5 For example, https://www.mlit.go.jp/common/001295527.pdf.

6 According to the 2017 edition of the Public-Private ITS Concept and Roadmap outlining the Japanese government's strategy regarding intelligent transport systems and autonomous driving (https://warp.ndl.go.jp/info:ndljp/pid/12187388/www.kantei.go.jp/jp/singi/it2/kettei/pdf/20170530/roadmap.pdf), the classifications under SAE J3016 were adopted.

7 Japanese government understand that the classifications in SAE J3016 should not be applied to the autonomous truck platooning (the autonomous driving of trailing vehicles) since a driver drives the lead vehicle and the trailing vehicles are merely electronically coupled to the lead vehicle.

been fully implemented as of January 1, 2023).

This amendment defined the equipment used in autonomous driving as "Autonomous Driving Equipment (自動運行装置 *Jidounkosouchi*)" (Road Transport Vehicle Act, Art. 41, Para. 2 and Road Traffic Act, Art. 2. Para. 1, Item 13-2), and established Safety Standards for them[8] to ensure the safety of the automated driving[9].

Specifically, given that Level 3 and Level 4 automated driving systems are defined as systems that function only within a limited domain (Operational Design Domain) in SAE J3016, it is mandatory to set conditions regarding location, weather, speed and other factors under which the use of the autonomous driving functions is permitted (Driving Environment Conditions (走行環境条件 *Sokokankyojyouken*))[10].

For example, the automated driving system installed in the first Level 3 motor vehicle sold in Japan is only permitted to use the autonomous driving functions if the following conditions are met;

(i) the vehicle is on a highway with a median strip or other barrier separating the lanes;
(ii) the weather conditions are favorable;
(iii) the driving lane is congested or near congested;
(iv) the vehicle is travelling below 30 km/h,
(v) positioning data can correctly be obtained via a high-definition map and global navigation satellite system (GNSS);
(vi) the driver is seated correctly and has fastened their seatbelt and is not operating the accelerator, brakes, steering wheel and other controls; and
(vii) other conditions.

In addition, vehicles with Level 3 or higher autonomous driving functions are required to be equipped with a device to record the operating status of the Autonomous Driving Equipment (an Operating Status Recording Device (作動状態記録装置 *Sadojyoutaikirokusouchi*)).

Additionally, since safety reviews are also required on software updates for Autonomous Driving Equipment, permission must be obtained to perform large scale updates to Autonomous Driving Equipment via wirelessly (Road Transport Vehicle Act, Art. 99-3, Para. 1).

(3) Regulations Regarding Operation of Autonomous Vehicles

The Road Traffic Act has ensured the safety of road traffic through the establishment of obligations for people including pedestrians and drivers. Accordingly, the traffic rules related to the driving of motor vehicles have been formulated in a manner that imposes obligations on the drivers of motor vehicles. (For example, Article 70 of the Road Traffic Act establishes a safe driving obligation that, "The driver of a vehicle or streetcar must work the vehicle's or streetcar's steering wheel, brakes, and other equipment in a consistent manner, and must drive at a speed and in a manner that poses no hazard to others in consideration of road conditions, traffic conditions, and the condition of the

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8 Regulations have been established, respectively, for sensors, electronic control units, and other equipment.

9 Please note that Safety Standards for Level 4 equivalent Autonomous Driving Equipment were established in January 2023.

10 Furthermore, the Autonomous Driving Equipment must be equipped with a function using sound, light or other means that alerts the driver to take over driving when the Autonomous Driving Equipment malfunctions or the Driving Environment Conditions are no longer met.

vehicle or streetcar.")
As such, under the existing system, which assumes that the driver controls the vehicles, automated driving systems up to Level 1 and Level 2 being defined in the SAE J3016 merely as driver assistance, could be accommodated without issue since the motor vehicle's driving operations are performed by a human. However, issues arose in the accommodation of the implementation of Level 3 and higher autonomous driving which is defined as a driving operation that is not performed by a human (but by a machine).

As such, the Act was amended in May of 2019 (taking effect on April 1, 2020) to accommodate Level 3 and then amended again in April of 2022 (taking effect on April 1, 2023) to accommodate Level 4.
To accommodate Level 3, the use of Autonomous Driving Equipment outside the Driving Environment Conditions was prohibited to prevent automated driving in conditions where the safety and reliability of autonomous driving function could not be assured (Road Traffic Act, Art. 71-4-2, Para. 1). An intentional violation of this provision is punishable by imprisonment of not more than three months or a fine of not more than JPY 50,000 (Road Traffic Act, Art. 119, Para. 1, Item 16), and a negligent violation of this provision is punishable by a fine of not more than JPY 100,000 (Road Traffic Act, Art. 119, Para. 3).
On the other hand, it is now possible to operate a vehicle using Autonomous Driving Equipment, and that means drivers are partially exempted from the safe driving obligation during autonomous driving. Specifically, the driver is allowed to use their mobile or smartphone to make calls or watch videos, which ordinarily is prohibited during the operation of a vehicle. However, it is required to follow the conditions below to operate autonomous driving function:

(i) autonomous vehicles are well maintained;
(ii) the condition is in the Driving Environment Conditions; and
(iii) the driver is capable of taking over control in an emergency[11] (Road Traffic Act, Art. 71-4-2, Para. 2).

Also, the owner of the motor vehicle is required to install an Operating Status Recording Device in a motor vehicle equipped with Autonomous Driving Equipment[12], and to retain these records for a prescribed time period (currently, six months) (Road Traffic Act, Art. 63-2-2, and Road Traffic Act Enforcement Regulations, Art. 9-2). These records can be encrypted by the manufacturer, but if a police officer requests the production of the records and determines that action is needed to make the records viewable or audible, the police officer may require the manufacturer to take such action. (Road Traffic Act, Art. 63, Para. 1, second sentence).

To accommodate Level 4, the operation of an autonomous vehicle with Level 4 autonomous driving system is defined as "Specified Autonomous Driving (特定自動運行 *Tokuteijidounko*)" and is excluded from the definition of "driving" (Road Traffic Act, Art. 2, Para. 1, Items 17 and 17-2).

[11] This means in a Level 3 motor vehicle, the driver may not move the seat to a position where they cannot operate the steering wheel or brakes, nor may they consume alcohol.
[12] It is prohibited to operate a motor vehicle which is not equipped with an Operating Status Recording Device, even if the Driving Automation Equipment is not used (Road Traffic Act, Art. 63-2-2, Para. 1).

Such operation must be carried out pursuant to a pre-established operation plan[13], and requires obtaining permission from the prefectural Public Safety Commission[14] (Road Traffic Act, Art. 75-12). In addition, a device that clearly displays the words "Autonomous Driving in Progress" must be installed in a position that is clearly visible from the front and rear of the vehicle body, and must be operated while Specified Autonomous Driving is being conducted (Road Traffic Act, Art. 75-20, Para. 2, and Road Traffic Act Enforcement Regulations, Art. 9-30). For Specified Autonomous Driving, it is necessary to designate a Person in Charge of Specified Autonomous Driving ((特定自動運行主任者 *Tokuteijidounkousyuninsha*) (Road Traffic Act, Article 75-19, Para. 2), and to adopt one of the following methods: either have the Person in Charge of Specified Autonomous Driving remotely monitor the autonomous vehicle, or have the Person in Charge of Specified Autonomous Driving ride inside the autonomous vehicle (Road Traffic Act, Art. 75-20, Para. 1).
The Person in Charge of Specified Autonomous Driving is required to respond if autonomous driving becomes impossible or in circumstances that the Autonomous Driving Equipment cannot handle (such as manual traffic control by a police officer (Road Traffic Act, Art. 6, Para. 2 and Para. 4)) (Road Traffic Act, Art. 75-21 et seq.). Additionally, in the operation of a Level 3 or lower vehicle, the Person in Charge of Specified Autonomous Driving is slated to perform the obligations owed by the driver such as report of a traffic accident (Road Traffic Act, Art. 75-23, etc.). Furthermore, the Person in Charge of Specified Autonomous Driving is required to receive prescribed training (Road Traffic Act, Art. 75-19), although they are not required to have a driver's license since they are not "driving" the motor vehicle.

(4) Summary and Future Outlook

As addressed above, in Japan, legal regulations to accommodate the use of Level 3 in production vehicles are in place, and legal regulations to accommodate the practical use of Level 4 have also been put in place.
In the future, the permitted scope of the operation of Level 4 vehicles may be expanded to Level 5 vehicles which are capable of full autonomous driving under all conditions, but at the time of writing, there are no noteworthy discussions which suggest the future direction of the legal regulations.

II. Driverless Testing and Deployment

1. Legal Regulations Related to Field Operational Tests

In Japan, field operational tests are conducted in a variety of locations including public roads and privately owned lands. When conducting field operational tests on public roads, it is required to obtain permission to

[13] The operation plan is required to specify the person or thing being transported by specified driving automation (Road Traffic Act, Art. 75-12, Para. 2, Item 2-b-(3)), and it is intended to encompass both mobility services and logistic services.

[14] If the plan is to be modified, permission is required (Road Traffic Act, Art. 75-16, Para. 1), and the permission may come with certain conditions (Road Traffic Act, Art. 75-15). Furthermore, when permission is granted, public notice is issued (Road Traffic Act, Art. 75-17). For example, https://www.keishicho.metro.tokyo.lg.jp/tetsuzuki/kotsu/application/tokutei_jidou.files/B.

use public roads from the police chief with jurisdiction over that location and to observe the Road Traffic Act, and the vehicle must comply with safety standards.
However, field operational tests may be conducted without obtaining prior permission or approval on public roads, regardless of the level and the time and location, if the following three conditions are met:

(1) the vehicle complies with the provisions of the safety standards;
(2) the person serving as the driver is seated in the driver's seat of the test vehicle, they are constantly monitoring the surrounding road traffic conditions and the vehicle's status, and they perform the necessary operations to prevent harm to others and ensure safety in emergencies; and
(3) the vehicle operates in compliance with the Road Traffic Act and other relevant law and regulations[15].

Furthermore, even when the field operational tests are conducted on privately owned land, it is subject to the same regulations as public roads if the location constitutes a "road" under the Road Traffic Act (Art. 2, Para. 1, Item 1)[16].

2. On-road Testing of Remote Automated Driving Systems and Development Thereof

As it was in Japan, a test vehicle had to comply with the provisions of the safety standards when field operational tests were conducted on public roads and other "roads" under the Road Traffic Act (even if permission is obtained to use the roads), and the safety standards restricted the conducting of field operational tests by unmanned motor vehicle operation, including remote operation, since it was assumed that the person serving as the driver would ride in the vehicle.
As such, in February 2017, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) established the Certification System for Relaxing Standards Related to Autonomous Vehicles Field Operational Tests, which placed use related conditions on testing and made it possible to operate a test vehicle on public roads even if it does not comply with safety standards. This system made it possible to conduct field operational tests on public roads for vehicles equipped with a remote-control type automated driving system, without a driver's seat, and without a driver on board (Level 3 autonomous driving)[17].
Additionally, in November 2018, field operational tests were conducted on public roads in Eiheijicho in Fukui Prefecture where a single remote driver monitored and operated two vehicles. Subsequently, field operational tests on public roads were conducted in various locations for Level 3 autonomous vehicles, and eventually the Road Traffic Act and other laws were amended in April 2020[18] to allow for the general operation of Level 3 autonomous vehicles[19]. In response thereto, in March 2021, Level 3 unmanned automated driving services were launched in Eiheijicho in Fukui Prefecture and Honda Motor Co., Ltd. Commenced general sales of passenger vehicles capable of Level 3 autonomous driving on expressways[20].

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15 https://www.mlit.go.jp/jidosha/content/001406594.pdf.
16 https://www.npa.go.jp/bureau/traffic/selfdriving/roadtesting/dourosei.pdf.
17 Footnote 15, supra.
18 For example, Article 2, Paragraph 1, Items 13-2 and 17 of the Road Traffic Act, and Article 41, Paragraph 1, Item 20 of the Road Transport Vehicle Act.
19 Finally They Are Launching in Japan! Making the Operation of "Level 3" Autonomous Vehicles Possible. / Government Online Publication: https://www.gov-online.go.jp/article/202004/entry-8943.html#firsrSection
20 001609155.pdf.

3. Field Operational Tests of Level 4 Automated Driving Systems

The Japanese government has set as a government goal the realization and widespread adoption of Level 4 autonomous driving, in which fully autonomous driving is possible under certain conditions and driver intervention is, in principle, unnecessary. As a steppingstone towards that goal, it established Level 4 compliant safety standards and enacted the amended Road Traffic Act on April 1, 2023. These steps made it possible to conduct Level 4 field operational tests on any "road" once permission is obtained from the Public Safety Commission with jurisdiction over the operating area[21][22].

In May 2023, a field operational test was conducted on public roads in Eiheijicho in Fukui Prefecture for Level 4 approved unmanned automated mobility service vehicles[23]. Additionally, in November 2024, autonomous vehicle priority lanes were installed on expressways between Tokyo and Nagoya, and field operational tests of Level 4 autonomous trucks were conducted in these lanes[24].

In Japan, the labor shortage in the transportation sector is becoming increasingly severe, and the widespread adoption of autonomous vehicles is expected to serve as a solution to this problem. The field operational tests of autonomous driving, particularly using transport vehicles, is being actively pursued to address this issue[25]. In July 2025, the commercial operation of line hauling by autonomous truck was launched on the expressway between Kanto and Kansai, and while only Level 2 autonomous trucks are being used at present, the goal is to achieve Level 4 commercial operations in 2027[26].

4. Urban Field Operational Tests and Development Thereof

As addressed above, field operational tests of autonomous driving in Japan has been conducted primarily in rural areas and on expressways, but recently field operational tests of autonomous vehicles have also begun in urban areas.

For example, at the 2025 Osaka-Kansai Expo, Level 4 autonomous shuttle buses operated to move visitors to and from the Expo grounds, including on general roads where ordinary vehicles travel[27].

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[21] On-road Testing of Autonomous Driving on Public Roads / National Police Agency Website: https://www.npa.go.jp/bureau/traffic/selfdriving/roadtesting/index.html.

[22] The Public Safety Commission engages in a review from the following five perspectives when deciding whether to grant permission (Road Traffic Act, Art. 75-13).

> (1) The motor vehicle is capable of specified autonomous driving;
> (2) Specified autonomous driving is conducted in compliance with the use conditions (ODD: Operational Design Domain) associated with the autonomous driving equipment;
> (3) The measures that must be taken by the person engaging in the specified autonomous driving or the specified autonomous driving staff member are expected to be implemented smoothly and reliably;
> (4) The specified autonomous driving is found not to posit a risk of a significant disruption to other traffic; and
> (5) The specified autonomous driving is conducted for the purpose of transporting people or things, and this transportation is found to contribute to the convenience or welfare of the local residents.

[23] https://www.mitsubishielectric.co.jp/news/2023/pdf/0522-b.pdf.

[24] MLIT "Testing of Autonomous Trucks on Expressways." https://www.mlit.go.jp/policy/shingikai/content/001754017.pdf, p.5

[25] https://www.mlit.go.jp/policy/shingikai/content/001623770.pdf.

[26] T2 Sagawa Express, Seino Transportation and 3 Other Companies Launch First "Automated Driving" Commercial Operations / Butsuryu News / Butsuryu Weekly / Comprehensive Trade Publication for Distribution, Transportation and Logistics Industry: https://weekly-net.co.jp/news/187583/

[27] https://www.pref.osaka.lg.jp/documents/114030/04shiryo3.pdf

Additionally, in Nagoya City, Japan's third-largest city, Level 2 autonomous robot taxis will begin operating starting October 2025.[28]
This development is thought to be entirely due to the advancement of autonomous driving technology and the consequential cultivation of the public's understanding and sense of security regarding autonomous vehicles, and it is expected that opportunities to utilize autonomous vehicles will further expand in Japan going forward.

III. Connected Vehicles and Logistics

1. 2024 Problem and the Government's Mobility DX Strategy

As of 2025, the need for delivery automation utilizing connected vehicles (vehicles that are connected to the Internet, enabling them to obtain information in real time and communicate with other devices) is rapidly increasing in Japan. This need is driven by a logistics crisis stemming from a labor shortage (the so-called "2024 Problem"[29]), as well as social demands to address the decline in transportation services in underpopulated areas and to advance the transition to carbon neutrality.

In response thereto, in May 2024 the government formulated the Mobility Digital Transformation (DX) Strategy, clarifying the national strategy regarding the mobility industry. This strategy sets a goal of achieving a 30% global market share for Japanese SDVs (software-defined vehicles) as of 2030 and 2035 and lays out a policy for the advancement of concrete measures, under public-private collaboration, in three areas: "SDVs," "mobility services (autonomous driving, MaaS, etc.)" and "data utilization."[30]

2. Trends in Base Technologies

Through public-private collaboration, the development of base technologies is advancing toward the social implementation of connected vehicles. The major trends in the field of autonomous driving in recent years are as follows.

(1) V2X Communications[31]

In the past, Japan advanced its own approach to V2X communications using the 760 MHz band (ITS Connect). However, from 2022 onward, Japan clarified its policy of additionally allocating the internationally mainstream 5.9 GHz band to promote the widespread adoption of cooperative driving automation[3233]. To advance this shift, in July 2025, the Ministry of Internal Affairs and

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28 https://www.pref.aichi.jp/press-release/jidounten/jisshi-2025.html

29 An amendment to the Labor Standards Act placed an annual cap of 960 hours on drivers' overtime work from the fiscal year 2024 onward, eliciting a labor shortage.

30 https://www.meti.go.jp/english/press/2024/0524_002.html.

31 A comprehensive term for vehicle-to-everything communication (vehicle-to-vehicle communication, road-to-vehicle communication, and other communications).

32 A system, based on an autonomous automated driving system, that enables safer and smoother automated driving control through the sharing of information between vehicles and between vehicles and roads.

33 https://en.sip-adus.go.jp/rd/.

Communications amended the law to partially simplify the license issuance procedures for experimental stations in connection with V2X communications on the 5.9 GHz band, and as of September 2025[34], it is advancing the implementation of technical demonstrations utilizing autonomous vehicles on major highways (on-road testing of autonomous trucks on the Shin-Tomei Expressway)[35].

(2) High-Definition 3D Maps

Progress is also being made in the development of high-definition 3D maps that are essential for self-position estimation and other tasks. Dynamic Map Platform Co., Ltd. (Shibuya-ku, Tokyo), established through the investment of major domestic automakers, has played the central role, and has completed the mapping of all expressways and limited-access highways nationwide. Since 2019, the company has provided mapping data to private automakers[36].

(3) AI Sector

The updated version of the Mobility DX Strategy released in June 2025 positioned the AI sector as a "collaborative sector" in the mobility industry, in response to the rise of the E2E (end-to-end) model where AI is consistently in charge of sensing, decision-making, and control. Given that the United States and China currently lead research and development in this sector, Japan has set a course to lead in safety-assured autonomous driving AI, and, as part of this effort, it is targeting the creation and public release of an open dataset by the fiscal year 2025[37].

3. Applications in Logistics Operations

Alongside the development of base technologies, full-scale demonstrations are underway for automation and connectivity. The major trends in the logistics sector are as follows.

(1) Linehaul: Autonomous Truck Field Operational Tests

Since March 2025, a large-scale pilot has been underway on the Shin-Tomei Expressway, under which certain sections are designated as nighttime "autonomous-vehicle priority lanes" to test autonomous trucks operating in mixed traffic alongside regular vehicles[38]. This is part of the government-led RoAD to the L4 project, which aims to realize and scale Level 4 autonomous driving (fully autonomous driving under certain conditions), and the goal of this project is to achieve the social implementation of Level 4 autonomous trucking from fiscal year 2026 onward[39].

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34 https://public-comment.e-gov.go.jp/pcm/1040?CLASSNAME=PCM1040&Mode=1&id=145210466.
35 https://www.meti.go.jp/policy/mono_info_service/digital_architecture/lifeline/jitugen2-siryou6.pdf.
36 https://www.dynamic-maps.co.jp/en/service/.
37 https://www.meti.go.jp/english/press/2025/0609_001.html.
38 https://www.mlit.go.jp/report/press/road01_hh_001884.html.
39 https://www.road-to-the-l4.go.jp/en/.

(2) Last-Mile Transportation: Deployment of Automated Delivery Robots and Drones

The Road Traffic Act was amended in April 2023 to allow for the operation of remotely operated small vehicles that meet certain structural standards on public roads under a notification system[40]. Following this, multiple enterprises have advanced the testing of last-mile transportation utilizing automated delivery robots, and since January 2025, Panasonic Holdings Corporation (Kadoma City, Osaka Prefecture) has conducted simultaneous field operational tests of 10 remotely operated small vehicles run by a single operator[41].

Additionally, in the field of drones as well, the Civil Aeronautics Act was amended in 2022 to enable Level 4 flight of unmanned aircraft (flight in populated areas, beyond the visual line of sight, without on-site assistants) subject to certain permits and other conditions[42]. As of September 2025, delivery services have been launched in specified regions for food, pharmaceuticals, and other goods[43].

4. Cybersecurity and Data Governance

With the proliferation of connected vehicles, it has become necessary to counter cyberattacks and to ensure reliability in the use of vehicle data. The major trends in recent years are as follows.

(1) Compliance with International Regulations for Vehicle Safety Standards

In 2020, the World Forum for Harmonization of Vehicle Regulations (WP.29) adopted UN Regulation No. 155 (UN R155) on cybersecurity and UN Regulation No. 156 (UN R156) on software updates as the international framework for ensuring vehicle security. In Japan, these new regulations were introduced by amending the relevant rules of the Road Transport Vehicle Act, with the phased implementation commencing in 2022. Under these regulations, for type certification, automakers are obligated to establish "cybersecurity management systems (CSMS)" and "software update management systems (SUMS)" that include measures against cyberattacks and the implementation of risk assessment, and have these processes certified by regulatory authorities[44].

(2) Data Utilization and Infrastructure Construction

Under the Mobility DX Strategy, one key policy initiative is the establishment of a data integration platform that securely enables the cross-company and cross-border interoperability of the diverse data generated over the life cycle of a vehicle, from its manufacturing through its use and disposal. In particular, life cycle assessment (LCA)[45] calculations for automobiles are a lead area for expanding use cases, and under government leadership, the plan is to establish a data integration platform in this field and achieve the social implementation of the services by 2025.

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40 https://www.meti.go.jp/english/press/2023/0327_001.html.
41 https://news.panasonic.com/global/press/en250214-4.
42 https://www.mlit.go.jp/koku/level4/en/.
43 https://www.mlit.go.jp/seisakutokatsu/freight/content/001601194.pdf#page=79
44 https://www.mlit.go.jp/report/press/jidosha10_hh_000242.html.
45 An approach for quantitatively assessing the environmental impacts of goods and services throughout their entire life cycle.

IV. Driving Forces

1. Government Initiatives for the Social Implementation of Autonomous Driving

A variety of initiatives have been put forward since the April 2023 amendment of the Road Traffic Act made Level 4 autonomous driving (Specified Autonomous Driving) possible under a permit system. Examples of the government's latest initiatives for the social implementation of autonomous driving are set out below.

(1) Working Groups

The Mobility Working Group ("Mobility WG")[46] was established under the Digital Society Promotion Council in May 2023 with an eye towards the social implementation of safe mobility services that actively utilize autonomous driving technology and other digital technologies that support regional mobility. Additionally, with the recognition that the heightening the foreseeability of legal liability is a key issue in advancing the social implementation of autonomous driving, in December 2023, the Sub-Working Group on Social Rules for automated driving vehicles in age of AI ("Autonomous Driving SWG")[47] was established under the Mobility WG. Based on the results of the examinations by the Mobility WG and the Autonomous Driving SWG, the Mobility Roadmap 2024 was released in June 2024, and a revised version called, Mobility Roadmap 2025 was released on June 13, 2025. Mobility Roadmap 2025 identifies key measures for the proliferation of new mobility services which include, among other things, the establishment of support measures for the implementation of autonomous driving technology such as the reduction of initial implementation costs, the establishment of a reasonable division of tasks, and the setting of areas of collaboration.

Additionally, in September 2024, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) established the Autonomous Driving Working Group ("Autonomous Driving WG") under the Council for Transport Policy to examine the system facilitating the social implementation of autonomous taxis in the future[48]. The Autonomous Driving WG examined deregulation and other measures for accommodating the anticipated business models for autonomous taxis, and also examined key points identified by the Autonomous Driving SWG the MLIT should take the initiative on, and on May 30, 2025, it released an interim summary that took into consideration:
(i) ensuring safety through the specifications of certification standards and other criteria;
(ii) preventing recurrences by investigating the causes of accidents; and
(iii) compensation and other measures when damage is sustained.

(2) Level 4 Mobility Acceleration Committee

In November 2023, the Level 4 Mobility Acceleration Committee[49] was established under the RoAD to the L4,[50] an autonomous driving development and implementation project put forward by

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46 https://www.digital.go.jp/councils/mobility-working-group.
47 https://www.digital.go.jp/councils/mobility-subworking-group.
48 https://www.mlit.go.jp/policy/shingikai/s201_jidouunntenn01.html.
49 https://www.meti.go.jp/policy/mono_info_service/mono/automobile/Automated-driving/level4_committee.html.
50 https://www.road-to-the-l4.go.jp/.

the Ministry of Economy, Trade and Industry (METI) and the MLIT, to create an environment that, among other things, promotes the appropriate sharing of information among service providers and the related ministries and agencies[51]. At the most recent meeting for which materials have been released as of the time of writing (meeting date: June 27, 2025), among other things, an explanation was provided regarding the driverless on-road testing[52] conducted by Nissan Motor Co., Ltd. in general vehicle mixed traffic in urban areas from February to March 2025[53].

(3) Demonstration of Implementation of Autonomous Driving in Public Vehicles

From May to June 2025, METI publicly recruited outside contractors for the implementation of its 2025 Demonstration and Support Project for Unmanned Autonomous Driving and Other CASE Technologies (Promotion of Public Procurement of Autonomous Vehicles) [54]. The purpose of this project is to verify the safety and convenience of autonomous vehicles for public use and the challenges and other issues faced in future horizontal deployment by introducing autonomous vehicles for public use that utilize technologies of startups and conducting on-road testing of Level 2 and higher autonomous driving over a set period. METI states that to promote the spread of autonomous driving and foster startups, the government must proactively adopt a posture that creates prior examples and initial demand for the social implementation of the technologies held by startups by advancing the demonstrations and the procurement of autonomous vehicles for public use[55].

2. Private Sector Initiatives for the Social Implementation of Autonomous Driving

The following are examples of the recent trends in the private sector for the proliferation of autonomous driving.

(1) Launch of Pilot Test City

On August 4, 2025, Toyota Motor Corporation ("Toyota") announced that it had decided to launch the Toyota Woven City mobility test course ("Woven City") on September 25, 202556. Woven City is a real-world test course that utilizes a former site of a plant located in Susono City, Shizuoka Prefecture, and the plan is to conduct field operational tests of autonomous vehicles and other vehicles while people are actually living there.

Additionally, Toyota began sales of the e-Palette battery EV, which is capable of being used in a variety of mobility services, from September 15, 2025, and will first introduce it in Woven City and other locations. The currently available e-Palette is a vehicle capable of supporting an automated driving system that conforms to Level 2 automated driving, and improved functions will

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51 https://www.road-to-the-l4.go.jp/activity/committee/.
52 https://global.nissannews.com/ja-JP/releases/250310-01-j.
53 https://www.meti.go.jp/policy/mono_info_service/mono/automobile/Automated-driving/nissan_daisankai_level4_committee.html.
54 https://www.meti.go.jp/information/publicoffer/kobo/2025/k250522001.html.
55 https://www.meti.go.jp/information/publicoffer/kobo/2025/downloadfiles/k250522001_1.pdf.
56 https://global.toyota/jp/newsroom/corporate/43160579.html.

continue to be implemented with the aim of launching vehicles equipped with Level 4 automated driving systems to the market in 2027[57].

(2) Collaborative Efforts Towards the Commercialization of Autonomous Taxis

On April 14, 2025, GO Inc. (Minato-ku, Tokyo), Waymo LLC (Mountainview, California, USA; "Waymo"), a subsidiary of U.S.-based Alphabet Inc., and Nihon Kotsu Co., Ltd. (Chiyoda-ku, Tokyo; "Nihon Kotsu") announced that they would begin vehicle operations to adapt Waymo's autonomous driving technology to Japan's public roads. Nihon Kotsu drivers who have received training will begin manually driving Waymo's vehicles in the seven wards in Central Tokyo to collect data[58].

Additionally, on July 2, 2025, newmo, Inc. (Minato-ku, Tokyo), a mobility startup developing taxi and rideshare operations, and TIER IV, Inc. (Shinagawa-ku, Tokyo), a deep tech enterprise pioneering the development of Autoware open-source software for autonomous driving, announced that they would launch a collaboration aimed at the commercialization of autonomous taxis in Japan. They will utilize Autoware to pursue the commercialization of autonomous taxis based on the results of field operational tests conducted worldwide in a variety of environments, with the aim of socially implementing a safe and secure autonomous driving system[59].

3. Conclusion

Going forward, efforts toward the social implementation of autonomous driving are expected to advance in both the public and private sectors, and these developments will be closely watched.

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57 https://global.toyota/jp/newsroom/corporate/43305367.html.
58 https://goinc.jp/news/info/2025/04/14/4zfkopprkigxqcfyiltgxd/.
59 https://tier4.jp/media/detail/?sys_id=7qAfaVrNbOEKxylAVGUcU5&category=NEWS.