Popularization of the automobile has transformed people’s lives, offering them mobility, convenience and the pleasure of driving. In recent years, the automotive industry has made significant advances, with autonomous driving technologies and various safety and driver-support solutions showing particular progress. Today, as society undergoes major structural shifts, technological innovation in the automotive sector is counted on to help address a range of issues toward the realization of a society with less urban traffic congestion and more ways for older citizens to move about safely.

Nissan designs and engineers cars that embody the "pleasure and richness of driving," while prioritizing a high level of real-world safety. More than 90% of accidents are the result of human error. The company’s goal is zero fatalities: reducing the number of deaths from traffic accidents involving Nissan vehicles to virtually zero. To this end, Nissan continues to work to improve passenger safety in Nissan vehicles, including the development and adoption of automated driver support technologies that can help the driver avoid collisions or mitigate their effects. It also includes a wide range of other activities, including promoting educational activities that raise safety awareness among drivers, pedestrians and others in the community and, beyond that, striving to construct a safer and more pleasant mobility society.

Number of fatalities from accidents involving Nissan vehicles compared to 1995 level (Japan, 2015):

70% reduction

Click here for more information on Nissan’s goal of zero fatalities.
Innovative technology development and active promotion of safety toward a safer mobility society

Establishment of quantitative reduction targets for Nissan-related traffic fatalities, etc., real-world analysis of accidents to build safer cars and implementation of driver-education programs; as an ultimate goal, aim for virtually zero fatalities in accidents involving Nissan vehicles.

Reduction from 1995 levels in fatalities involving Nissan vehicles (figures available approx. two years later due to calculation based on publicly released data)

Average in major Nissan markets: 58% reduction

Japan: 70% reduction

U.S.: 45% reduction

Europe (U.K.): 78% reduction

(All as of the end of December 2015)

Nissan makes year-round use of the CSR scorecard as a fundamental tool to manage, review and validate its progress in each of the sustainability strategies defined for its CSR activities. The table below shows some of the values behind Nissan’s ongoing activities and the indices used in the scorecard to gauge the company’s performance.

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NISSAN'S APPROACH TO SAFETY

Nissan takes a fundamental approach of pursuing “real-world safety” and aims to help create a society with virtually zero avoidable traffic accidents. There were 3,904 deaths resulting from traffic accidents in Japan in 2016, 213 fewer than in the previous year. For the first time since 1949, that figure has fallen below 4,000. The World Health Organization (WHO) reports that approximately 1.25 million people lose their lives each year in automobile accidents globally, warning that if urgent steps are not taken, accidents could become the fifth leading cause of death worldwide by 2030.

Nissan set a target of reducing the number of fatalities involving Nissan vehicles to half the 1995 level by 2015. In Japan, the United States and Europe (the United Kingdom), this target has been reached. Today, Nissan is engaged in activities aimed at halving this number once again in these markets by 2020. The ultimate goal is a world with virtually no fatalities resulting from traffic accidents.

To reduce traffic accidents and achieve this zero-fatality goal, it will be necessary to develop and deploy effective safety technologies in as many vehicles as possible. Comprehensive efforts are needed that will encompass individuals and the driving environment as well. Nissan uses a triple-layered approach, taking measures in the areas of vehicles, individuals and society to contribute to the creation of a truly safe automobile society.

Nissan’s ultimate goal:
To reduce the number of fatalities involving Nissan vehicles to virtually zero.

Nissan’s approach:
A triple-layered approach, taking measures in the areas of vehicles, individuals and society.
VEHICLES: DEVELOPING SAFETY TECHNOLOGIES

With its unique Safety Shield concept, Nissan is working to develop automotive technologies from the perspective that people are at the center of the driving experience. The company focuses on solutions that help minimize potentially dangerous conditions. It also provides technologies that aim to activate vehicle systems (for example, the brakes) when a collision is unavoidable, thereby helping to reduce injuries.

The Safety Shield Concept

Nissan bases its efforts to help create safer automobiles on its original Safety Shield concept. This defines the conditions surrounding a vehicle in terms of six phases, from "risk has not yet appeared" through "post-crash," and guides development of technologies to help address each phase.

High Marks in Fiscal 2016 for Nissan Safety Technology

- In January 2015, Nissan expanded Intelligent Emergency Braking to more models. By the end of fiscal 2015, the technology was available on nearly all vehicle categories sold in Japan, including electric vehicles and commercial vehicles, and it was standard on all major models. In North America, it is available on key models including the Sentra, Altima and Rogue; in Europe it appears on the Juke, X-Trail, Qashqai and other key models, as well as on the Micra, a new model released in March 2017.
- In the United States, the U.S. National Highway Traffic Safety Administration's New Car Assessment Program (US-NCAP) awarded a five-star overall safety rating, its highest, to the 2017 Infiniti QX60 and the 2017 Nissan Altima, Maxima and Pathfinder. The Insurance Institute for Highway Safety (IIHS) recognized the 2017 Nissan Altima, Maxima and Rogue with its 2017 Top Safety Pick Plus (TSP+) designation (when equipped with Forward Emergency Braking and LED low-beam headlights).
- In Europe, the European New Car Assessment Program (Euro NCAP) awarded a five-star top rating to the Infiniti Q30.

Currently called Automatic Emergency Braking in the United States.
Aiming for Virtually “Collision-Free Cars”

Risks are present in every driving condition. Nissan supports safer driving through the development of preventive safety technologies that help detect risks in advance, providing a warning to the driver and, in emergency situations, intervening to help prevent accidents. Guided by Nissan's Safety Shield philosophy, engineers consider potential risks around the vehicle and have designed a variety of systems to help the driver avoid collisions at the vehicle’s rear and side, as well as in the front.

Nissan has set a goal of providing worldwide optimal mobility and committed as an automobile manufacturer to the application and popularization of its safety technologies.

All-Around Drive-Support System in the Infiniti Q50

Intelligent Emergency Braking
When the Intelligent Emergency Braking system judges that deceleration is needed, it helps alert the driver by using both a visual notice and sound, and then generates a force that pushes the accelerator pedal up and smoothly applies partial braking to assist the driver in slowing the vehicle down.

When the system judges that collision is likely, it automatically applies harder braking to help avoid or at least mitigate a collision.

Intelligent Forward Collision Warning
This system warns the driver of risks that may be obscured from the driver's view. It can sense the relative velocity and distance not only of a vehicle directly ahead but also of the vehicle two positions ahead. When the system calculates a need to decelerate, it provides audible and visual alerts to the driver.

Intelligent Blind Spot Intervention
The Intelligent Blind Spot Intervention system helps alert a driver who is attempting to change lanes of the presence of a detected vehicle in his/her blind-spot area. It also helps assist the driver in returning the vehicle toward the center of the lane.

Intelligent Lane Intervention

A camera installed in the roof console recognizes the vehicle’s position relative to the lane markings. When the system detects that the vehicle is drifting out of its lane, the Lane Departure Warning system helps alert the driver with a visual warning and an audible signal. The Lane Departure Prevention system senses unintended lane drift and automatically helps the driver return to the center of the lane by swiftly redirecting light steering input toward the intended lane.
Intelligent Back-up Intervention
Radar and sonar sensors on the side and back of the vehicle work to detect potential collisions with a crossing vehicle while backing up. This helps to alert the driver with visible indicators located on the side mirrors and audible and visible alarms on the instrument panel. Should the driver continue moving in reverse, the brakes will automatically engage to help the driver avoid a collision.

Intelligent Around View Monitor
The Intelligent Around View Monitor provides a virtual 360-degree view of the parking environment as seen from above the vehicle and provides visual and audible warnings for moving objects within the display image.

From Preventive Safety to Autonomous Drive
Nissan is enhancing its preventive safety technologies to support the four basic steps in avoiding accidents: sensing, cognition, judgment and action. The company is now developing autonomous driving technologies as one next step in its approach to driving safety. The company believes that autonomous driving could help to reduce traffic accidents—more than 90% of which have human error as a contributing factor—and could prove effective in contributing to the realization of a society with virtually no traffic accidents.

Autonomous Drive vehicles equipped with millimeter-wave radar, laser scanners and cameras continually monitor their surroundings in every direction. If they come close to other vehicles or other objects, artificial intelligence selects the appropriate action based on the information stored in its knowledge database. The goal is an autonomous driving vehicle that can correctly assess the situation, make decisions and drive safely even in complex traffic environments, such as crossroads with no traffic lights or when passing parked vehicles.

In a society facing issues including aging populations and urban congestion, autonomous driving technologies may one day be able to help reduce traffic accidents, thus providing peace of mind to drivers and increasing mobility for the rapidly growing number of senior citizens. Nissan believes that autonomous driving technologies are a major breakthrough offering new mobility value. The company is proactively developing these technologies and working to bring them to market. In August 2016, the ProPILOT technology enabled autonomous driving in a single highway lane in the new Serena. ProPILOT allows steering, acceleration and braking to be operated in full automatic mode, easing the burden on drivers in heavy traffic and during long drives. ProPILOT was installed on 54% of the new Serena models sold from August 2016, when the vehicle launched, through March 2017, for a total of some 39,000 vehicles.

This will be followed by Autonomous Drive technologies for multiple-lane highway driving. This functionality will allow the vehicle to merge and change lanes autonomously and it is expected to be available in 2018. In 2020, Nissan expects to make autonomous city driving available.
Lounge Switch: To develop human resources to support and evangelize the Omoiyari Light Promotion, Nissan launched a workshop series to teach participants how to come up with ideas, put them into action and promote them. Workshops featuring a diverse range of instructors took place seven times from June 2016 to February 2017, growing the number of supporters of the Omoiyari Light Promotion.

INDIVIDUALS: NISSAN’S TRAFFIC SAFETY ACTIVITIES

To help create a better mobility society, it is important for as many people as possible to share an understanding of road safety, including drivers and passengers in vehicles as well as pedestrians outside them. Nissan takes part in educational activities to boost this safety awareness, including measures to improve drivers’ skills and a range of other safety promotions.

Japan

Traffic accidents are statistically more likely to occur during the dusk hours from 4:00 to 6:00 p.m. As part of the Hello Safety Campaign, Nissan began urging drivers to turn on their headlights earlier in the evening in the Omoiyari Light Promotion, launched in 2010.

In fiscal 2016, Nissan further enhanced its activities. With the aim of increasing the number of supporters and evangelists of the Omoiyari Light Promotion, the company worked to publicize these activities and to publicize them as widely as possible throughout Japan, targeting those concerned about the issues facing society as well as those with an interest in regional activism.

Takumi Adachi’s Journey of Omoiyari Discovery: To raise awareness of the Omoiyari Light Promotion and its objectives across the entire country, Omoiyari Light Promotion secretariat member Takumi Adachi toured all 47 of Japan’s prefectures in a Nissan LEAF. Starting in Yokohama, Adachi moved through Kanagawa Prefecture to Yamanashi and Shizuoka Prefectures as he began his clockwise route around the country, in all covering a total of 10,900 kilometers (one quarter of the circumference of the world). Meeting with people involved in regional revitalization and volunteer activities face to face, Adachi highlighted the importance of omoiyari (thoughtful kindness) in society. Also appearing in local media, Adachi met with a total of 1,124 people, most of whom agreed to offer their support to the Omoiyari Light Promotion.

3 Lounge Switch: To develop human resources to support and evangelize the Omoiyari Light Promotion, Nissan launched a workshop series to teach participants how to come up with ideas, put them into action and promote them. Workshops featuring a diverse range of instructors took place seven times from June 2016 to February 2017, growing the number of supporters of the Omoiyari Light Promotion.
Yugata (Evening) Café: A networking event held in spring and autumn. The autumn meeting was held on November 10, designated “Good Lighting Day” in Japan. At this meeting, ongoing supporters of the Omoiyari Light Promotion, new faces from Takumi Adachi’s Journey of Omoiyari Discovery and participants from the Lounge Switch workshops came together for spirited and cheerful discussion of the promotion.

As a result of these activities, corporations, nonprofit organizations, car lovers and other stakeholders have gained greater understanding of the safety practice and are putting it to use more frequently. Nissan’s Omoiyari Light Promotion is gradually gaining broad acceptance among the public.

United States
Nissan North America (NNA) has voluntarily provided parents and caregivers with peace of mind by offering valuable tools and resources to help determine which child safety seats fit properly in Nissan and Infiniti vehicles through its Snug Kids program since 2002 in the United States. Snug Kids, the automotive industry’s first-ever child safety seat fit initiative, provides consumers with guidance on how to achieve a secure fit when installing a rear- or forward-facing child seat or booster.

Since 2012, NNA has sponsored ThinkFast, an interactive awareness program that educates students about the importance of safe driving practices. The program is set up like a game show with an entertaining host to keep participants engaged. In 2016, a total of 105 programs were carried out at middle schools and high schools across Tennessee, Michigan, Mississippi, Texas, Arizona and California.

NNA also sponsors a Child Passenger Safety Technician course and an event offering training in seat-check methods in Tennessee, Michigan and Mississippi to educate adults on how to restrain children properly when traveling in vehicles.

China
Traffic safety has become an increasingly important issue in China, which is seeing a rapid increase in the number of cars on its roads.

To communicate safe driving concepts to customers and help them to develop safe driving habits, Dongfeng Nissan Passenger Vehicle (DFL-PV) held Safe Driving Experience Camp 360°, a safety-themed event. The company is also engaged in various activities, including lectures and skills training for drivers and the general public, as well as training in first-aid techniques, so that people will be prepared when they are needed in an emergency. These events have been held in more than 400 cities throughout China, with more than 5.7 million participants learning the importance of safe driving.

In August 2016, Nissan (China) Investment Co. (NCIC) co-hosted the 10th China Road Safety Forum with the China Automotive Technology & Research Center (CATARC), extending a collaboration in place since 2007. More than 200 experts and representatives from the Ministry of Transport of China, the State Administration of Work Safety, automakers, suppliers, and domestic and foreign universities and institutes participated in the forum.
**Middle East**

In the United Arab Emirates (UAE), mobile-phone-related accidents among young drivers are on the rise. Nissan Middle East (NMEF) has launched the Aqdar Drive Safely program to reinforce the importance of a traffic mindset for UAE university students and empower them to become agents of change in their communities. The program theme for 2017 is the use of mobile phones while driving, and participating students are required to submit a road safety campaign, mobile phone application or sculpture conveying the danger of using a phone while driving. The top three winners in each category will receive cash rewards and the opportunity to implement their projects with the support of NMEF.

**South America**

In October 2016 in Honduras, Nissan Trading (NITCO), a wholly owned subsidiary of Nissan Motor Co., Ltd., in cooperation with local Nissan distributor Grupo Q, hosted a two-day road safety event for international aid and development organizations including the World Food Programme, United Nations Development Programme, Save the Children, Red Cross and World Vision. The training was focused on off-road driving safety. The first day was a session for participants to learn the basic theory of 4x4 vehicles. The first day was a session for participants to learn the basic theory of 4x4 vehicles. The second day was a practical session held at an off-road course, where participants drove several different types of Nissan NP300 Frontier, learning in particular how to select the appropriate gear depending on the road surface and conditions.

**Nissan Safety Driving Forum in Emerging Markets**

Nissan conducts its Nissan Safety Driving Forum in emerging markets as part of efforts to promote safe driving behavior. The aim is to enhance road safety awareness among the general driving population. Held in countries like China, India and Russia, the forum travels to multiple cities, teaching participants the importance of road safety through programs using simulators and safety technology exhibitions.

A participant using a driving simulator.
Partnership with the FIA for Traffic Safety

In 2014, Nissan and the Fédération Internationale de l’Automobile (FIA) formed a partnership to make world roads safer through the FIA Action for Road Safety campaign. Nissan is an official supporter of the FIA’s innovative awareness-raising campaign, launched to bolster the United Nations Decade of Action for Road Safety.

As part of this partnership, Nissan supports and promotes awareness campaigns worldwide—in particular, the FIA Golden Rules for Safer Motoring—with the aim of helping to reduce the number of deaths from the many traffic accidents that occur each year. By signing the FIA Online Pledge, campaign supporters publicly commit to driving safely.

Through the Nissan Safety Driving Forum and other outreach efforts, Nissan works to educate drivers about the FIA Golden Rules and the FIA Online Pledge. At the NISMO Festival—a fan appreciation event hosted by Nissan Motorsports International—Nissan promotes its safety activities by placing campaign logo decals on the many vehicles that are displayed or driven in the festival and stresses the importance of safe driving to festival visitors by having race drivers pledge to drive safely on the course.

Additionally, following quiz-style educational events held on stage at the 2015 festival, a dedicated booth was opened at the 2016 festival to promote and collect signatures for the FIA Online Pledge.

At the NISMO Festival.

SOCIETY: WORKING TOGETHER WITH SOCIETY

Nissan believes it is possible to help create an even safer mobility society by using information from the traffic environment surrounding vehicles on the road. Together with a wide range of governmental agencies, universities and companies, the company is participating in various projects intended to promote the achievement of a safer, more pleasant mobility society.

Helping Reduce Wrong-Way Accidents

Recently, Japan has seen an increase in the number of incidents involving vehicles traveling in the wrong direction on expressways. Working together with West Nippon Expressway Co., Nissan has developed a navigation program that uses GPS to notify drivers of vehicles driving the wrong way on an expressway. The system detects wrong-way vehicles based on GPS coordinates, maps, vehicle speeds and other data. The driver of a vehicle going the wrong way receives audible and visual warnings. The system appeared in the Nissan Fuga Hybrid released in October 2010 and is now available on a wide range of models as an option.
Putting Autonomous Drive Technology to Work in a Driverless Towing System

Nissan works to improve production efficiency. The Intelligent Vehicle Towing system uses a modified Nissan LEAF to autonomously tow trollies carrying finished vehicles. Trial operations of the system began in 2015. The driverless system can carry a maximum of three vehicles at once. The data and know-how obtained through this project will help to enable broader adoption of Autonomous Drive technology, allowing Nissan to provide new solutions to our customers and to society.

![The Intelligent Vehicle Towing system.](image)

Applying NASA Technology to Develop AI for Autonomous Vehicles

To realize fully autonomous city driving, Nissan is developing the Seamless Autonomous Mobility system, or SAM. SAM can help cars to safely navigate unforeseen situations, such as accidents, road construction or other obstacles. When decision-making is difficult for autonomous vehicles, supervisors draw up an ideal route to match the challenging situation and send it to the vehicles remotely for execution.

Testing Driverless Vehicles for Commercial Mobility Services

Nissan and the Japanese Internet company DeNA Co. are preparing to begin tests aimed at developing driverless vehicles for commercial services. The first phase of testing will begin in 2017 in designated zones in Japan, with a focus on technology development. By 2020, Nissan and DeNA plan to expand the scope of their tests to include the commercial usage of driverless technology for mobility services in the Tokyo metropolitan area.