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 achieved dramatic functional 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 senior citizens to move about safely and smoothly.

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 to achieve virtually zero avoidable traffic accidents involving Nissan vehicles that result in serious or fatalities and serious injuries. This means, of course, working to improve passenger safety in its vehicles, for example by equipping them with Autonomous Drive technologies. It also means promoting educational activities that raise safety awareness among drivers, pedestrians and the community.

Number of fatalities/serious injuries from accidents involving Nissan vehicles compared to 1995 level (Japan, 2014):

63% reduction
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 ultimate goal:
To reduce the number of fatalities and serious injuries involving Nissan vehicles to virtually zero.

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

Nissan takes the fundamental approach of pursuing “real-world safety” and aims to help create a society with virtually zero avoidable traffic accidents. There were 4,117 deaths resulting from traffic accidents in Japan in 2015, an increase of 4 from the previous year following 14 successive years of decline. The World Health Organization (WHO) reports that approximately 1.25 million people lose their lives each year in automobile accidents around the globe, 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 and serious injuries involving Nissan vehicles to half the 1995 level by 2015. In Japan, the United States and Europe (the United Kingdom), this target has already 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 accidents that lead to death or serious injury.

To reduce traffic accidents and achieve this goal, it will be necessary to develop and deploy effective safety technologies in as many vehicles as possible. Comprehensive efforts will also be needed that 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.

Source: Institute for Traffic Accident Research and Data Analysis
Source: Fatality Analysis Reporting System
Source: STATS19 data, U.K. Department for Transport
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 2015 for Nissan Safety Technology

- In January 2015, Nissan expanded Forward Emergency Braking to more models and announced that the technology would become standard in nearly all categories sold in Japan, including electric vehicles and commercial vehicles, by the end of fiscal 2015. As of the end of the fiscal year, Forward Emergency Braking was available on nearly all vehicle categories sold in Japan and was standard on all major models.
- In Japan, the Nissan Serena received the highest Japan New Car Assessment Program (JNCAP) preventive safety performance assessment rating Advanced Safety Vehicle Plus (ASV+). In fiscal 2015, JNCAP saw the addition of rear-view camera device performance to its assessment menu.
- In the United States, the U.S. New Car Assessment Program (US-NCAP) awarded a five-star rating, its highest rating, to the 2016 Infiniti Q70 and QX60 and the 2016 Nissan Pathfinder. The Insurance Institute for Highway Safety (IIHS) recognized the 2016 Infiniti Q70 and the 2016 Nissan Altima, Maxima, Murano and Sentra with its Top Safety Pick Plus (TSP+) designation, when equipped with Forward Emergency Braking.
- In Europe, the European New Car Assessment Program (Euro NCAP) awarded a five-star top rating to the Infiniti Q30.
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. Nissan’s Safety Shield concept is a 360-degree driver assistant system designed to prevent 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

Forward Emergency Braking

When the Forward Emergency Braking system judges that deceleration is required, it helps alert the driver using both a screen display 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 there is the possibility of a collision, it will automatically apply harder braking to help avoid or mitigate a collision.

Predictive Forward Collision Warning

This system, a world first, helps warn 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 a vehicle traveling in front of the preceding one.

Blind Spot Warning and Blind Spot Intervention

The Blind Spot Intervention system helps alert the driver, when attempting to change lanes, of the presence of a detected vehicle in the blind-spot area. It also helps assist the driver in returning the vehicle toward the center of the lane.

Lane Departure Warning and Lane Departure Prevention

Cameras installed in the roof console recognize the vehicle’s position relative to the lane markings. When there is a possibility that the vehicle is drifting out of lane, the Lane Departure Warning system helps alert the driver with a visual warning on the display and an audible signal, while the Lane Departure Prevention system senses unintended lane drift and automatically helps assist the driver in returning to the center of the lane by generating part of the necessary movement over a short span of time.
Back-up Collision Intervention
The Back-up Collision Intervention system is another significant evolution in driving confidence. Radar and sonar sensors on the side and back of the vehicle help alert the driver to a potential collision with a crossing object while backing up. Should the driver continue moving in reverse, the brakes will automatically engage.

Around View Monitor with Moving Object Detection
The Around View Monitor with Moving Object Detection provides a virtual 360° 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 three basic steps in avoiding accidents: cognition, judgment and action. The company is now developing autonomous driving technologies as one next step in its safety approach. The company believes that Autonomous Drive 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 Drive 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 Drive technologies may one day be able to help reduce traffic accidents, thus providing peace of mind to drivers and increasing opportunities for mobility for the rapidly growing number of senior citizens. Nissan believes that Autonomous Drive technologies are a major breakthrough offering new mobility value. The company is proactively developing these technologies and working to bring them to market. By the end of 2016, the goal is to release technology helping to enable safe autonomous driving in a single lane of a congested expressway; this will be followed in 2018 by Autonomous Drive technologies for multiple-lane roads, including risk-avoidance and lane-changing functions. In 2020, Nissan aims to introduce Autonomous Drive technologies allowing vehicles to navigate crossroads and intersections without driver involvement in operations.
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.

Educational Programs in 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 2015, Nissan further enhanced activities undertaken to date.

1. Creative Ideas for Twilight-Time Safety Salons: To bring together people involved in road safety educational activities, Nissan has held these meetings annually since 2013. This year’s event—organized around the theme of “redesigning traffic safety,” with the aim of considering new activities to make roads safer—included a talk show featuring a copywriter and an automotive journalist, and a workshop for all participants to share ideas.

2. Departure ceremony for early-headlight vehicles: This event took place on November 8, the final day of the 2015 Tokyo Motor Show, to raise interest in the “Day of Good Lighting” (based on a Japanese play on words), marked on November 10. At a venue next to the motor show hall, participants shouted out their feelings about urging drivers to turn on headlights earlier for safety, and a colorful procession of Omoiyari Light Promotion campaign partners’ cars—led by vehicles in yellow, the campaign color—departed with their lights on.
Regional tour: Staff from the Omoiyari Light Promotion secretariat joined journalists on visits to event venues around Japan, where they called for greater awareness of the need to turn on headlights earlier in the evening. They also paid visits to organizations supporting the campaign, touching base with them in connection with activities aimed at promoting the practice.

As a result of these activities, corporations, nonprofit organizations and car lovers alike 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.

Safety Education in the United States
Since 2002, 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 sold in the United States, through its Snug Kids program. 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, Nissan 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. More than 120 programs have been carried out at middle schools and high schools across Tennessee, Michigan, Mississippi, Texas, Arizona and California.

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

Activities to Help Reduce Traffic Accidents in China
Traffic safety has become an increasingly important issue in China, which is seeing a rapid increase in the number of cars on the road.

In August 2015, Nissan (China) Investment Co., Ltd. (NCIC) co-hosted the ninth 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.

To convey safe driving concepts to customers and help them to develop safe driving habits, Dongfeng Nissan Passenger Vehicle Company (DFL-PV) held the “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 ready if needed. These events have been held in more than 300 cities throughout China, with more than 1.6 million participants learning the importance of safe driving.

Nissan Safety Driving Forum in Emerging Markets
Nissan carries out its “Nissan Safety Driving Forum” in emerging markets as part of efforts to promote safer mobility. The aim is to enhance road safety awareness among the general driving population.

Previously held in China and India, the forum was also launched in Russia in 2014. During 2015, events were held in four cities, including Moscow and Saint Petersburg, where participants learned about the importance of road safety through driving tests on simulators and hands-on experience of safety technologies.
Partnership with the FIA for Traffic Safety

In 2014, Nissan and the Federation 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 in 2011 in support of the United Nations Decade of Action for Road Safety.

As part of this partnership, Nissan supports and promotes awareness campaigns worldwide—in particular, “Action for Road Safety’s Golden Rules for Safer Motoring”—with the aim of helping to reduce the number of deaths and injuries from many traffic accidents that occur each year.

Through the Nissan Safety Driving Forum, carried out again in Russia in 2015, the company worked to educate drivers about the Golden Rules with driving simulators and other technologies. At the NISMO Festival—a fan appreciation event hosted by Nissan Motorsports International Co., Ltd., its 100%-owned rally and racing company, Nissan promoted safety activities by placing campaign logo decals on all vehicles on display. The company also stressed the importance of safe driving by holding quiz-style educational events and having race drivers pledge to follow the Golden Rules before the fans.

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, it is participating in various projects intended to promote the eventual achievement of a safer, more pleasant mobility society utilizing Intelligent Transport Systems (ITS).

Helping Reduce Accidents and Congestion with ITS

In 2006, Nissan launched the ITS Project in Japan’s Kanagawa Prefecture. This project seeks to use Intelligent Transport Systems to create integrated networks of people, roads and vehicles, thereby helping to reduce traffic accidents and ease road congestion. The ITS Project gathers and uses information on nearby vehicles and the traffic environment to help reduce accidents involving other parties that can be difficult for a driver to see and react to.

Nissan is building on the results of the ITS Project with development of the “Driving Safety Support System” (DSSS). This will be an ongoing project promoted by Japan’s National Police Agency and the UTMS Society of Japan, an organization operating under its aegis.

The DSSS uses the latest ITS technologies, such as optical-beacon communication tools, to connect vehicles and the road network, with the aim of reducing traffic accidents. At intersections with reduced visibility, roadside infrastructure communicates with vehicles to deliver information to drivers via onboard navigation systems, warning of potential dangers such as crossing collisions and helping ensure they notice stop signs, signals and vehicles stopped at lights.
Helping Reduce Wrong-Way Accidents
Recently, Japan has seen a number of incidents involving vehicles traveling in the wrong direction on expressways. Working together with West Nippon Expressway Company Ltd. (NEXCO-West), 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, traveling speeds and other data. The driver of a vehicle going the wrong way receives audible and visual warnings. The Nissan Fuga Hybrid released in October 2010 was the world’s first application of this system, which is now available on a wide range of models as an option.