

## **Japanese Manufacturers Hot on the Tail of US/European Firms in Self-Driving Cars; Toyota, Nissan, and Honda Enter the Fray**

Naoshige Shimizu  
Nikkei Automotive Technology

### **Abstract:**

The competition in self-driving cars is intensifying worldwide, and now Japan is moving to catch up to industry leaders in Europe and the US. Toyota, Nissan, and Honda have all shown test vehicles, and the government is preparing the regulatory and legal environment to allow them on public roads. Toyota has already announced a commercial roll-out target of the late 20-teens, and Nissan by 2020. Honda is advancing its own plans. This article covers the technologies and achievements of all three companies.

---

Nikkei Automotive Technology published by Nikkei Business Publications (Nikkei BP) is Japan's first comprehensive magazine that devotes editorial content not only to automotive technology updates but also to related engineering areas such as environmental protection, precision and appliances. Its target readers are engineers engaged in research, development and manufacturing of automobiles, automotive parts/materials and facilities. Key advertising clients include manufacturers of electronic and other automobile parts, makers of industrial precision robots for factory use, and developers of measuring components/software. "Nikkei BP Japan Technology Report" is a fee-based publication offering English-language translations of key technical articles selected from the full array of Japanese-language Nikkei BP publications. (<http://techon.nikkeibp.co.jp/english/>)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form without the written permission of the publisher.

In the United States and Europe, self-driving cars have been driving on public roads for years now, but not in Japan—at least, not until 2013. When Shinzo Abe took over the government, the situation changed significantly in summer that year: Japanese firms announced their self-driving prototypes, and government agencies implemented policy to allow self-driving cars on public roads. As government and industry recognized the need to catch up to forerunners US and Europe, public and private support in Japan soared.

In the industrialized West self-driving cars are already being extensively driven on public roads. In 2012, Google Corp. of the US was authorized to trial its semiautonomous car on public roads in Nevada, and public road trials have also been authorized in other states including California and Florida. Another fifteen states are considering the idea. Audi AG of Germany, a member of the German Volkswagen group, has also received a Nevada license plate. Bayerische Motoren Werke AG of Germany (BMW) has been authorized for public road trials in Germany, likewise in Spain.

There was little public activity in Japan in 2012, but in 2013 all three major Japanese auto manufacturers made key announcements. On September 26, 2013, Nissan Motor Company of Japan announced that it had received a license plate allowing its self-driving prototype on the road (**Fig. 1**). In early October Toyota Motor Corp. of Japan announced a prototype capable of being driven no-hands in a single expressway lane, and



**Fig. 1 Public Roads Trials Finally Begin in Japan**

Nissan has received a license plate for the semiautonomous vehicle it is developing, making it possible to drive on public roads. The number is “20-20,” pointing up the firm’s determination to enter practical use in 2020.

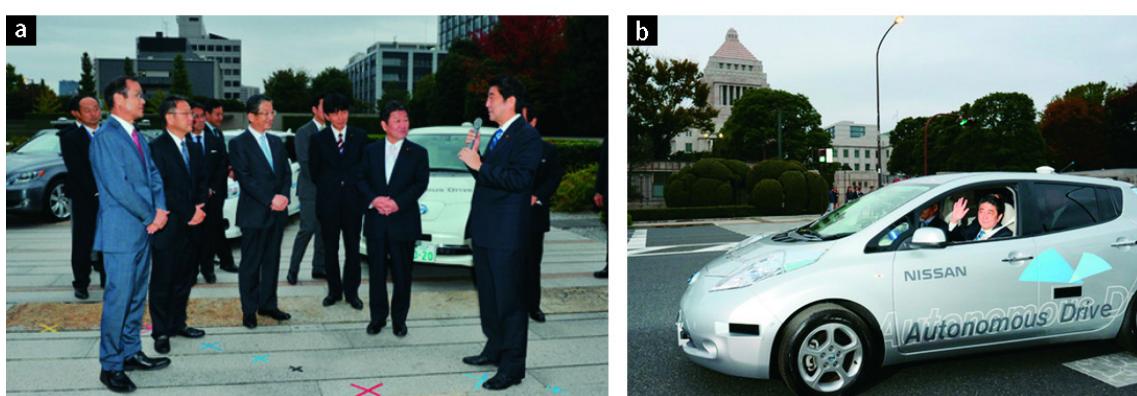
demonstrated it on Tokyo's Metropolitan Expressway (**Fig. 2**). Also in October Honda Motor Co., Ltd. of Japan announced a self-driving car prototype. In November, all three firms drove their vehicles down ordinary roads in front of the National Diet Building.

The major reason for the switch was the change in government. The new Prime Minister, Shinzo Abe, announced in April 2013 that he would reconsider pushing for rapid development of self-driving technology, and trials on public roads. In a speech a month later on his second economic growth strategy, he stated that demonstration trials would be held on public roads in Japan as well, adding that if the US could do it, so could Japan. On November 19, 2013, he enjoyed test rides in the three self-driving cars on display in front of the National Diet Building (**Fig. 3**).



**Fig. 2 Toyota's Semiautonomous Driving for Expressways**

The modified Lexus GS was trialed on the Metropolitan Expressway in Tokyo. Toyota hopes to go commercial within a few years.



**Fig. 3 Abe Cabinet Pushes Autonomous Driving Technology**

Prime Minister Abe enjoys the ride in self-driving vehicles from Toyota, Nissan, and Honda (left). The "test course" was ordinary roadway in front of the National Diet Building (right).