

March 18, 2024

TMF Collaborates with the Okinawa Prefectural Police Headquarters to Develop Accident Prevention Approaches Integrating Police Accident Data with Vehicle Data

—The activities of the industry-government-academia collaboration, including this initiative, are named the "Okinawa Yuimaru Project"—

Since concluding a collaboration agreement with the Okinawa Prefectural Police Headquarters in February last year, Toyota Mobility Foundation (TMF) has been working to analyze police accident data, vehicle data (passenger cars and commercial vehicles), and rental car in-vehicle app data. This work is being carried out together with TOYOTA Rent a Car Okinawa, Yazaki Corporation, JTB Corporation, Toyota Motor Corporation, the University of the Ryukyus, and The School of Engineering at The University of Tokyo in an arrangement involving industry, government, and academia.

Currently, the data sets are being pooled to pursue various measures, such as identifying dangerous locations, investigating the causes of accidents, formulating countermeasures, and verifying their effectiveness as efforts to develop accident prevention measures progress. Additionally, efforts to reduce rental car accidents, promote tourism, and alleviate traffic congestion through in-vehicle apps continue to produce positive outcomes.

The main achievements are listed below.

Moving forward, TMF will advance this initiative under the name "Okinawa Yuimaru Project," which means working together (= "yui") and mutual assistance (= "mawaru, maru") in the Okinawan language, and further efforts will be made to solve regional issues such as reducing traffic accidents and promoting tourism.

1. Progress with Infrastructure measures

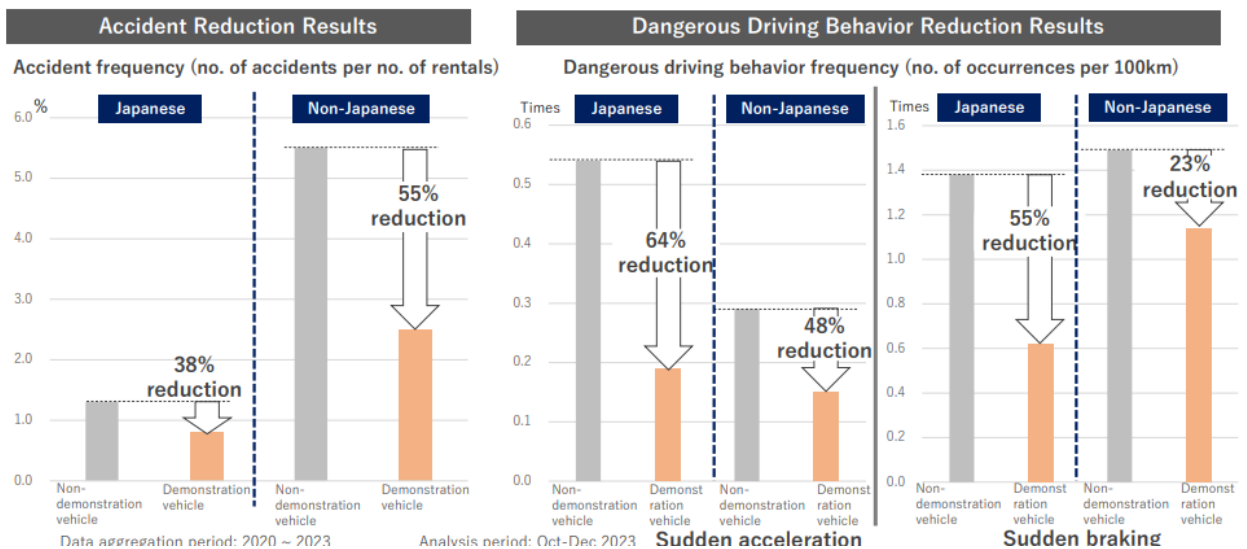
Through multi-faceted analysis combining police accident data with vehicle data (from Yazaki Corporation and Toyota Motor Corporation), progress is being made to identify dangerous

locations and reflect this information in road safety measures in collaboration with various administrative agencies.

- Road safety measures utilizing data related to braking suddenly, an action highly correlated with traffic accidents, are being implemented in collaboration with Ginowan City, Nishihara Town, and the Naha Port Authority
- As a means to improve school route safety, work is being carried out in collaboration with Nago City to address speeding that accompanies the use of backroads as shortcuts
- Accident data and vehicle data are combined to estimate risk factors for dedicated left-turn lanes, a common roadway format in Okinawa with a high accident rate

2. Changes in driving behavior thanks to dedicated in-vehicle tablets

Vehicles equipped with dedicated tablets (manufactured by Yazaki Corporation) demonstrated reduced accidents during the demonstration period, logging a 55% decrease in accidents for non-Japanese and 38% for Japanese nationals. Additionally, analysis of vehicle data showed an improvement in the number of instances of sudden acceleration and sudden braking, supporting the decrease in the number of accidents.



The number of vehicles equipped with a dedicated tablet has been increased from the initial 20 to 50. Additionally, vehicles utilizing in-vehicle multimedia, newly developed by Toyota Motor Corporation to diagnose driving behavior and provide warnings, have been added as we continue expanding our monitoring of changes in driver behavior.

Dedicated tablet (current)

Safe driving status notification



In-vehicle multimedia (added this time)



Dangerous location warning



*Please note that the screen is under development and may differ from actual specifications

3. Promoting changes in tourist behavior by providing information on attractive new destinations via an in-vehicle app

Recommending nearby attractions (when renting and when the vehicle is stopped) along routes different from those suggested by in-vehicle car navigation systems to tourists in rental cars planning to visit the Churaumi Aquarium led to visits to those attractions, thus contributing to the promotion of hidden tourist attractions and the alleviation of traffic congestion.

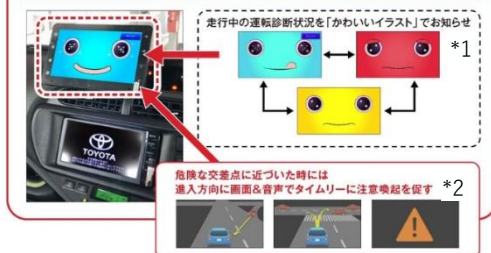
When renting and when the vehicle is stopped



The in-vehicle tablets app

“Smile-kun” guides visitors to recommended attractions

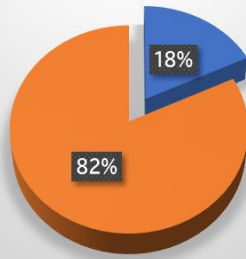
While driving



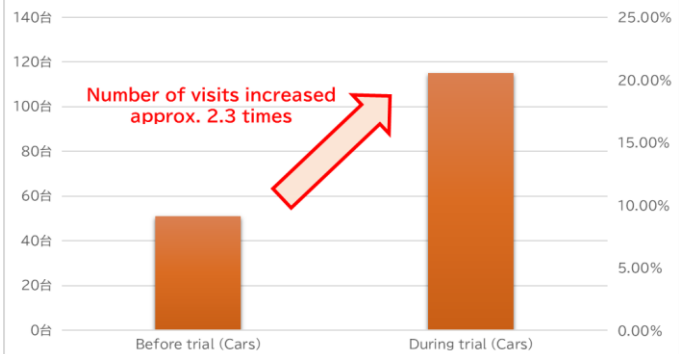
*1 “Cute illustrations” are used to notify the driver of their driving diagnosis status while driving

*2 When approaching a dangerous intersection, the screen will warn the driver in a timely manner with visual and audio alerts about the direction of entry

Behavioral changes resulting from sightseeing spot recommendations



Status of visits to recommended sightseeing spots



Tokio Marine & Nichido Fire Insurance Co., Ltd. has newly joined the collaborative arrangement, which has been extended to March 2025. This deepens the industry-government-academia collaborative analysis by adding data from a non-life insurance company. Going forward, we will further focus on establishing the “Okinawa Model” that combines solutions to social issues, such as reducing traffic accidents and alleviating traffic congestion, with the added value of providing an enjoyable tourism experience.

[Reference: Collaboration Agreement Members]



Reference: Previous press releases and initiatives

December 2021 press release: <https://toyotamobilityfoundation.jp/news/release/0057.html>
(Japanese)

October 2022 press release: <https://toyotamobilityfoundation.jp/news/release/0064.html>
(Japanese)

February 2023 press release: <https://toyotamobilityfoundation.org/en/press-room/release02062023/>

Past initiatives of the Okinawa Yuimaru Project:

<https://www.youtube.com/watch?v=dRt-s3aYF1Q&feature=youtu.be> (Japanese)

To achieve traffic safety, it is important to have "Integrated Three Part Initiatives" of People, as in educational activities for drivers and pedestrians; Vehicles, as in the development of safe vehicles; and Traffic Environment improvements, such as the installation of traffic signals and road maintenance.

In addition to a full range of educational tools and activities coordinated with relevant organizations, all aimed at "people," TMF is promoting efforts to realize a "society with zero fatalities and injuries from traffic accidents" by combining existing technologies and adopting new technologies and perspectives.

About Toyota Mobility Foundation

The Toyota Mobility Foundation (TMF) was established in August 2014 by the Toyota Motor Corporation (TMC) to support the development of a more mobile society in which everyone can move freely. The Foundation underscores TMC's on-going commitment to continuous improvement and respect for people. It utilizes Toyota's expertise and technologies to support strong mobility systems while eliminating disparities in mobility. TMF works in partnership with universities, governments, non-profits, research institutions and other organizations, creating programs are aligned with the UN Sustainable Development Goals (SDGs) to address mobility issues around the world.

SDG Targets related to the activity featured in this article:



PRESS RELEASE



Contact: Toyota Mobility Foundation (Ota)

TEL: 070-2499-9823

Office hours: 8:30 am – 17:30 pm JST (unavailable Saturday, Sunday, and national holidays)

E-mail: info@toyota-mf.org