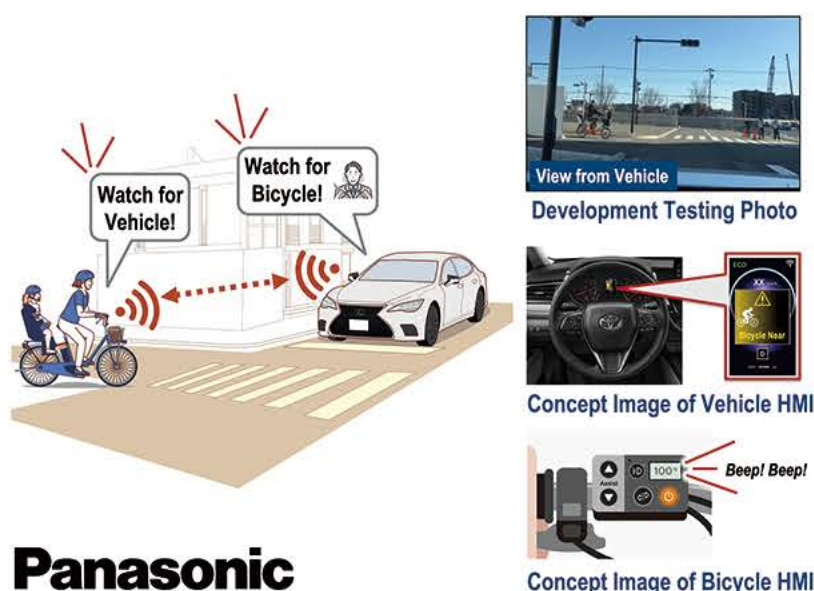# Solving Key Challenges with Cross-Industry Partners

Background

- There are many technical challenges to overcome to achieve the safety, peace-of-mind, and carbon-neutrality goals of the AI & Communication-Cooperative ITS (A-ITS) concept.
- Solving these challenges requires robust cooperation between multiple industries.
- Below are some examples of the cross-industry partnerships already initiated by Toyota.

Partnership Examples

Direct Communication with Bicycles
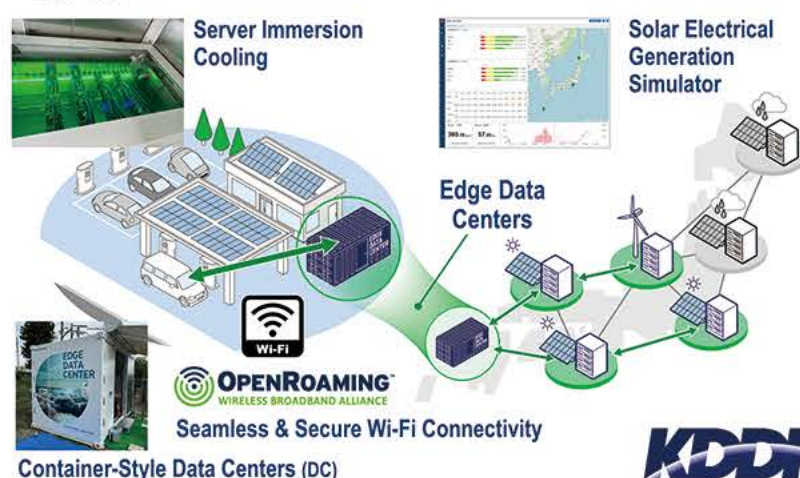(Collaboration with Panasonic Cycle Technology)

- Good bicycle-to-vehicle (B2V) communication can help reduce accidents. Toyota is collaborating with Panasonic Cycle Technology to provide this service, by leveraging dedicated ITS wireless communication.
- Validated in 2023, our B2V communication technology is under final development for commercial ITS implementation after 2026.

Watch for Vehicle! **Watch for Bicycle!**

View from Vehicle
Development Testing Photo

Concept Image of Vehicle HMI

Beep! Beep!
Concept Image of Bicycle HMI

Panasonic

Green Connected Infrastructure
(Collaboration with KDDI)

- Toyota and KDDI are jointly developing multiple technologies for reducing environmental impact from the perspectives of vehicle communications, server operation, and data processing.
  - Reducing electrical consumption with container-type data centers (DC) and immersion-cooled servers.
  - Simulating solar generation to use surplus renewable energy.
  - Using Open Roaming standard to secure seamless connection.
- Conducting in-field validation of technology in 2024.
- Started plan proposals for implementation from 2028.

Server Immersion Cooling
Solar Electrical Generation Simulator
Edge Data Centers

OPENROAMING
WIRELESS BROADBAND ALLIANCE
Seamless & Secure Wi-Fi Connectivity
Container-Style Data Centers (DC)

KDDI

Tateshina Meeting — *Cross-Industry Initiative to Improve Traffic Safety*

- Automotive industry leaders meet annually in the Tateshina area of Nagano to discuss safety.
- Since 2019, the Tateshina Meeting has worked to achieve ZERO traffic injuries & fatalities.
- In July 2023, teams were formed for industry players to launch & promote specific activities.

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AISIN · AICHI STEEL · KDDI · KYOCERA · 三栄工業株式会社 · JTEKT
住友ゴム · SOMPO 損保ジャパン · DENSO Crafting the Core · 東京海上日動 · TOYOTA 株式会社 豊田自動織機 · トヨタ車体 TOYOTA AUTO BODY
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