Toyota’s thoughts on Safety and Automated Driving

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Chief Safety Technology Officer
Toyota Motor Corporation

1.3 million
around the world

Mobility for All

Traffic Congestion

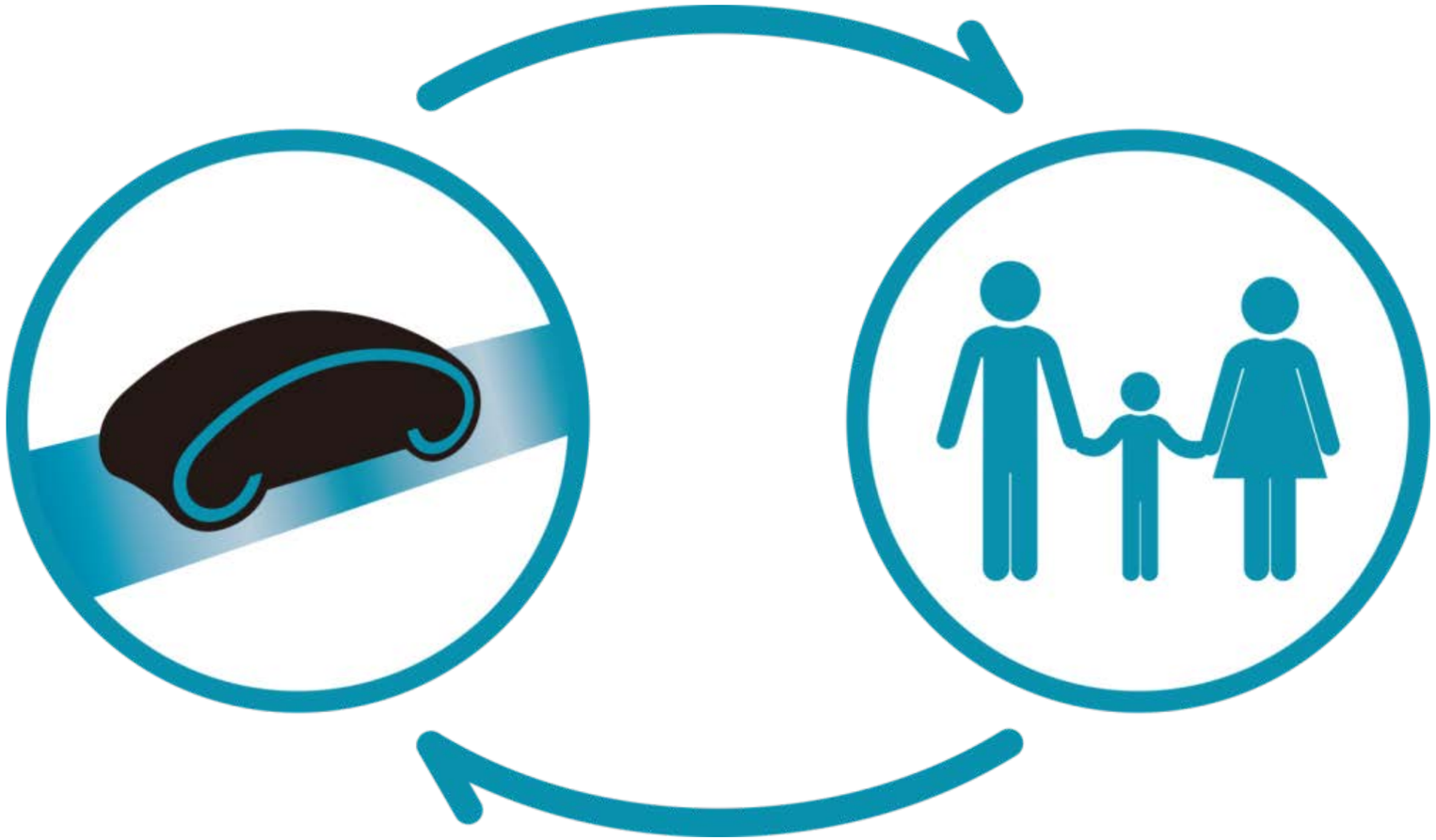
Automated Driving will offer…

Efficiency

Safety

Mobility for all

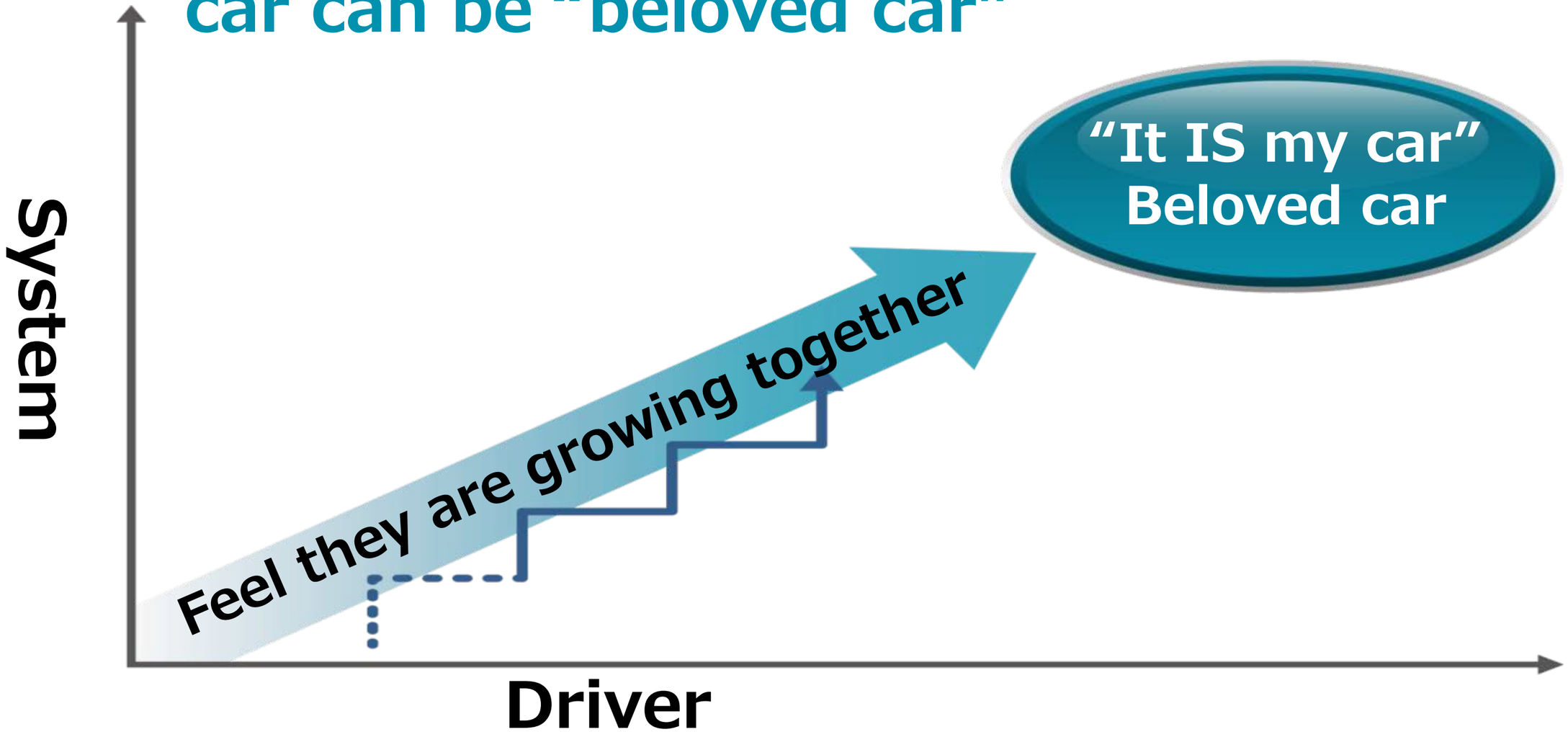
Have fun!!
~~Be careful~~



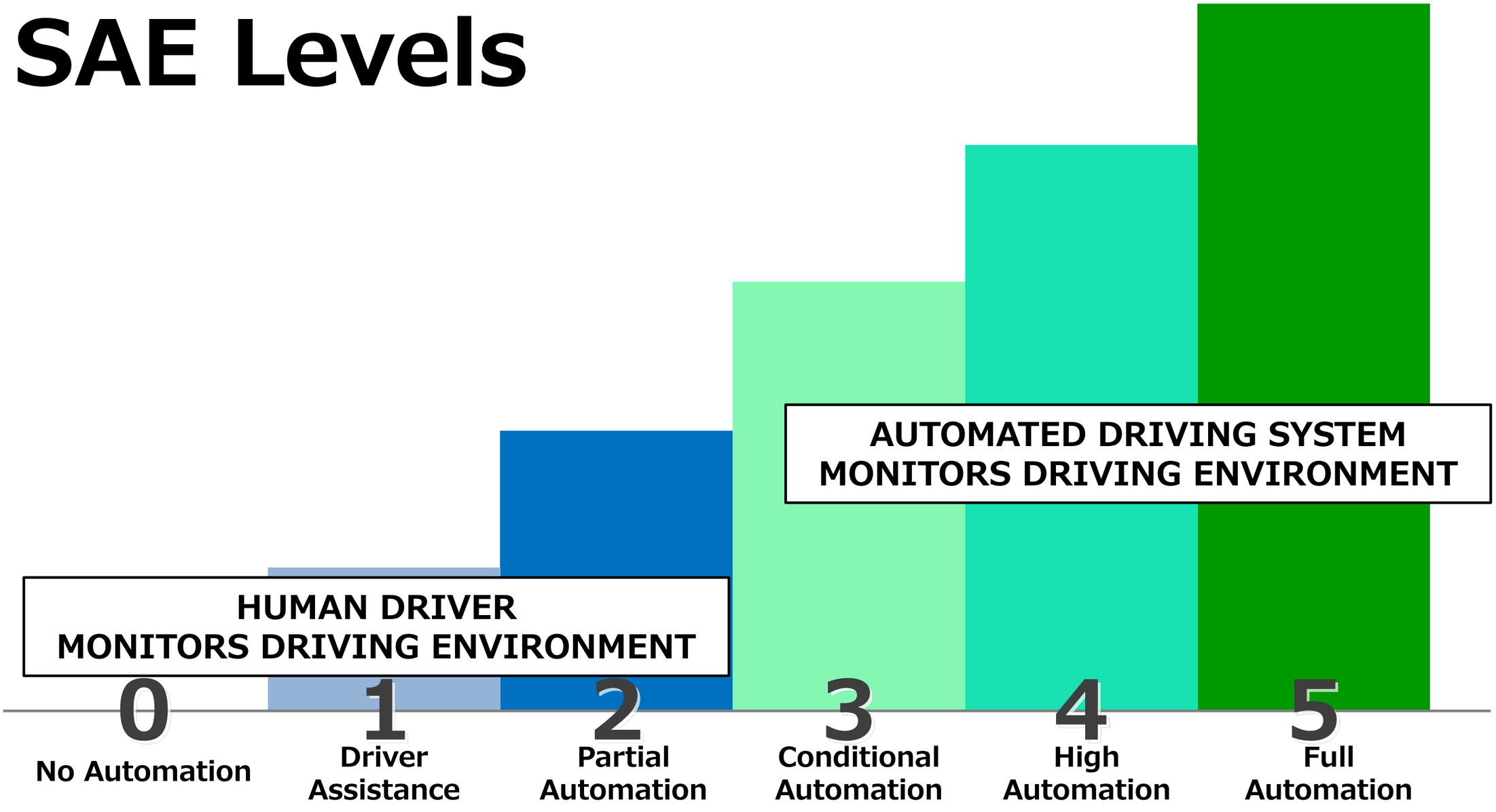
- ✓ **Share the goal**
- ✓ **Collaborate with each other**

FUJICOLOR 78

How automated driving car can be “beloved car”



SAE Levels


AUTOMATED DRIVING SYSTEM
MONITORS DRIVING ENVIRONMENT
HUMAN DRIVER
MONITORS DRIVING ENVIRONMENT
0
No Automation
1
Driver Assistance
2
Partial Automation
3
Conditional Automation
4
High Automation
5
Full Automation

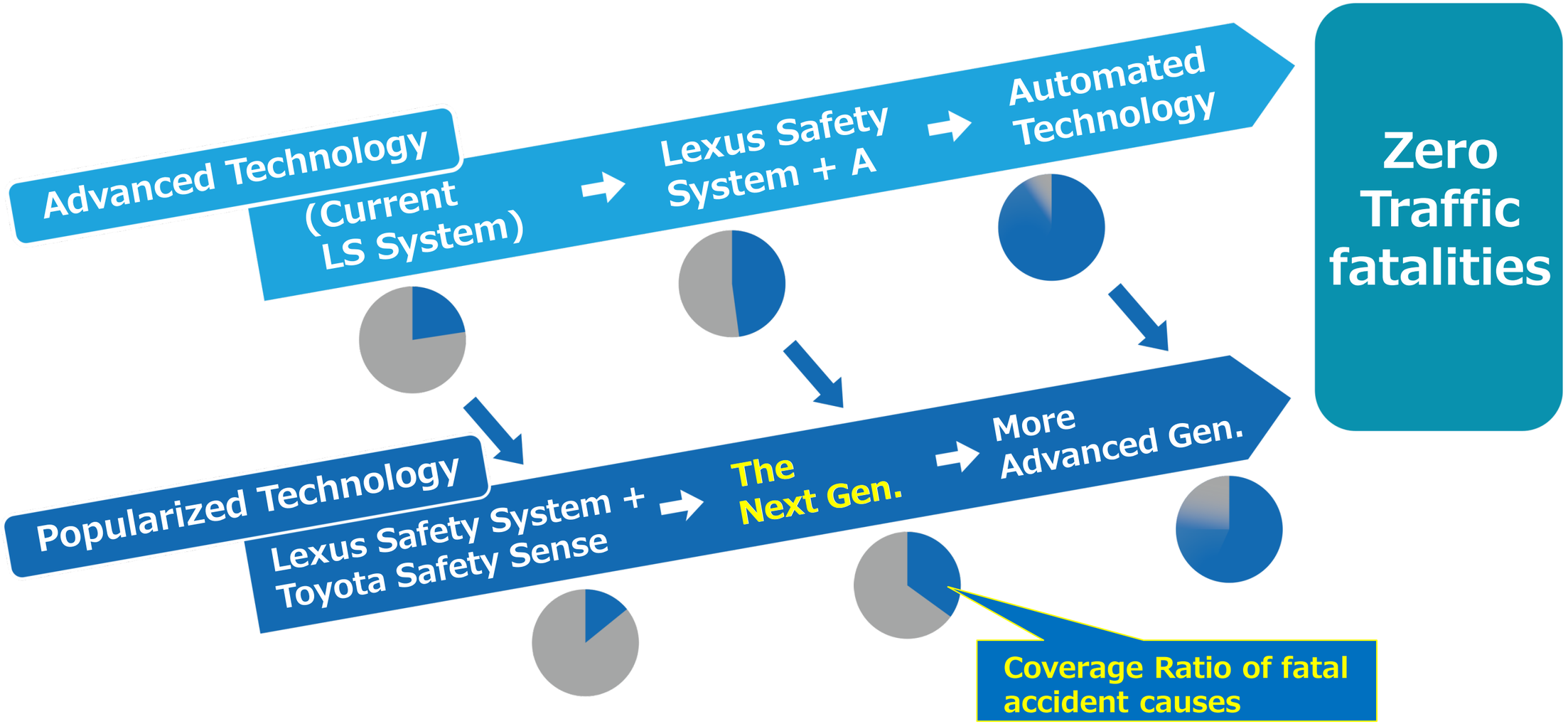
Chauffeur

Driven by a system

Guardian

Assisted by a system

Two-Axis Approach

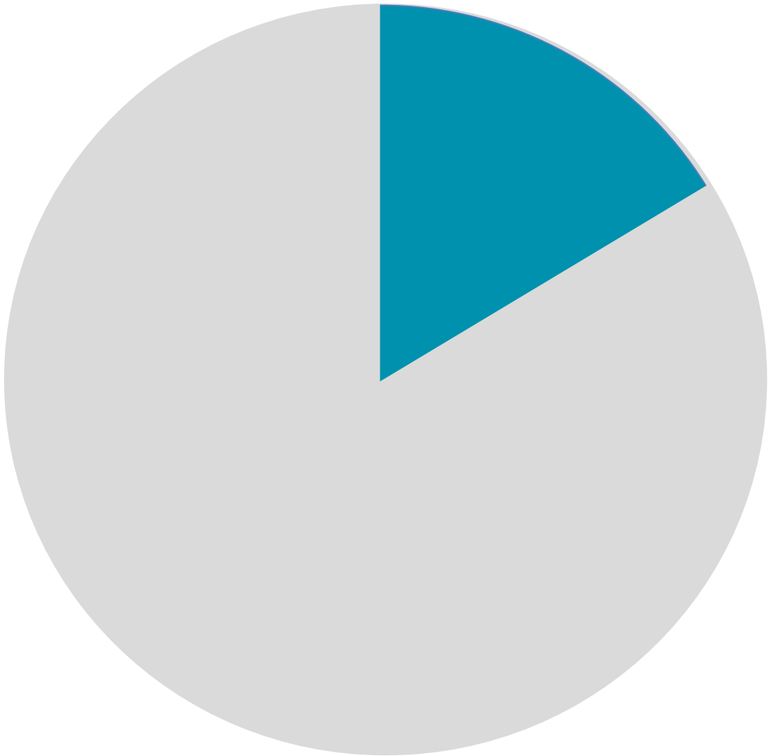


The LS: “Car with Advanced Driving Assist System Led to future automated technologies”

Lexus Safety System + Toyota Safety Sense P

Lexus Safety System + A

Coverage Ratio*



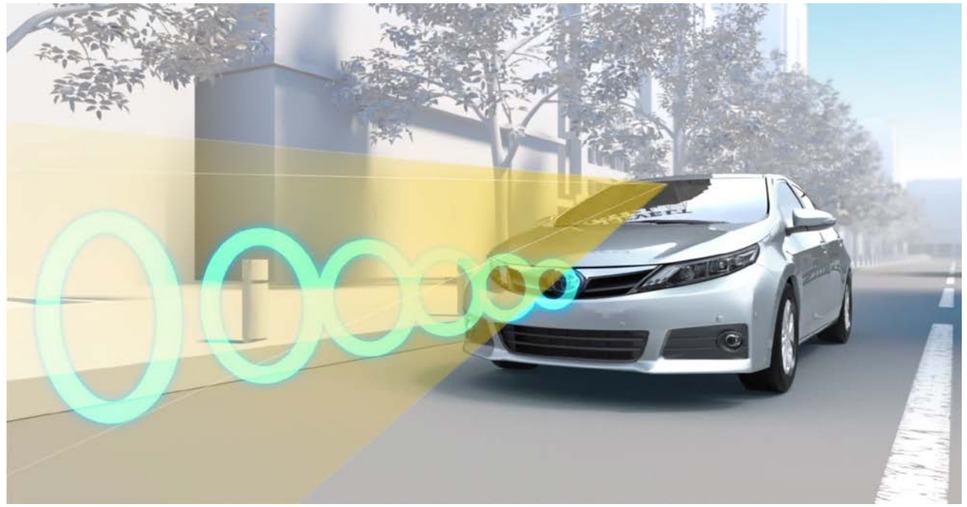
*Calculated by TOYOTA based on the data from ITARDA, 2014

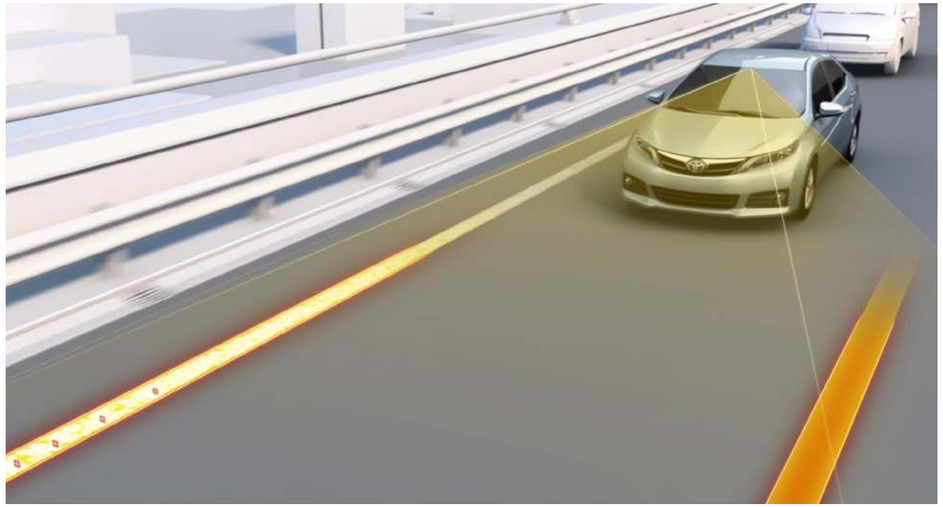
Lexus Safety System + A

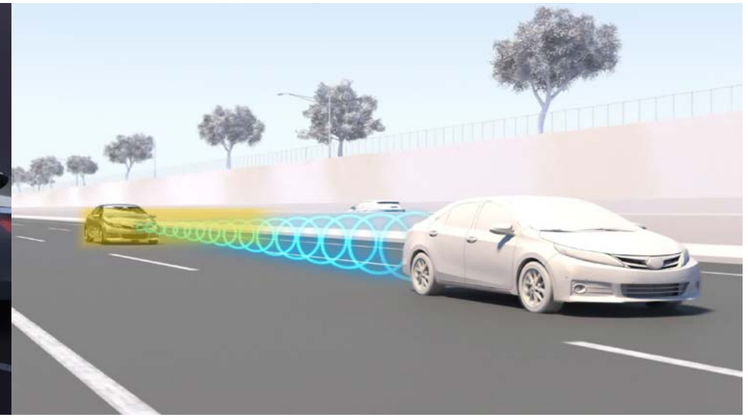
Lane Tracing Assist

Lane Change Assist

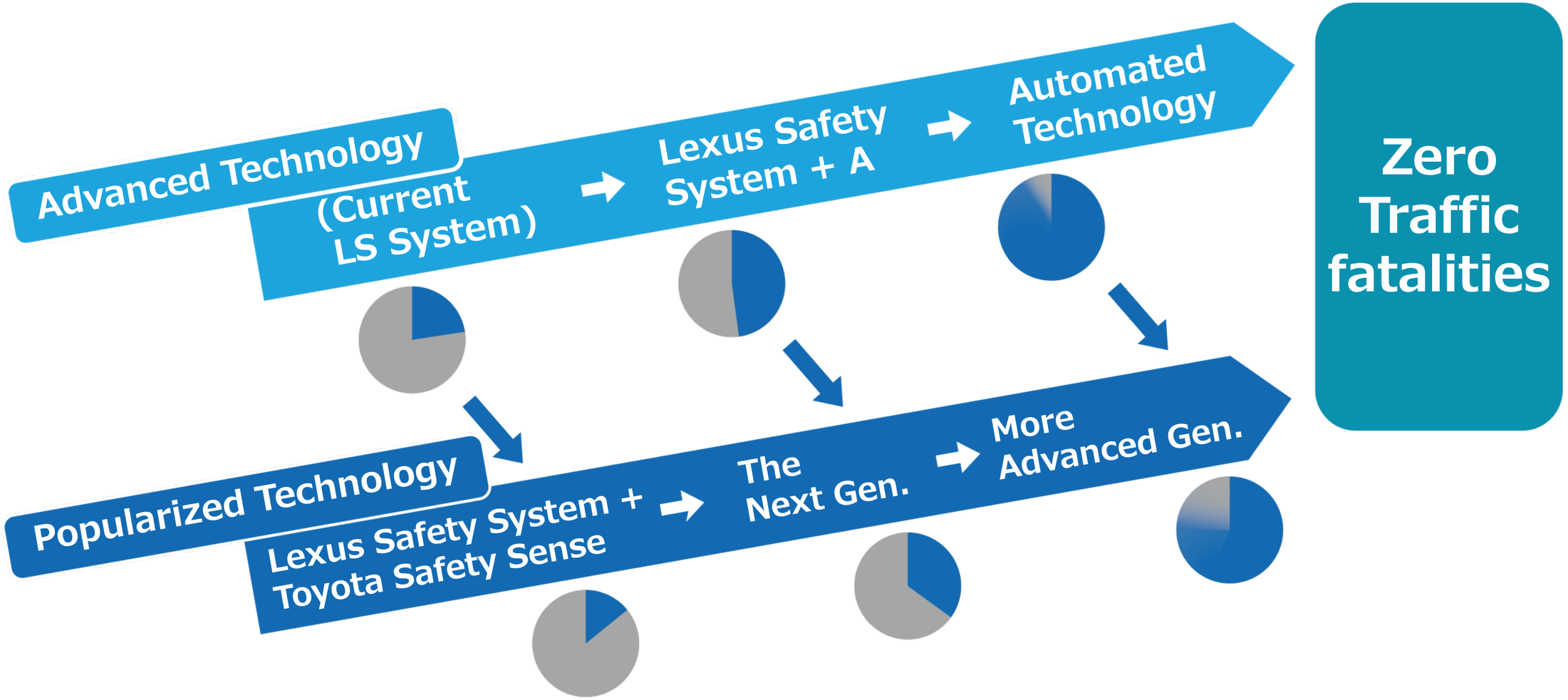
Popularized Technologies: Toyota Safety Sense/Lexus Safety System +



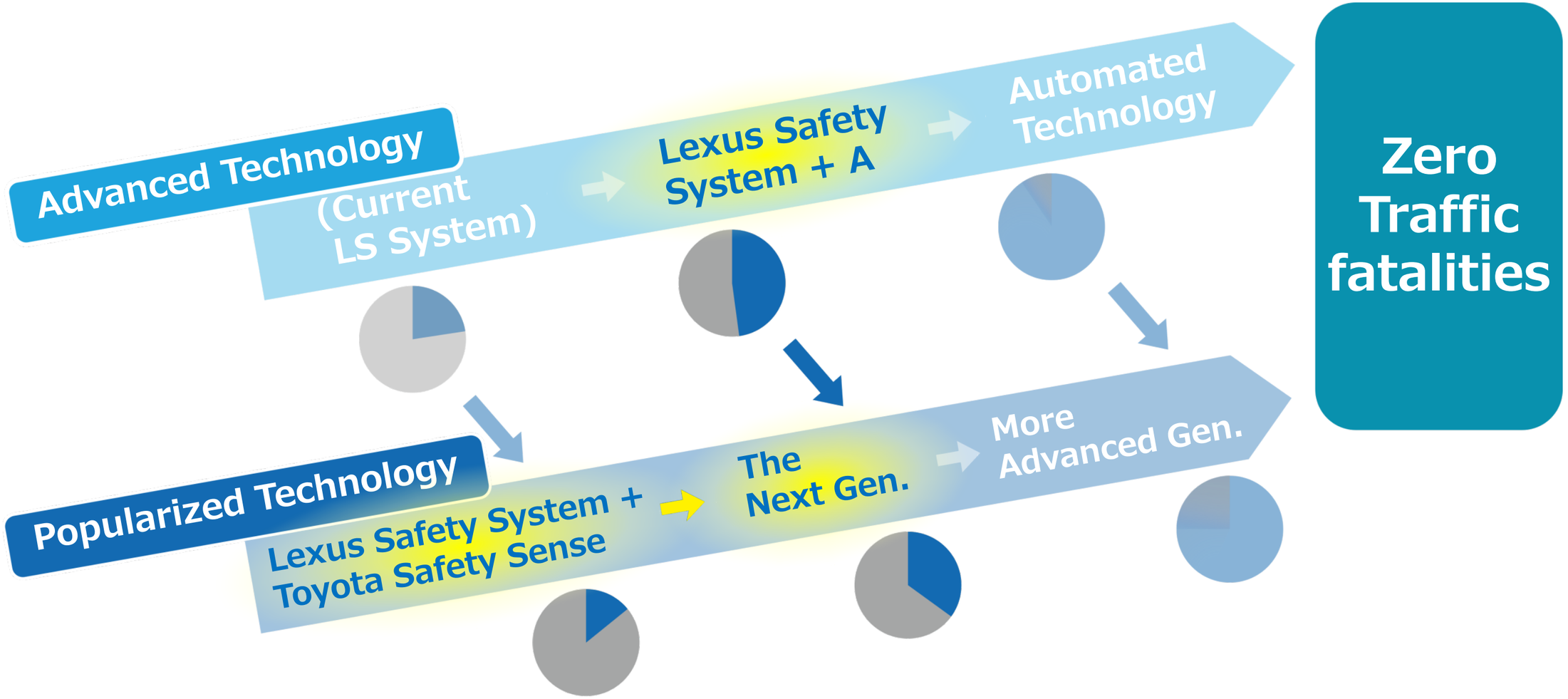




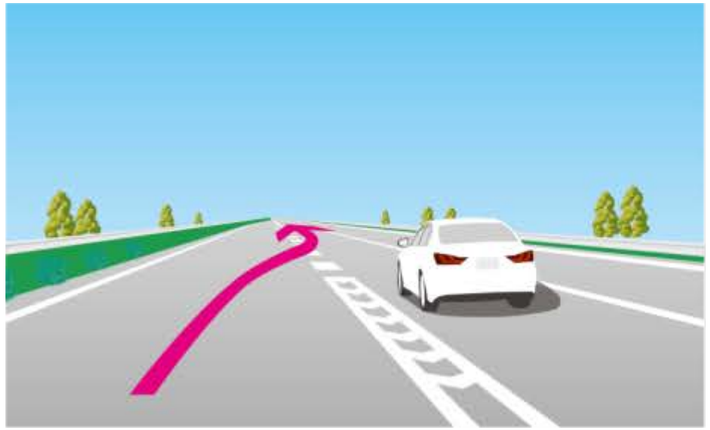
Two-Axis Approach

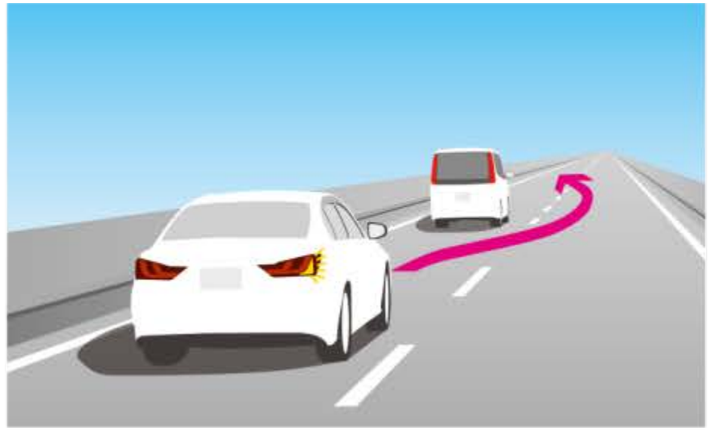


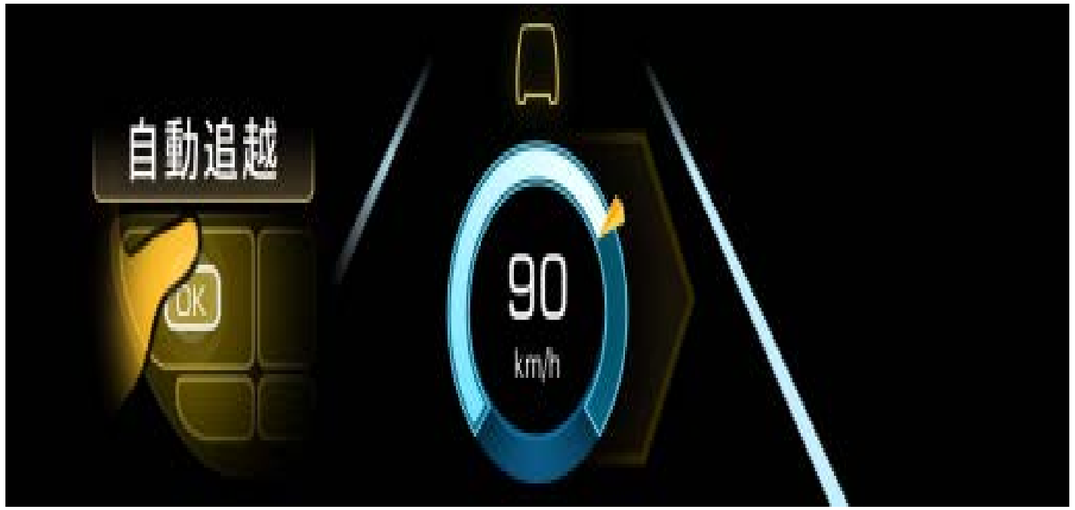
Two-Axis Approach



Highway Teammate (in 2020)

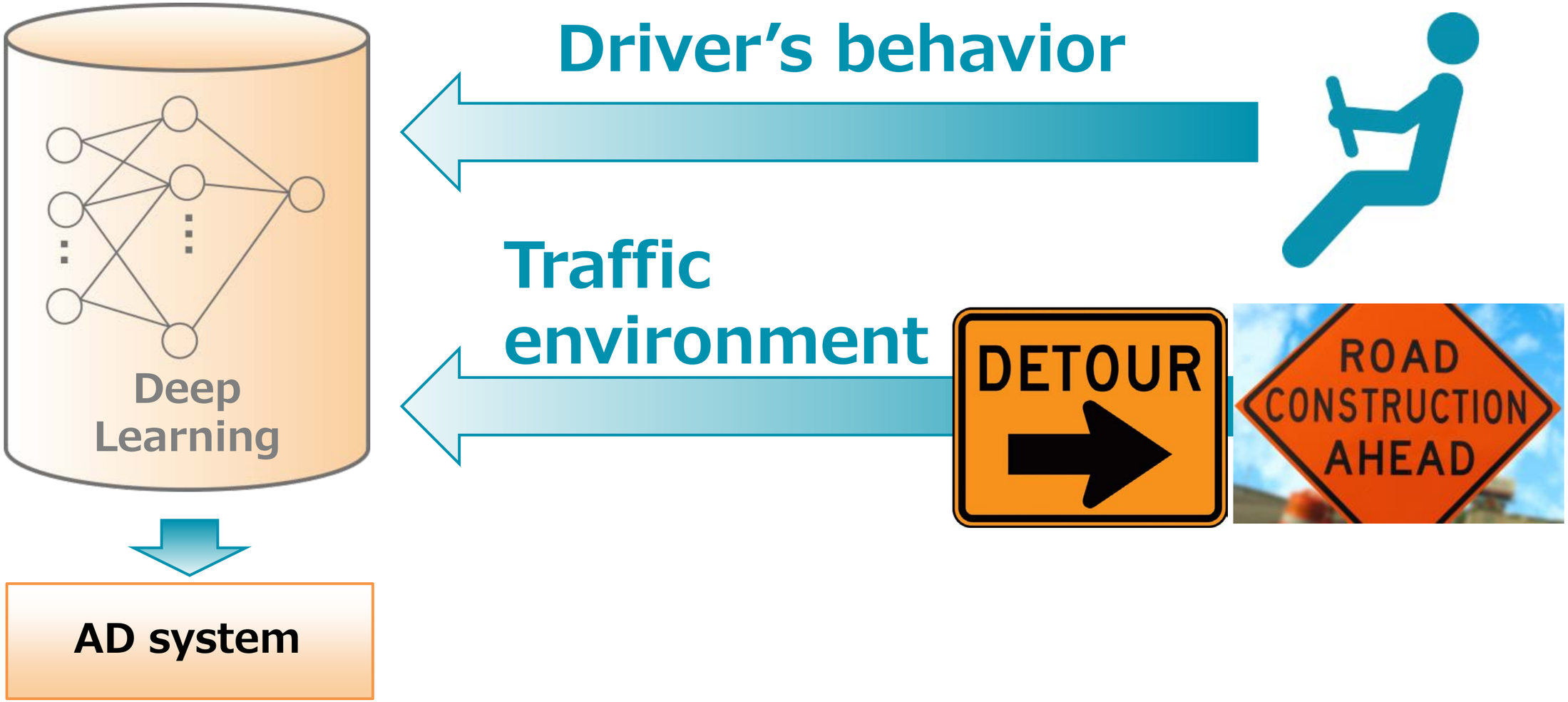






Over the Air (OTA)

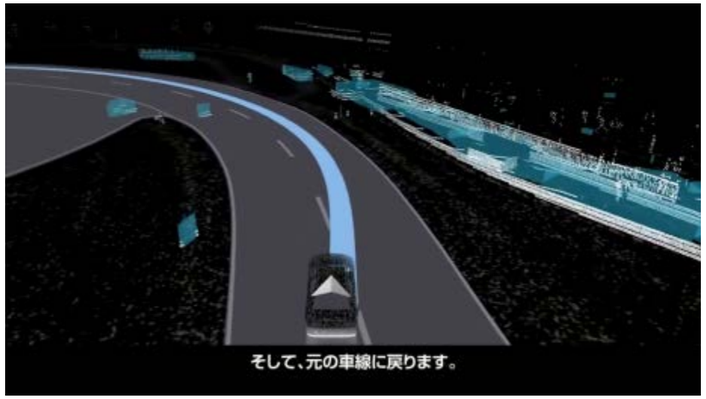
Deep Learning (DL)



Urban Teammate (in the early 2020s)

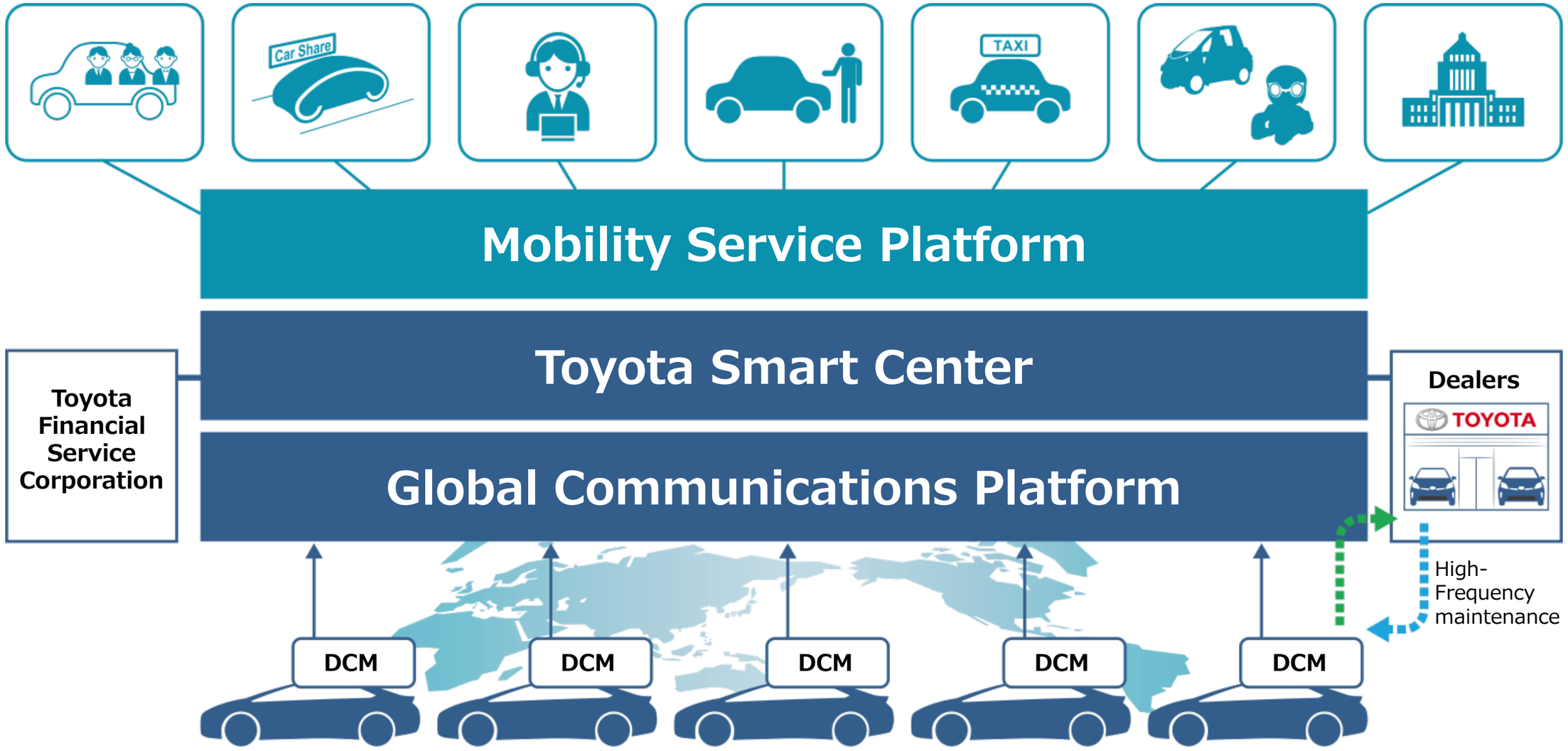
Urban Teammate (in the early 2020s)

Chauffeur

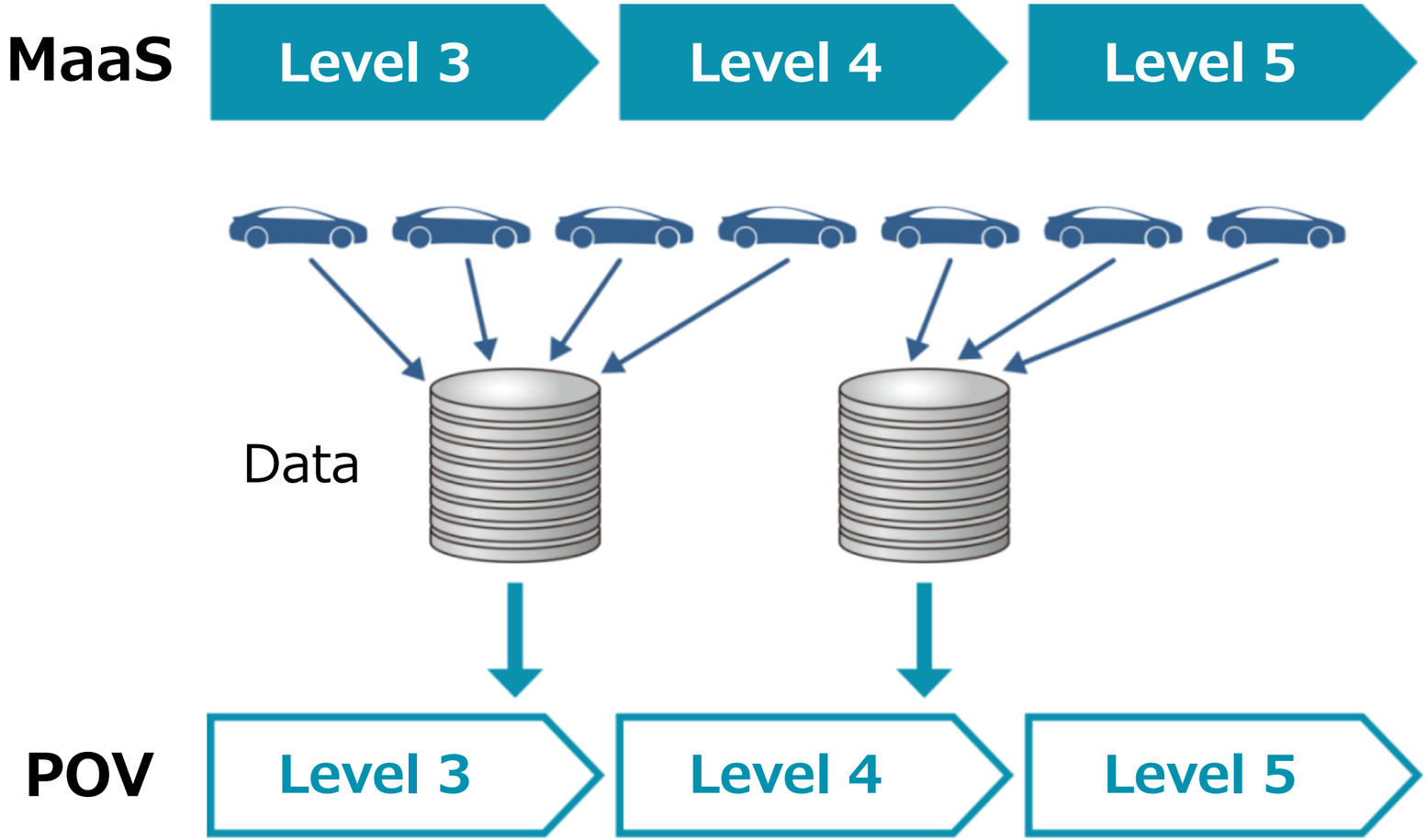


Guardian

Mobility Services Platform

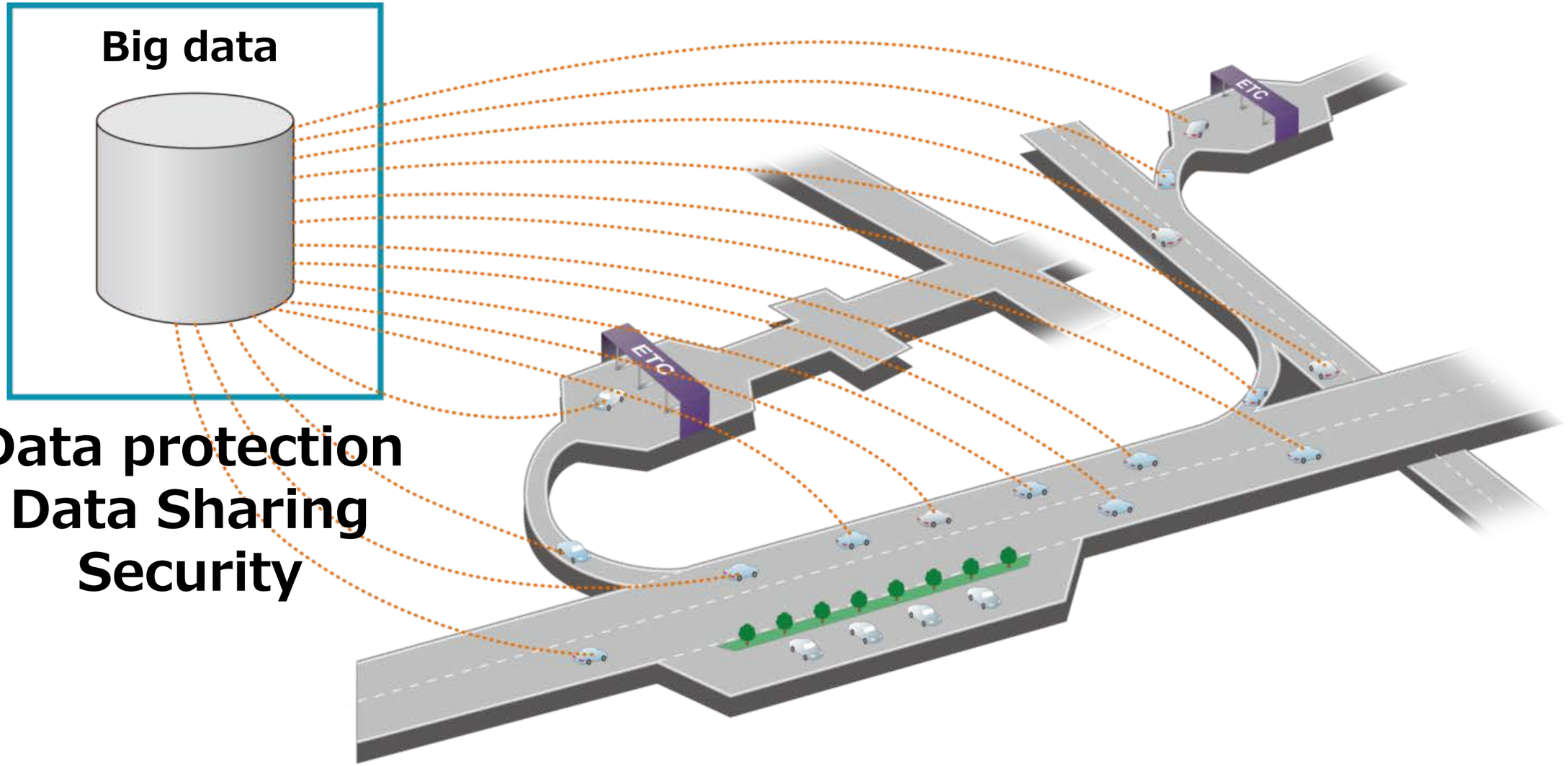


Mobility-as-a Service : MaaS



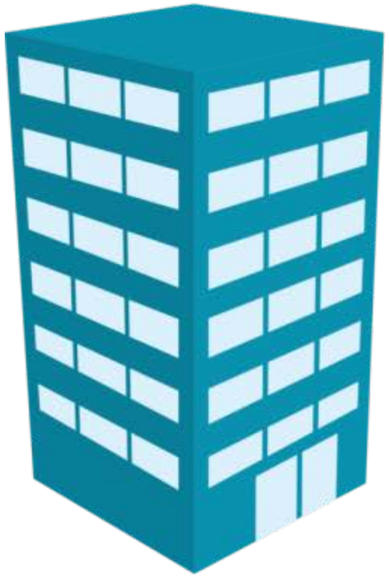
Societal Challenges

Global Harmonization



Data protection
Data Sharing
Security

Traffic accident

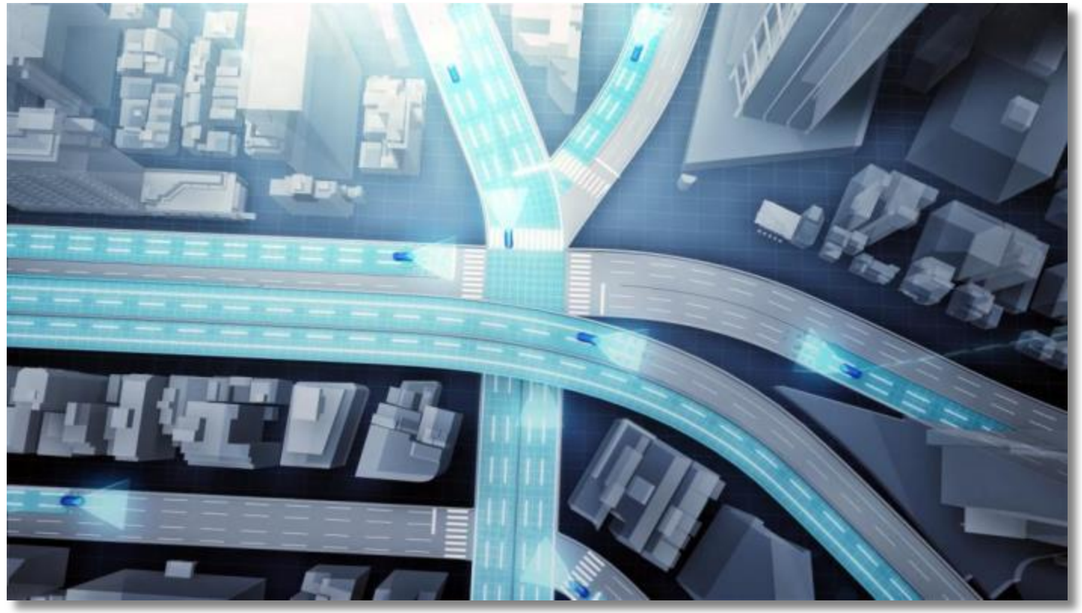


Automaker
Software supplier

Driver

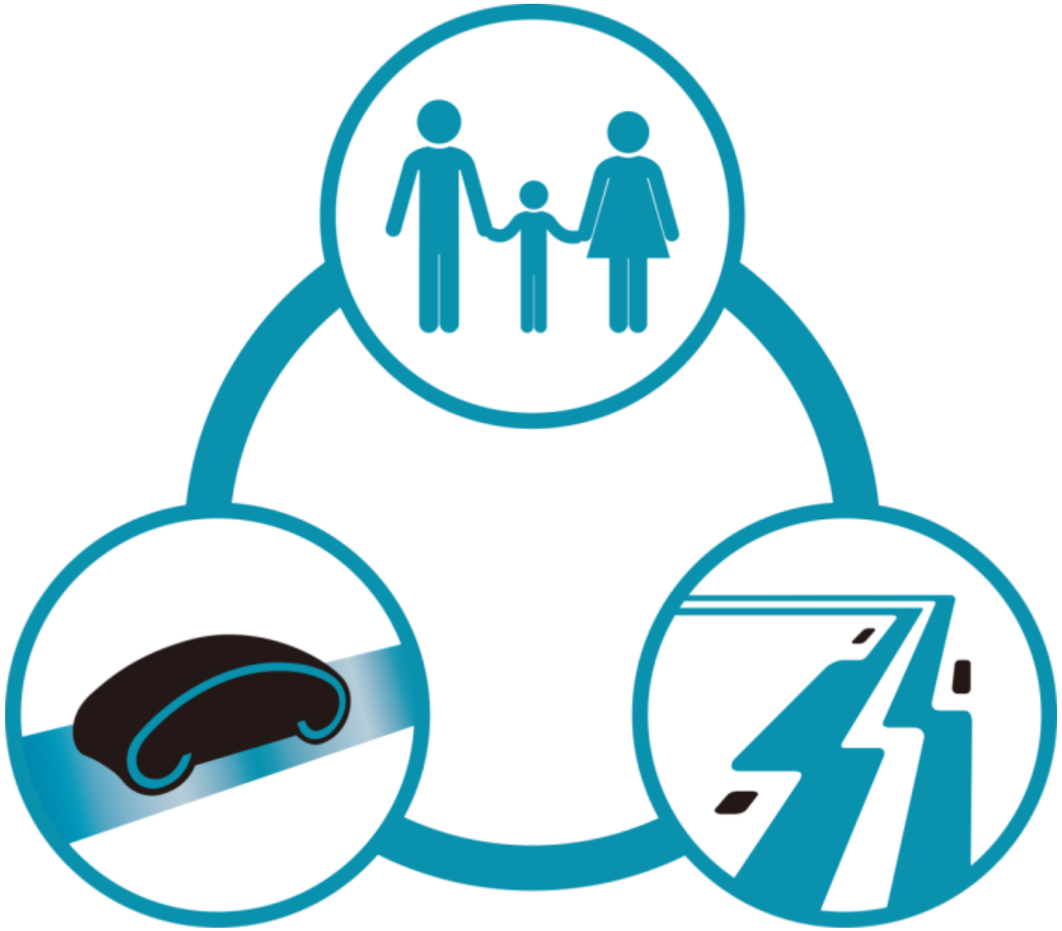
Competition?

Collaboration?



International Harmonization/Standardization

Safety First.



TOYOTA