



Nippon Koei Co., Ltd.

Advanced road management using big data from vehicle camera mounted on commercial vehicles in Singapore

Object of the project

- The aim of this project is to verify the feasibility of traffic and road condition data collected from in-vehicle cameras installed in commercial vehicles for reducing the time and cost required for daily inspections and improving the quality of road management and traffic safety in Singapore.

Cooperation with local companies/governments

- Interviews with road administrators, potential customers, were conducted to ask for impression on data analysis services.
- Assumed customer: Land Transport Authority (LTA) of Singapore, a public agency responsible for road management and traffic management.
- The project was carried out with the cooperation of CarClub, a car-sharing company, as a partner in Singapore, and 20 vehicles were equipped with cameras.
- Mobileye, an Israeli company, was in charge of providing the cameras and analyzing data.



In-vehicle camera (Mobileye HP)

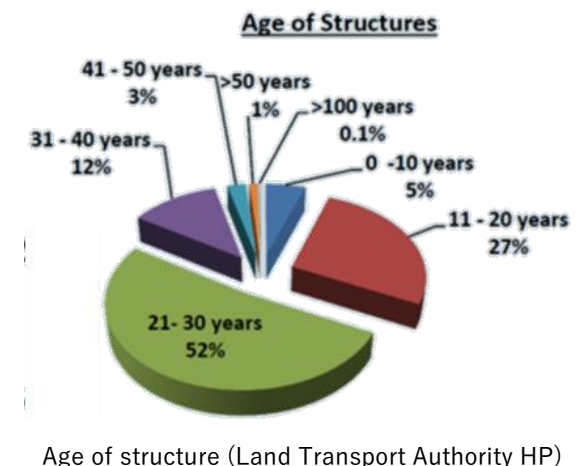
Targeted economic/social issues

- Within the trend of promoting performance-based road maintenance management (a management method relative to a method that prescribes specifications), there is a movement toward the transformation of road maintenance management methods using digital technology.
- In terms of traffic management, there are also a growing movement to realize data-driven traffic management by monitoring road and traffic conditions using data, as exemplified by the efforts in Singapore.

[Road maintenance and management challenges in Singapore]

The road infrastructure is expected to age rapidly over the next 10 years (see figure below). It will be necessary for the Land Transport Authority to respond to both road maintenance and new road development.

Labor costs, including foreign workers, are soaring. There is a need to improve the efficiency and quality of road and traffic management.



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Details of demonstration

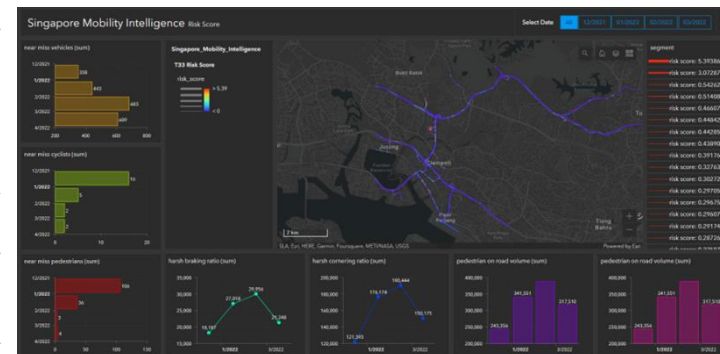
- Two candidate data analysis services were proposed and dashboards were created to present to the assumed customer.



Potholes detection (dashboard)

1. Road inspection work support

- Real-time provision of road surface damage data and road hazard data. (every few hours to a day)
- Benefits to increase efficiency and transparency in daily work.



Near miss and harsh behavior (dashboard)

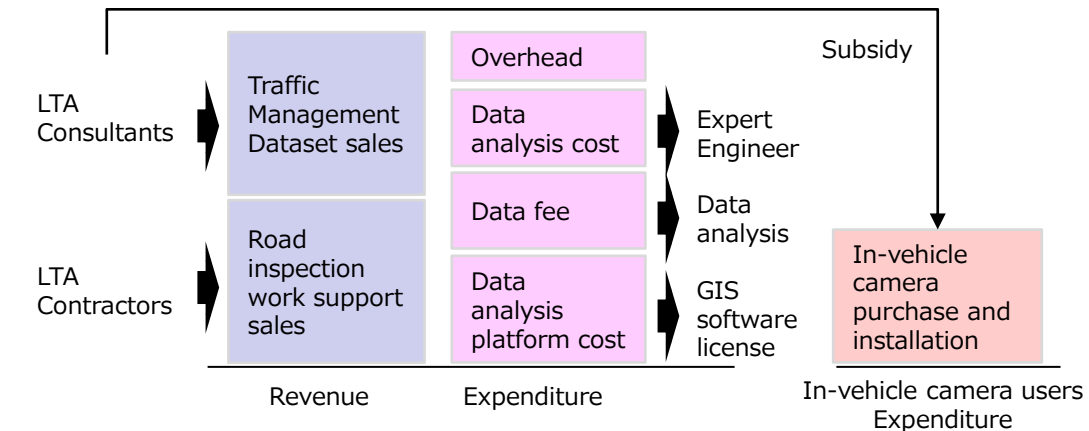
2. Traffic management dataset

- Regular provision of time-of-day data of pedestrian, bicycle and vehicle traffic (monthly)
- Input data for road planning and road safety measures.

- In Singapore, discussions were held with LTA and consultants contracted by LTA for road management and transportation planning projects. In Thailand and Indonesia, discussions were also held with road management organizations.

Project outcome / Future plans

- In Singapore, data utilization is already advanced, and it is effective to differentiate from existing data utilization, such as real-time and area-wise analysis, and to provide it to consultants, who are contractors of LTA.
- In other ASEAN countries, such as Thailand and Indonesia, it is effective to start with demonstration projects in local cities in collaboration with research institutions, before commercialization in major cities
- The data analysis infrastructure is now being built for creating use cases by combining it with other data.



Assumed revenue and expenditure for the Singapore case