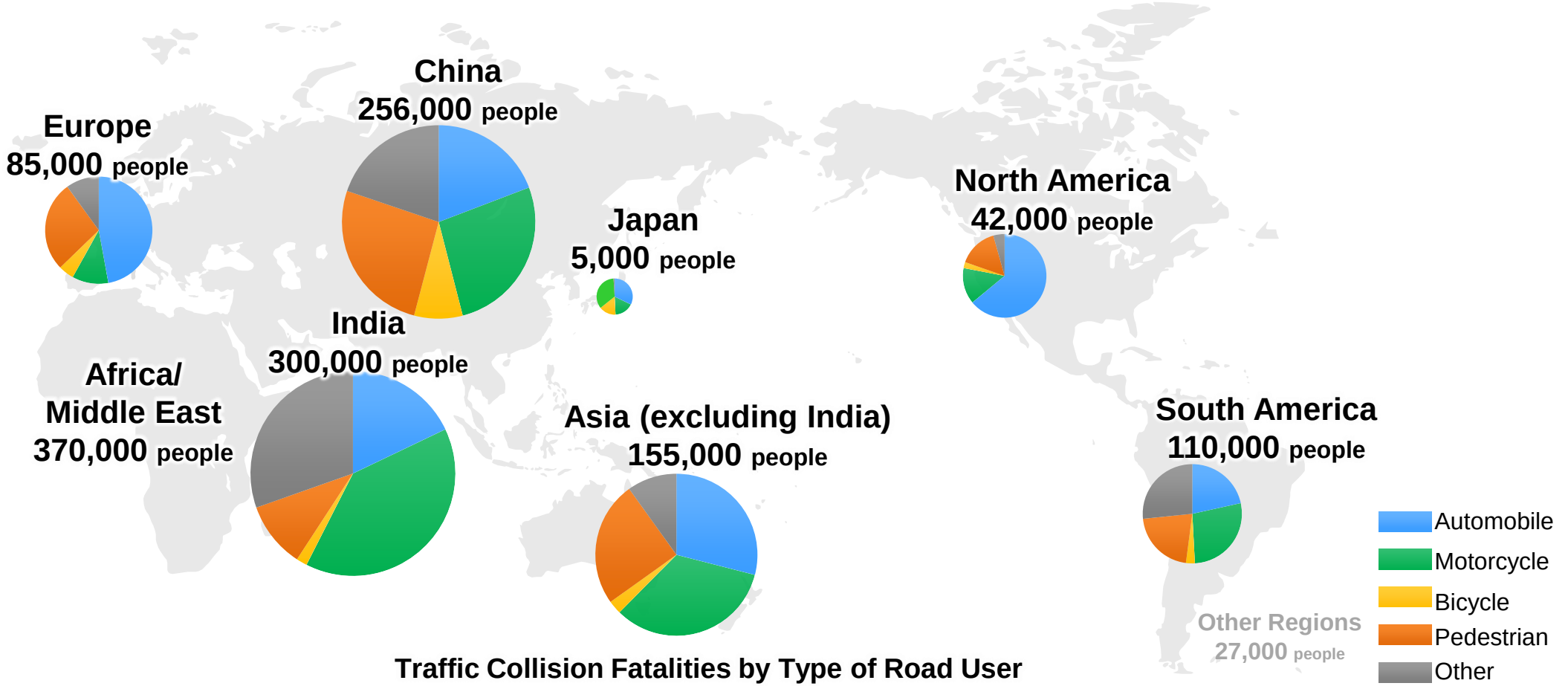
Intersection Video Analysis for Traffic Accident Reduction in Malaysia

Tetsuya Matsushita

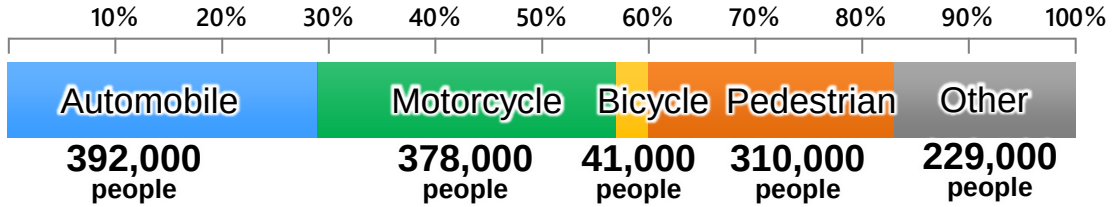
Manager, Mobility Safety
Research & External Affairs

Autoliv Japan Ltd

Current Situation of Traffic Accident Fatalities



Traffic Collision Fatalities by Type of Road User



Source : WHO Global status report on road safety 2018

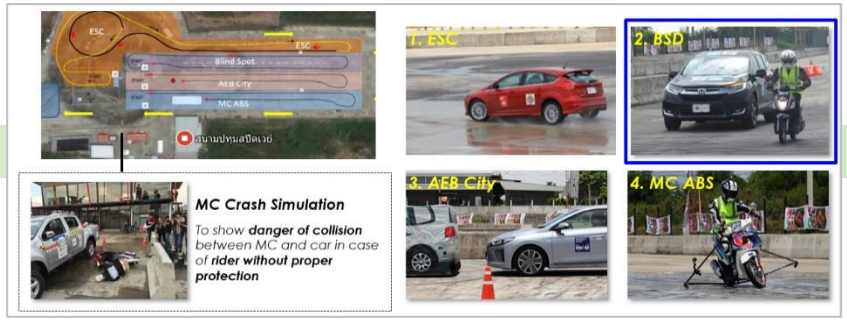
Number of traffic accident fatalities Worldwide: 1.35 million/year.

Efforts to Reduce Road Accidents in ASEAN

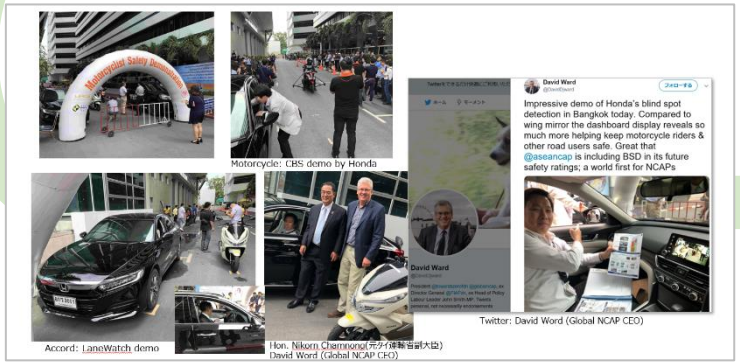
2014.9 ASEAN NCAP GP Awards 2014

LaneWatch :
Safety technology Award
(to reduce MC accidents)

2017.5 Stop the Crash in Thailand



2018.11 Vehicle Safety Course in Indonesia



2019.8 Vehicle Safety Course in Thailand

2019.11 Stop the Crash in Bali

2020.9- OASIM Consortium

Honda has appealed traffic accident countermeasure.

Further Measures for The 2030 Traffic Accident Reduction Target

Target in Malaysia

Malaysia Road Safety Plan has targeted a 50% reduction in number of deaths by 2030.

*Source: [Ministry of Transport Malaysia MALAYSIA ROAD SAFETY PLAN 2022-2030 (mot.gov.my)]

- Technology and education are not enough to reduce motorcycle accidents
- Need to work on accident reduction from infrastructure improvements.

In addition to the measures already taken,
seek further measures to prevent traffic accidents through the road infrastructure.

Establishment of MIROS Forum

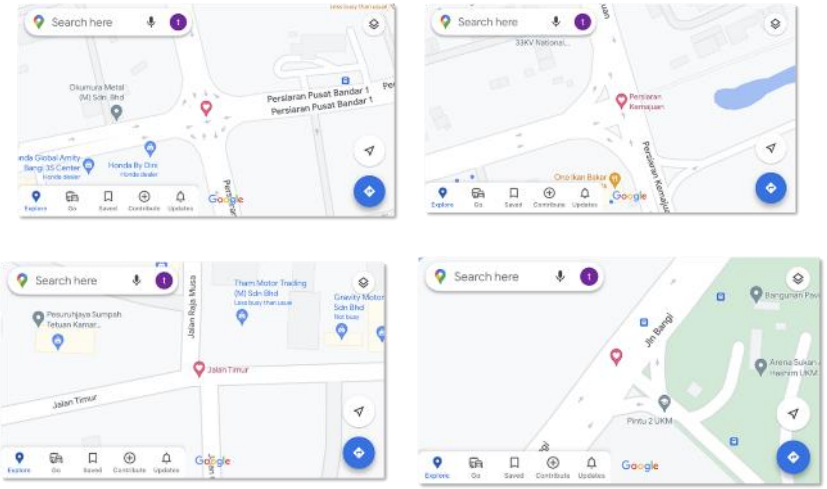
- **Issues**
  - Limited effectiveness to achieve the goal by just increasing the on-vehicle safety devices/features.
  - Difficulty for individual OEM/supplier to make comprehensive Safe System recommendations due to the limited knowledge/competencies
  - Learn from previous Safety Actions and its effectiveness

and more···

- **Goal**
  - To study possible measures to halve the number of road traffic fatalities by 2030 as a Safe System with a wide range of stakeholders and to propose them to ASEAN countries/communities.

Pilot study for infrastructure improvements

Extraction of target intersections



Simple Video Recoriding

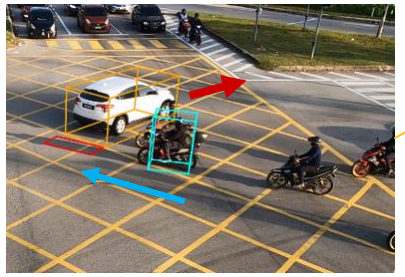
Traffic conflict analysis

Example of T-junction analysis

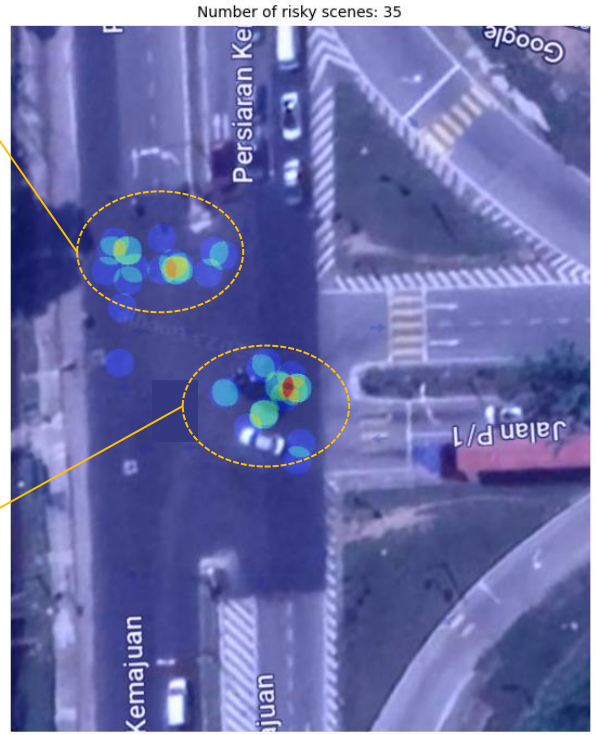
Heatmap visualization of potential collision locations

w/ signal

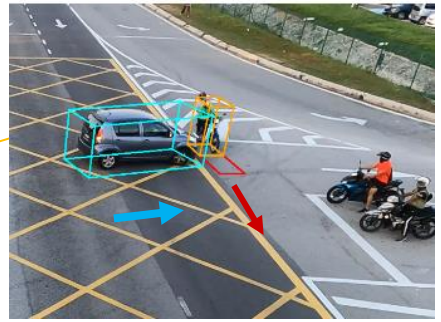
PTW U-turn vehicles are closing the gap between vehicles.



PTW hastily started and almost collided with car.



w/o signal



Scenes often occur where right-turning vehicles almost collide with oncoming vehicles

The risk of accidents between right-turning and oncoming vehicles is significant at intersection without signal.

Conclusions of the Pilot Study

Safety for Everyone

■ Results obtained from pilot study

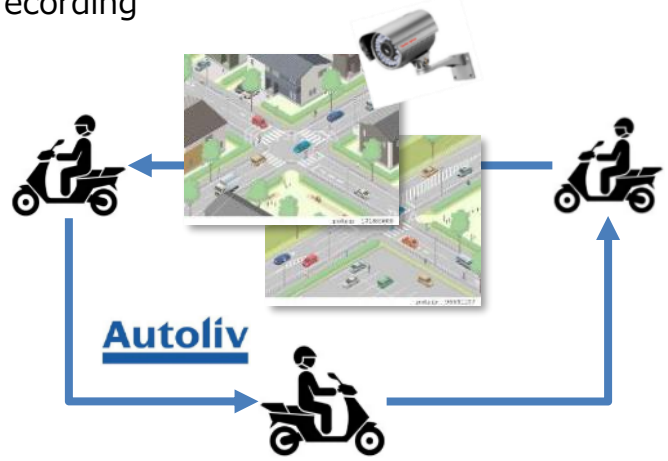
- Specific locations where each risk increases could be identified.
- The location of risk is different in each intersection.
- Dangerous riding scenes can be visualized and recorded.

■ What this analysis did not show

- How does intersection infrastructure structure affect ridership?
- What exactly happens on high-risk scene?
- What is the typical behavior of riders through intersections?
- What are the typical avoidance behaviors of riders when hazards occur?
- What are the typical accident risks observed at Malaysian intersections?
- What countermeasures can be taken to address the above?

Detailed video observation and analysis

From short time shooting of action camera to update to CCTV long time recording



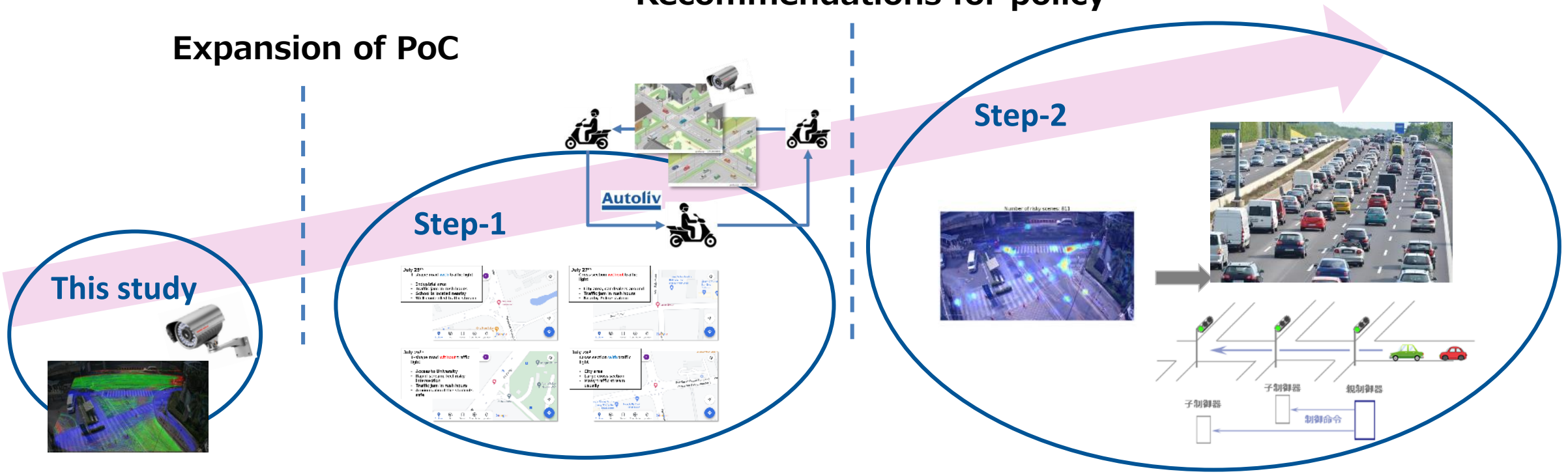
Acquire sensor data of two-wheeled vehicles around intersections and analyze on the infrastructure side and the rider side

Future study

Safety for Everyone

Recommendations for policy

Expansion of PoC



Analysis with small data

Data collection and further analysis

Proposals for infrastructure improvements

- Roads for two-wheeled vehicles only
- Speed regulations
- Signal control

Expanding the location of intersection camera analysis to improve the road environment for safety.


Safety for Everyone
HONDA
The Power of Dreams
Thank you for your attention !
HONDA
CT125