Heavy vehicle Fleet Vehicle Trends

Leo S Mortimer

Motor Industry Association of NZ (Inc)

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Mega Trends

The big trends as we see it are:

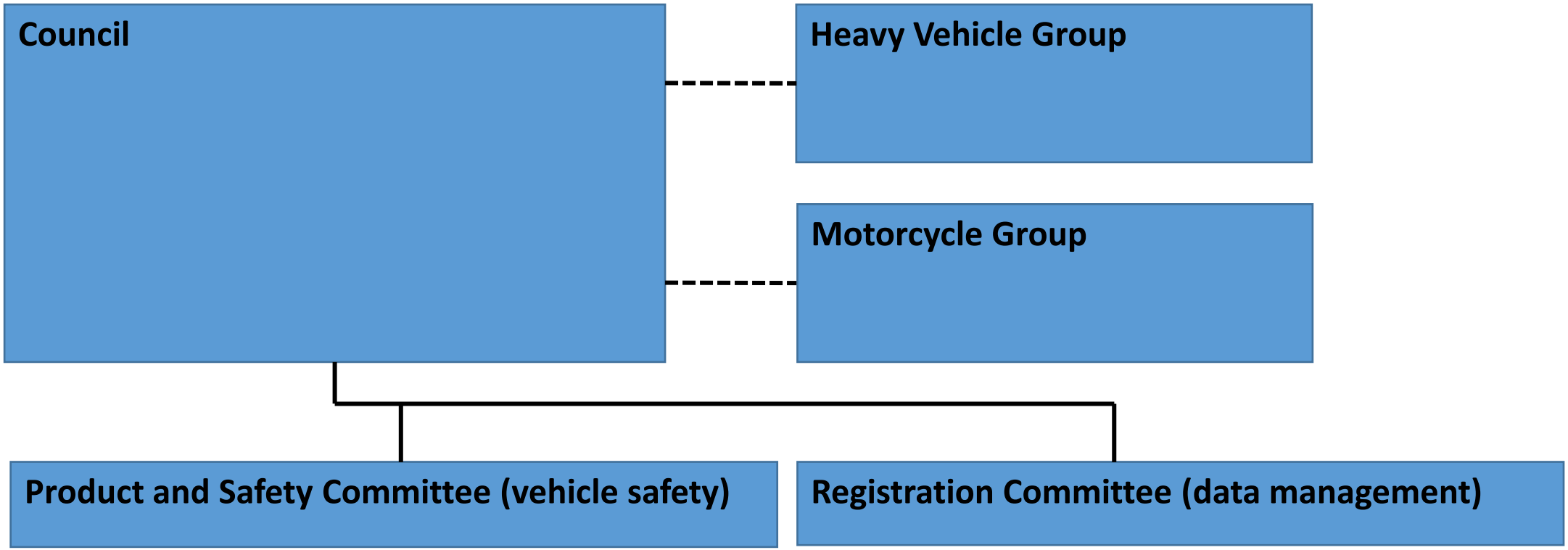
- Decarbonisation of transport
- Increased connectivity of vehicles
- Drive towards autonomous vehicles
- Changing freight transport options

MOTOR INDUSTRY ASSOCIATION INCORPORATED

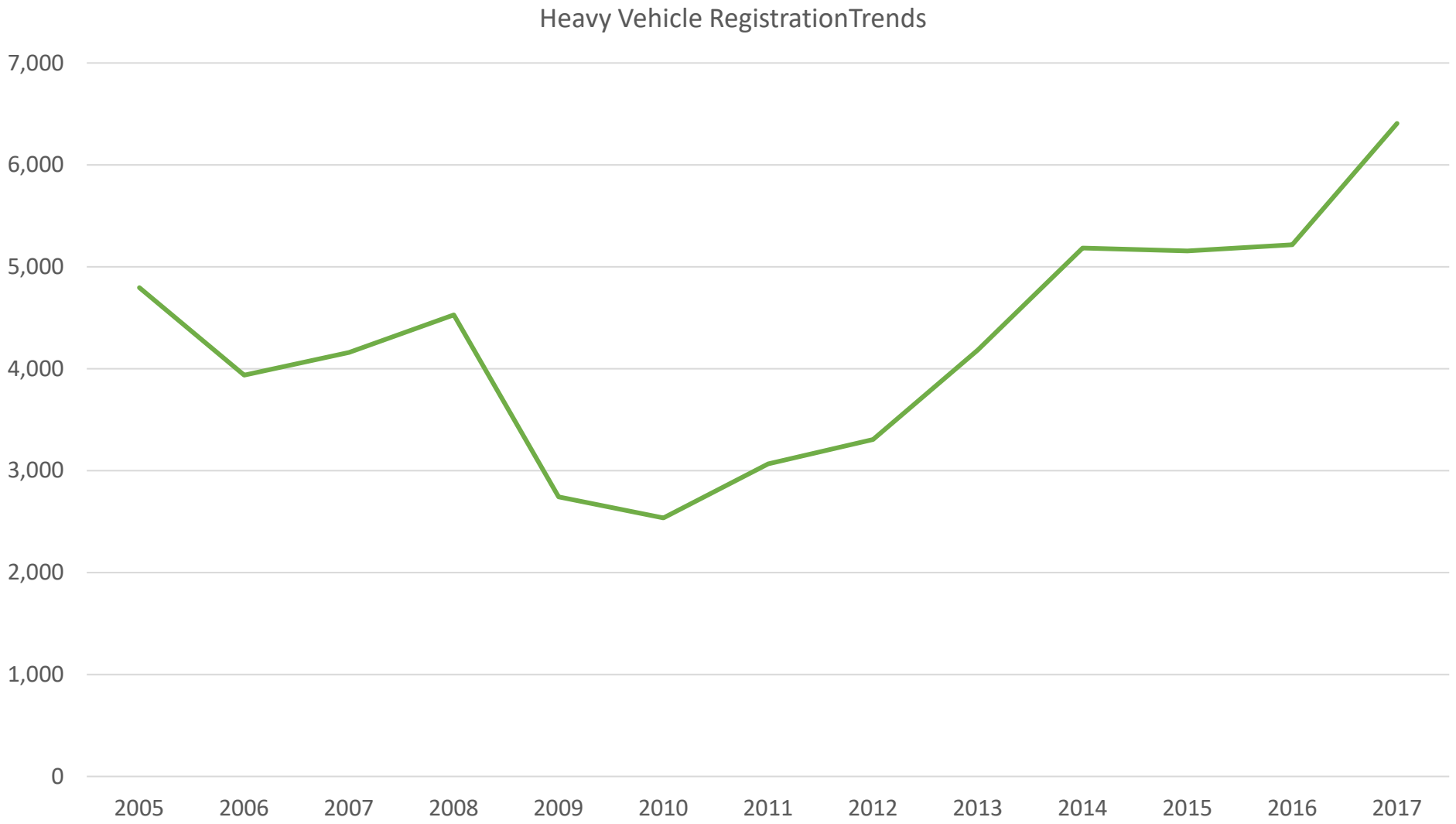
Who is the MIA

IRTENZ

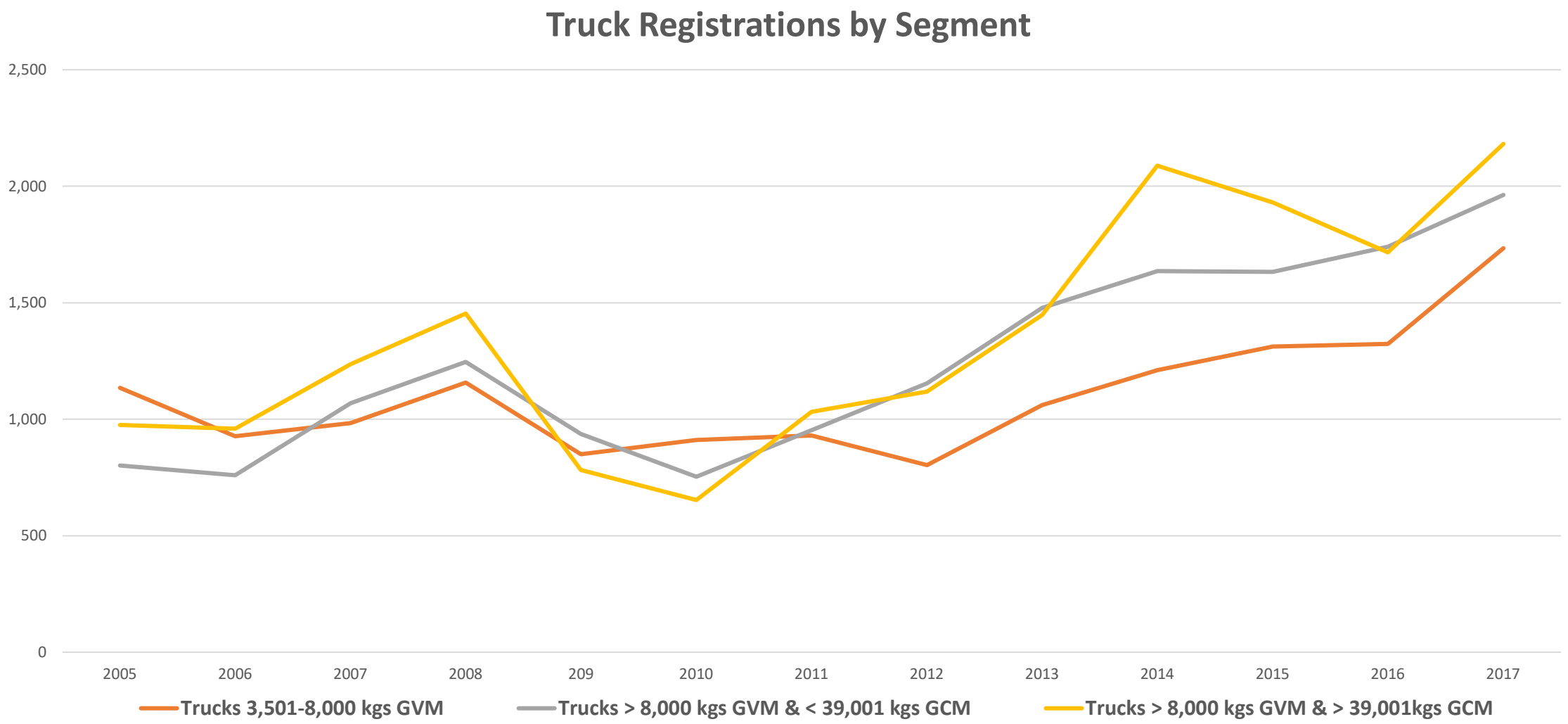
The MIA represents the interests of official New Zealand distributors for new cars, trucks and motorbikes. These are the vehicle manufacturer representatives in NZ.



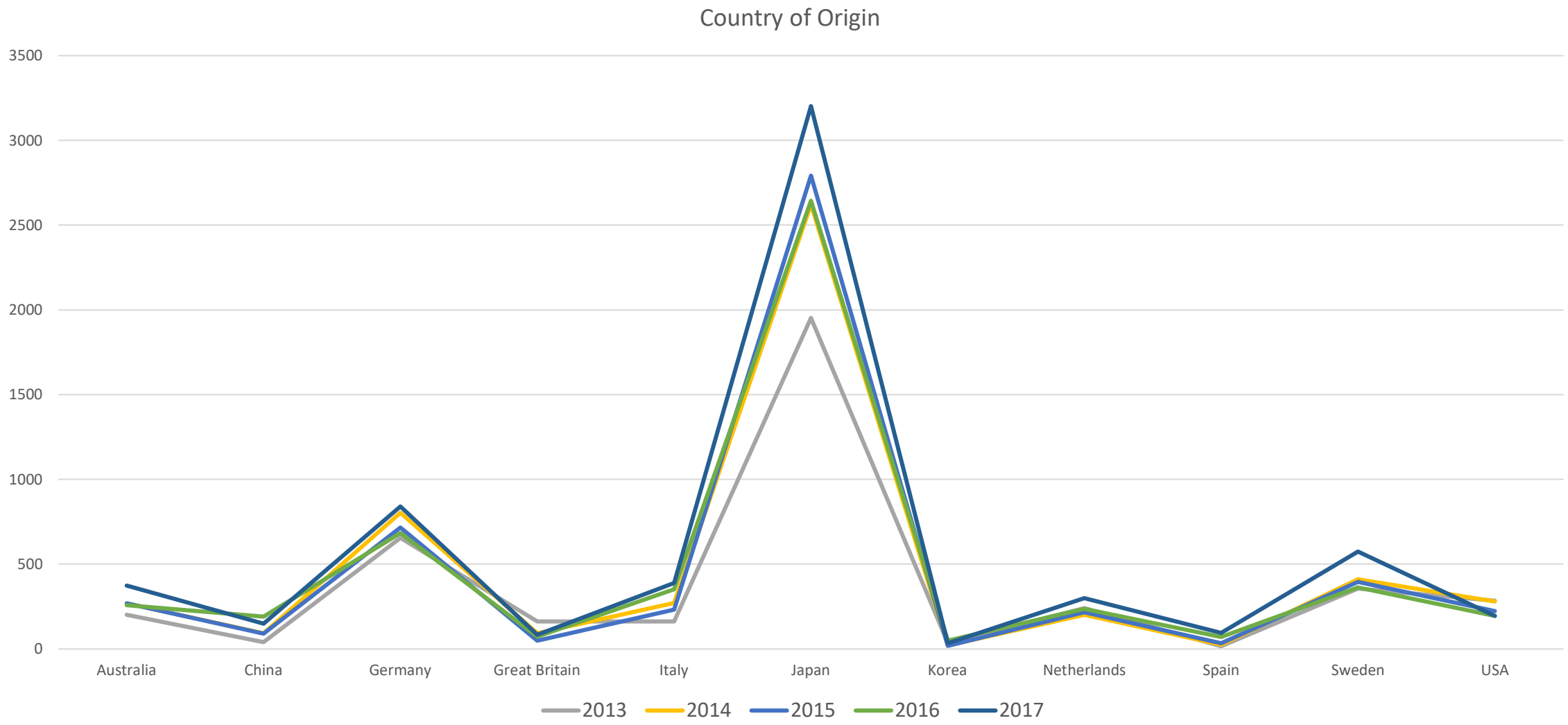
HV Record Sales



Vehicle Segments



Main Countries of Origin



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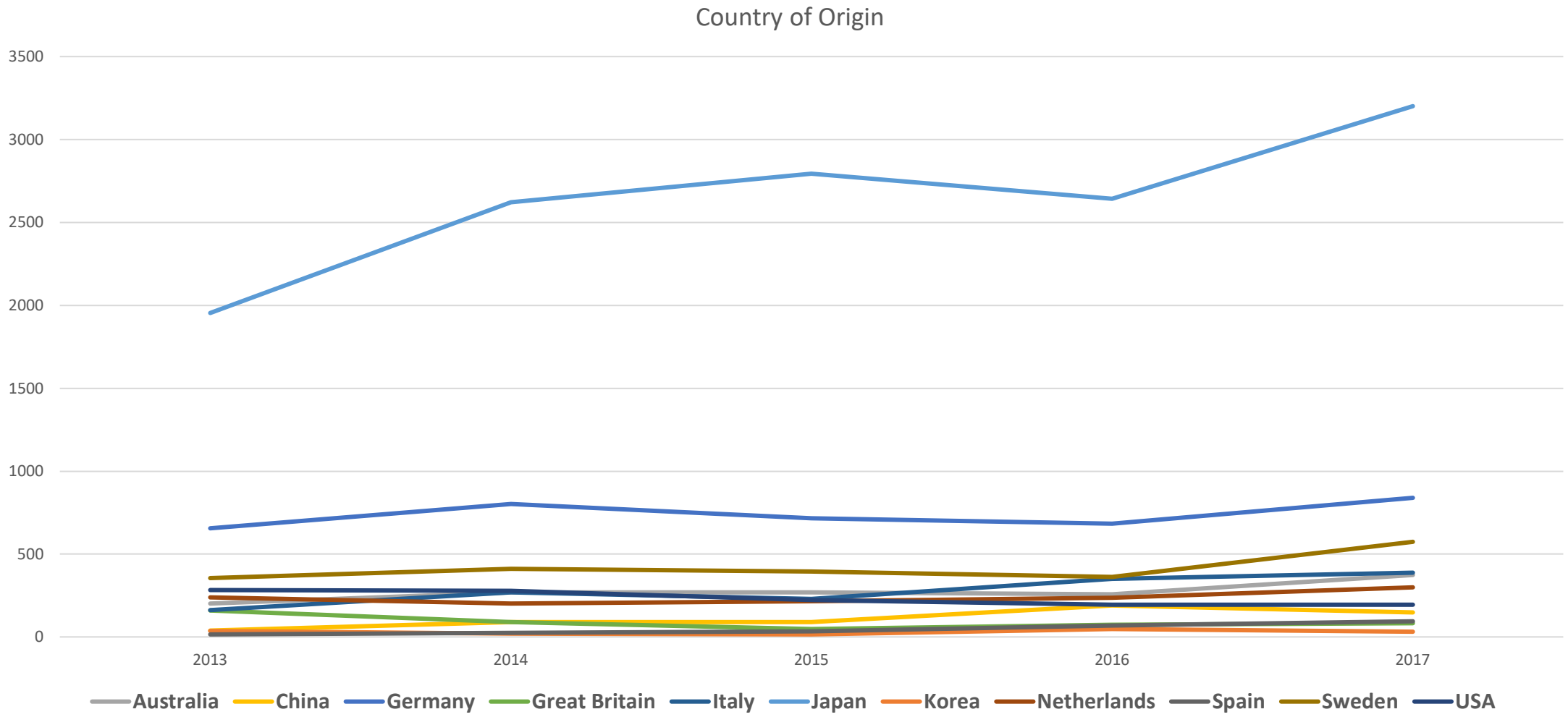


NZ trends

- Road Transport continues to increase it share of the freight task.
- Vehicle size has progressively increased over recent years with a high proportion of trucks now being HPVs.
- Ongoing roading improvements will also contribute to the efficiency of HMVs.
- This will not see the same benefits apply to many rural operations due to many bridges not capable of taking increased limits.

Global trends

- A recent Study (Global Truck Study 2016- Deloitte) suggested that by 2026 Commercial vehicle. manufacturers are expected to sell few more trucks than they do today.
- This is in part to the increased efficiency – more goods on fewer vehicles.
- Road transport share of the market will increase from 47% (2016) to 52% in 2026.
- This is for both heavy commercial (HCVs) and medium commercial vehicles (MCVs).

Decarbonisation of Transport

- Alternative drive systems will also play an important role in the future.
- In urban areas, this may lead to medium commercial vehicles being replaced by light commercial vehicles.
- International research indicates that about 20% of medium commercial vehicles will be hybrid or fully electric by 2026.
- For heavy commercial vehicles, the most potential for alternative is likely to come from natural gas (both LPG & NPG).

Decarbonisation of Transport

Worldwide there is:

- A move to EVs (plugin vehicles)
- Increased R&D into the use of Fuel Cells

In NZ the Government has new policy on EV's and is currently looking to encourage investment in EV technology for intra-city freight tasks

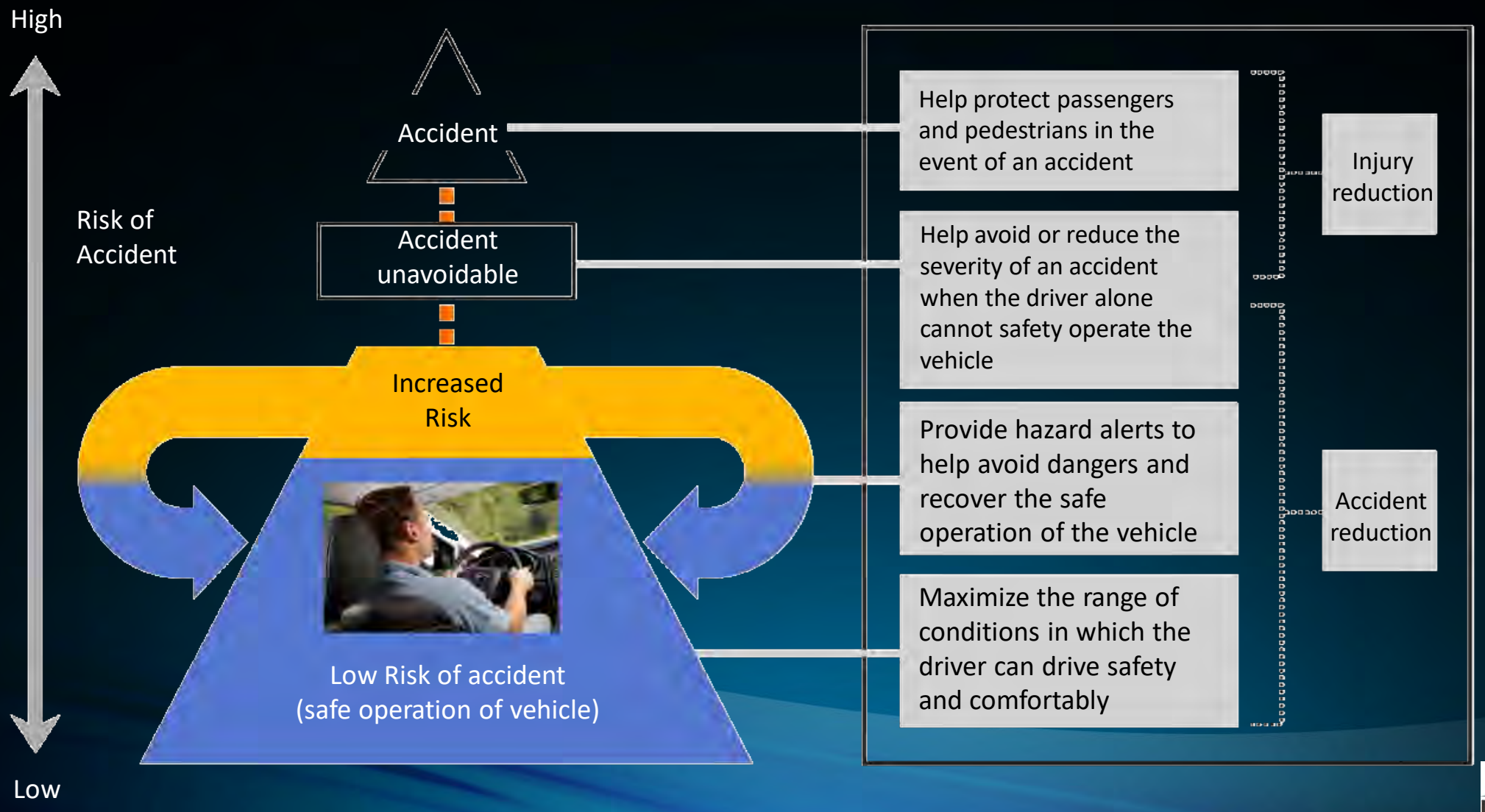
It may be that for HMVs, hydrogen is an option. While it will be costly for small to medium commercial vehicles, it would be a marginal cost for HMVs.

Cooperative ITS

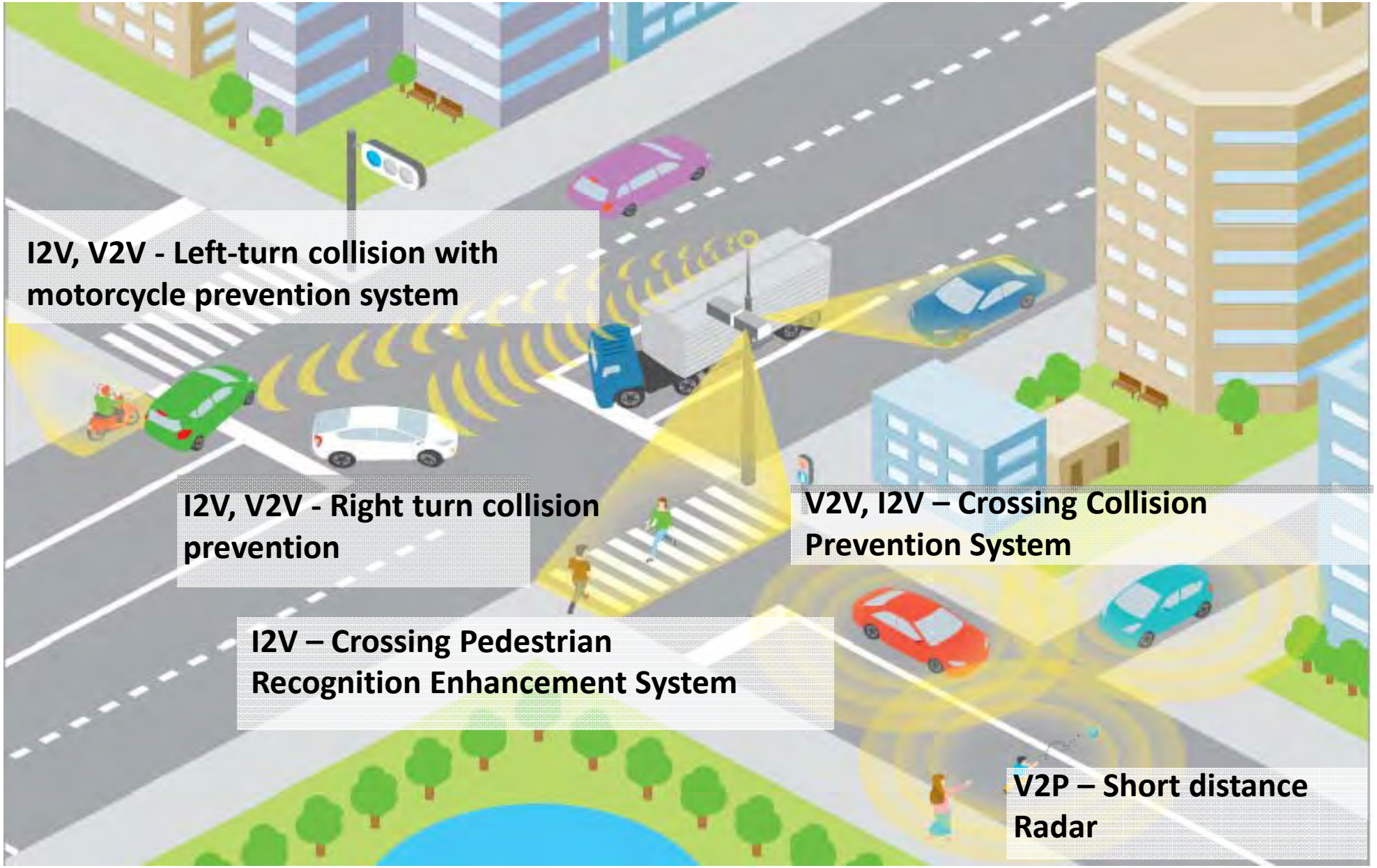
Global focus on six priority areas for action on Intelligent Transport Systems (ITS)

1. Optimal use of road, traffic and travel data
2. Continuity of traffic and freight management ITS services on transport corridors
3. Road safety and security
4. Integration of the vehicle into the transport infrastructure
5. Data security and protection, and liability issues
6. ITS cooperation and coordination

Vehicle Safety Assist Tools – focus increasing on preventing accidents from happening



Connected Vehicles are Safer Vehicles



Fully Self-Drive Vehicles

Five levels of vehicle autonomy:

Level 0	**Human driver controls all vehicle functions**
Level 1	**Human driver controls vast majority of functions but car might control a specific function**
Level 2	**At least one driver assisted function of both steering and acceleration is automated**
Level 3	**Drivers are still necessary but are able to completely shift safety critical functions to the vehicle under certain traffic or environmental conditions**
Level 4	**This is what is meant by fully autonomous, vehicles are designed to perform all safety critical functions and monitor roads conditions for the entire trip**
Level 5	**Fully autonomous vehicles where it performs equal or better than that of a human, in every driving scenario, including extreme environments (gravel roads etc)**

Connected Vehicles – Fully Self-Drive Vehicles

- Mixed views on when and how fast
- For light vehicles Initially likely to be urban centres
- Still some issues to resolve for use in non-urban areas
- Personally I would be wary of those saying fully self drive vehicles will be on our roads in significant numbers in the next five years.
- Most likely scenario is a steady shift to levels of automation/degrees of self drive.
- NZ terrain is challenging for self drive functions - topography
- More work needs to be done to increase vehicle security (from threats of hacking etc.)

Summary

Trends for NZ as we it:

- Freight & public transport task will increase
- Decarbonisation of transport
- Increased connectivity of vehicles
- Progressive drive towards autonomous vehicles

- Can we translate all international research as equally applying here?

Thank you

Questions welcome – sensible answers not guaranteed.

Leo S Mortimer
Motor Industry Association

leo@mia.org.nz