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Collecting and using real-life accident data to make better cars

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BETTER WAY

As a major producer of cars, Toyota has a responsibility but also a great opportunity to influence for a change to safer cars

Toyotas ultimate goal

Zero casualties from traffic accidents



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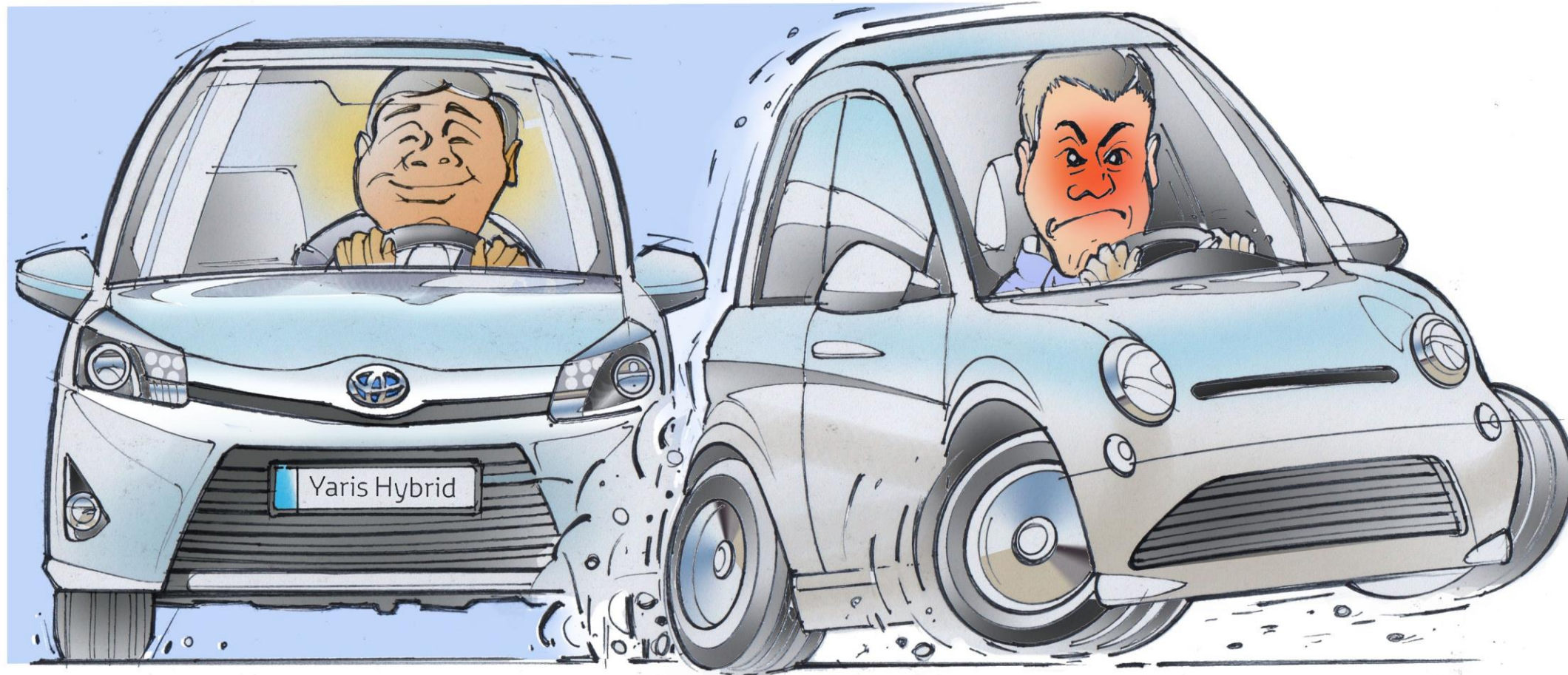
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Attitudes need to changes

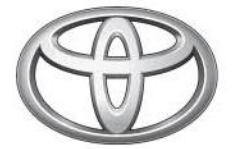


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We need a traffic environment that includes all



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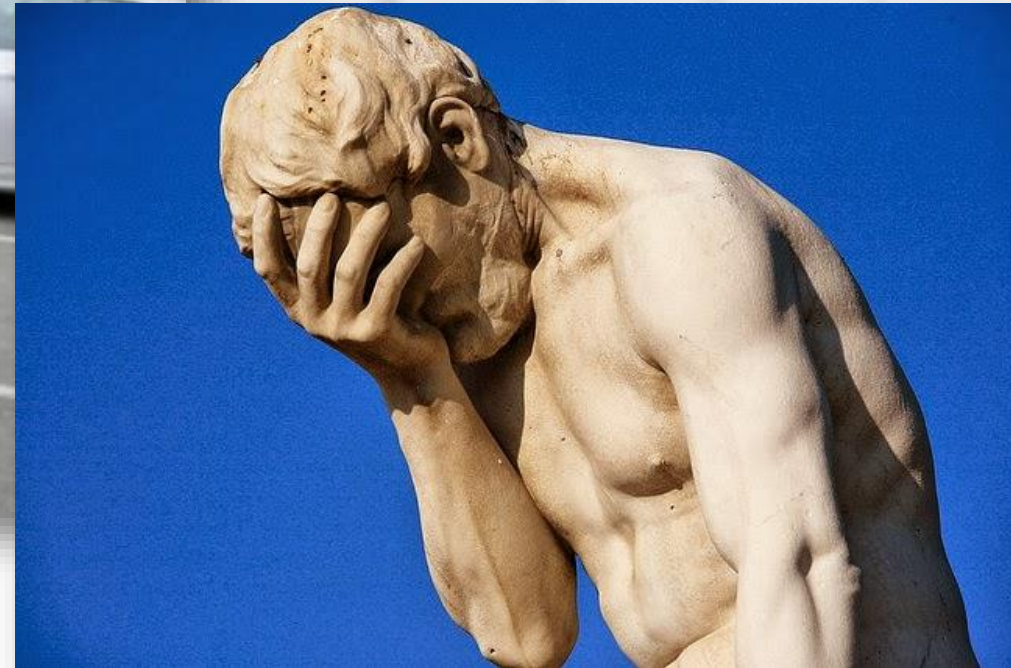


..but we all make mistakes

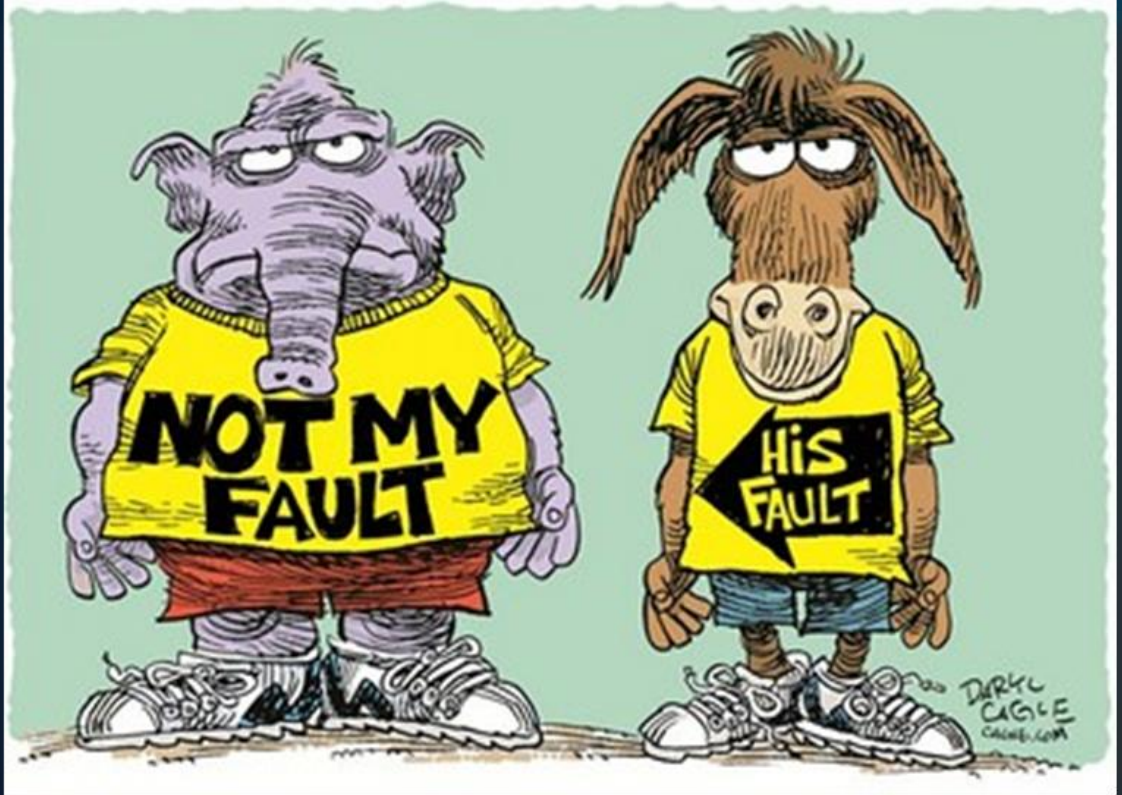


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A challenge to get a clear picture of the accident



The question:

What can we do to prevent accidents, how can we minimize the damage of the accident?

Toyota searching for the answers in different ways



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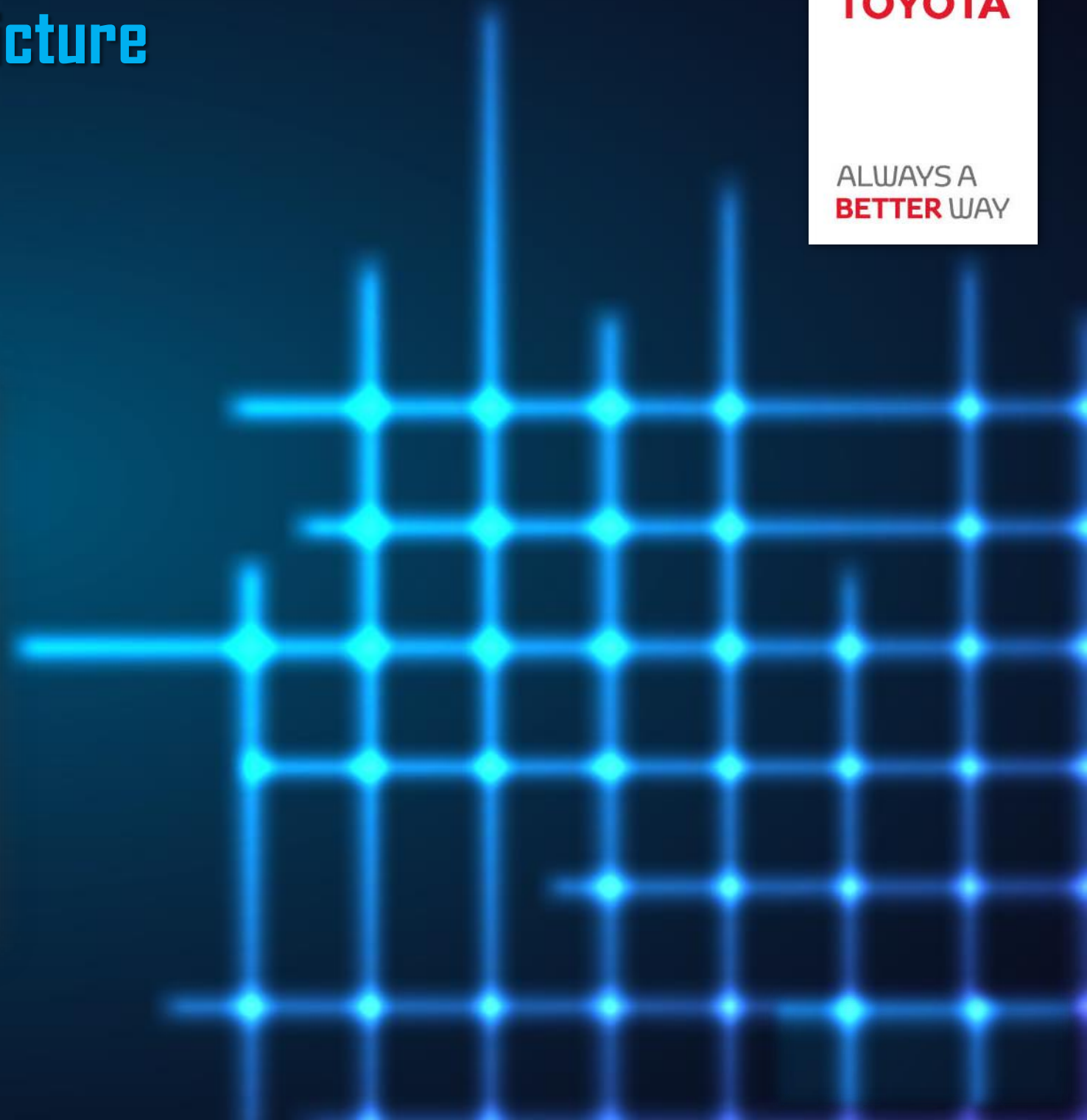
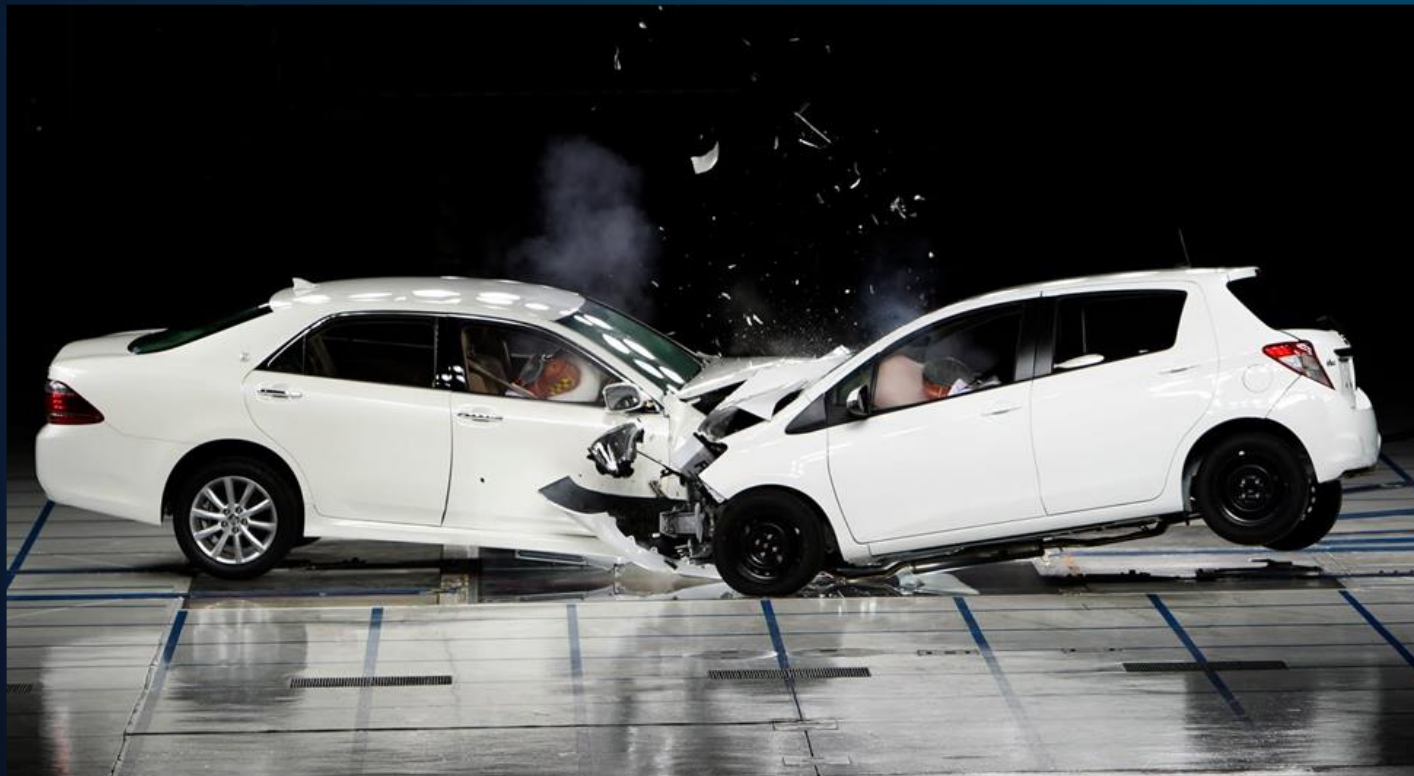
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Laboratory tests do not give us a full picture



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Use of a simulator can help us study complex traffic situations in a safe way



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New technologies will dramatically reduce the number of accidents



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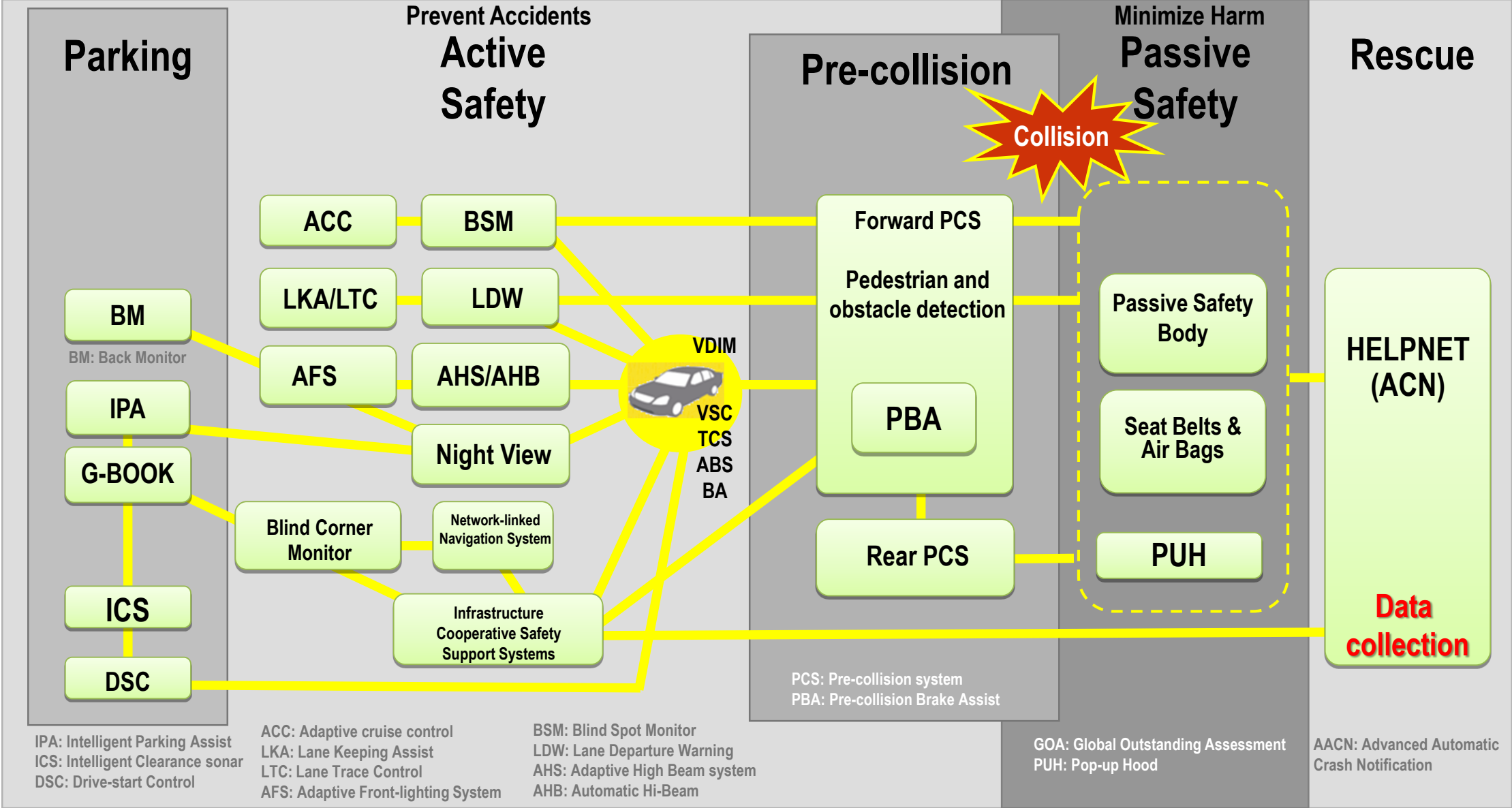
Safety system not only functions independently, but also cooperates with each other, aiming for a safer car



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Support in all driving scenarios

Integration of individual systems



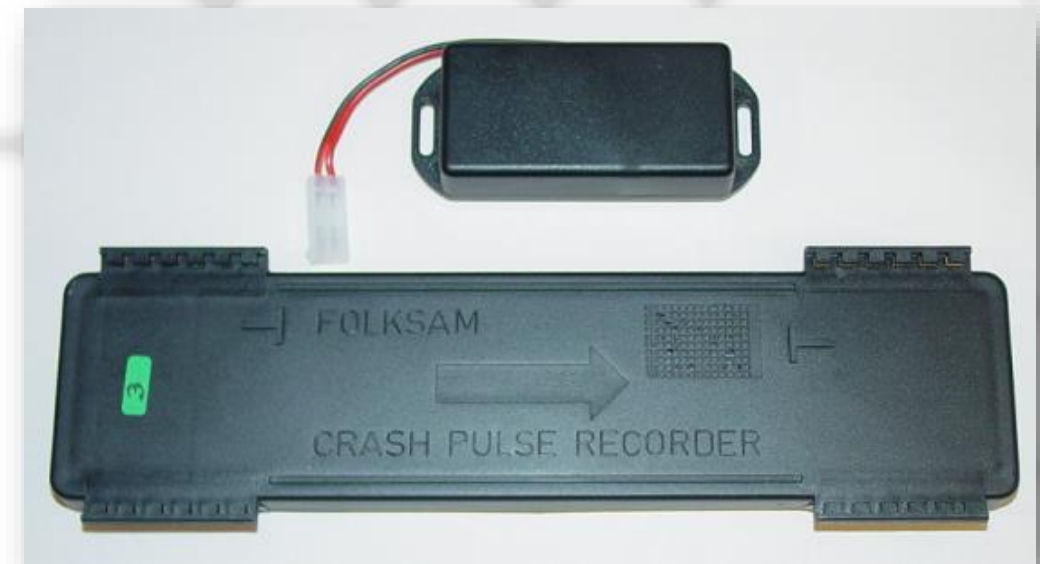
Toyota – Folksam collaboration



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- Insurance co-operation started 1990
- All Toyota cars sold in Sweden have a 3-year CDW insurance included in the price, meaning we have information of all Toyota crashes in Sweden
- The CDW is the base for the Toyota-Folksam co-operation
- In-depth data collection started 1991 including crash recorder installation from 1992



Toyota – Folksam collaboration



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- ECR is an integral part of a large accident data collection, including interior and exterior deformation measurements and evaluation of injury outcome.
- Data on traffic accidents and injuries comes from the police and the medical care services
- Folksam quarterly reporting to TME/TMC
- 10 000 recorder installation/year
- Capability to reproduce accidents
- Cooperation with retailers to remove ECR



Folksam ECR

- 4 crash pulses & Δt
- Rec. time 500ms
- Sampl.freq: 1000Hz
- Trigger level: 1,5g/5ms
- $x: \pm 72g, y: \pm 36g$
- 12 V
- Time,temp



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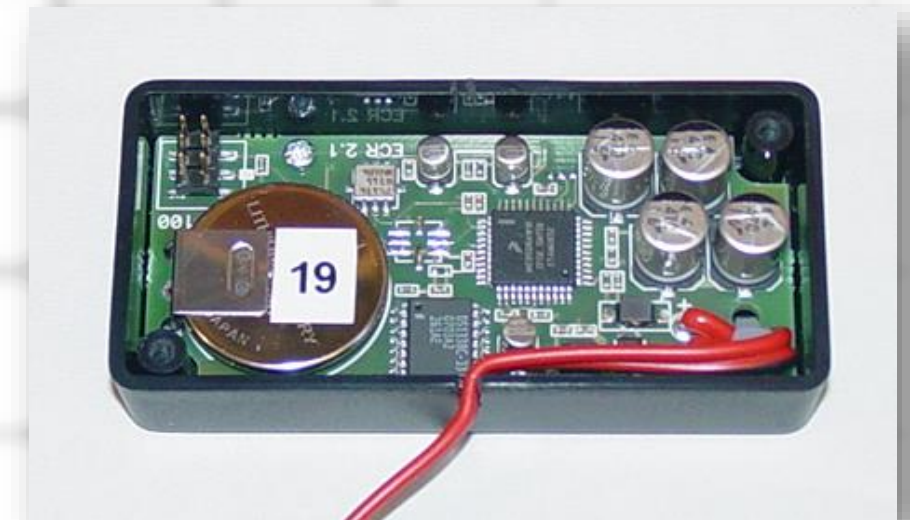
Output:

acc_x

acc_y

Duration

Time between impacts in case of multiple impacts



Accident data collection result in:

- Accelerate the evaluation of new safety systems
- Advanced technologies are made available across the line up
- Models designed for better protection in real life accidents
- Deeper knowledge of the relation between impact severity and the risk of injury that help us to design a more crashworthy mobility
- Better understand factors influencing post-crash injury outcomes

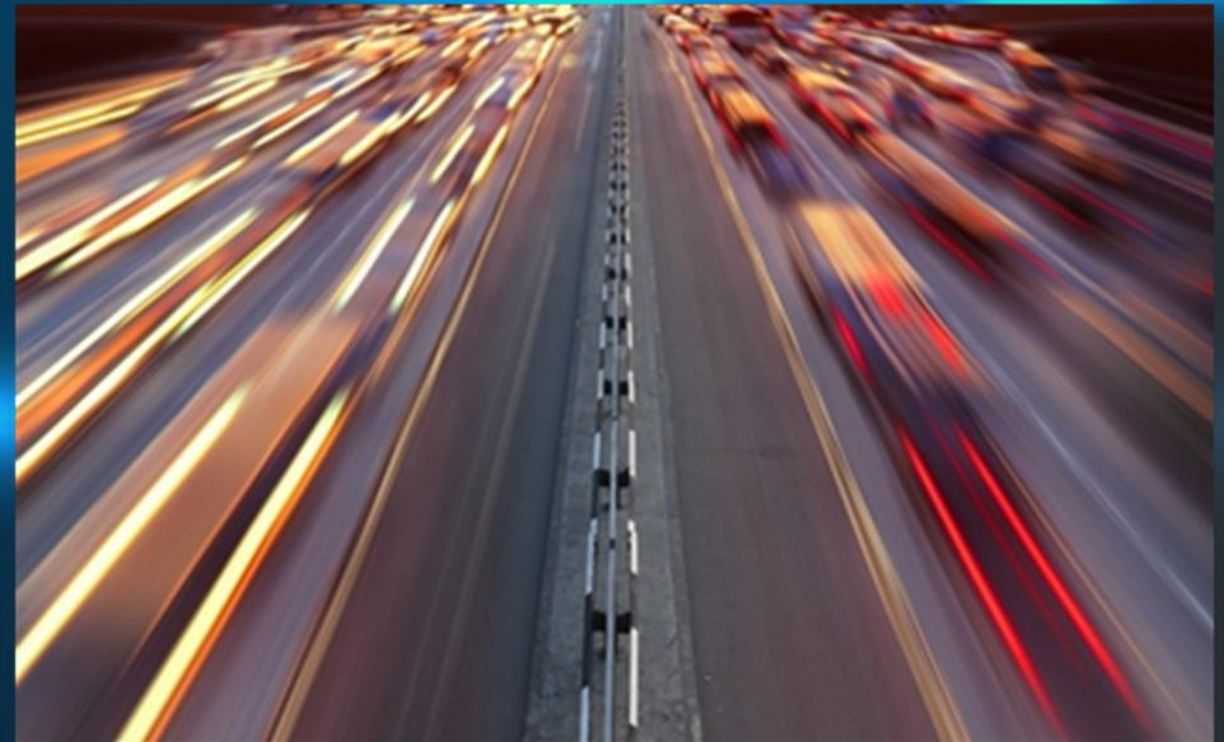


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Thank you

Collecting and using real-life accident data make us built better cars



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