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# Smart driving for all

— How to make exemplary driving —  
the norm in a few years

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# Part I: the road traffic safety context in 2017

# Some human driver flaws

- Overestimates his skills and underestimates the chances of having an accident
- Profits from the advantages of speeding, while not feeling the dangers and the huge loss of quality of life of the public space
- This means without effective enforcement, speeding seems fun and even rational
- But... drivers are also often unaware of the speed limit and even not of their own speed

**Do car builders take into account these flaws?**

# Design influences driver behaviour...



BMW flagship car i8 of € 140 000



Google concept car

# Permanent speed temptation is the major issue

- Full power available at all time without even a warning?
- Speed indicator going to 300km/h for a family car? (Audi A6 Break)
- Advertising terms like 'Sportive elegance', 'feel the adrenaline', 'discover the Power of M', 'Dynamic drive capabilities'?
- ...

**The speeding problem is as big as ever.  
Today's intelligent cars cannot handle unwise drivers**



# Design for safety?



“Model S is designed from the ground up to be the safest car on the road”



# Driving today's 'safe' cars properly is a challenge...



After the crash, Tesla rapidly announced that, analysing the car's data (stored in the cloud), the car was doing 155km/h where 80km/h is allowed...

Why did this car of €80 000 did not prevent its owner from killing himself?

# TomTom, Waze, ... : 'smart', but undesirable routing

*"The Flemish communities are sounding the alarm bell over the increasing and aggressive rat-run traffic" - 21 octobre 2017*

**FILE? 40% VAN BELGEN GEBRUIKT SLUIPWEGEN**



**"AGRESSIEF SLUIPVERKEER MOET STOPPEN"**



# The issue with the 'white vans'

- Time pressure is huge in a very competitive market
- Delivery vans can use Coyote/TomTom/Waze to avoid most fines
- Only about 1/3 of societal costs of accidents is covered by insurance, so 2/3 is externalized!
- Decrease of life quality because of rat-run traffic is nowhere accounted for
- This means 'free-riders/cowboys' have a competitive market advantage...

**Professional transport: no fair competition**

# Traffic safety & life quality in a nutshell

- Road accidents are the major cause of death & serious injuries of 14-45 olds
- Every day in Belgium, there are 200 hit & runs.  
In 2016, in such accidents , 4937 people got injured, of which 233 heavily.  
21 people got killed
- 80% of Belgians says speeding is a large issue in his neighbourhood
- Traffic insecurity is reason number one why school kids don't cycle to school
- Of all environmental factors, road traffic noise is the most important contributor to the satisfaction of people with their living environment

# What are the main tools for traffic safety? 3E

- Education
- Enforcement
- **Engineering – car & infrastructure**

# Traditional infrastructural measures



# Can be a (fatal) safety hazard, also for cyclists!



# Exemplary drivers are also paying for these infrastructural obstacles...





# Hard road cuts are not possible everywhere



# 'Smart' hard measures



# 'Soft' measures: nudging in the public domain



# EU initiatives on the vehicle front

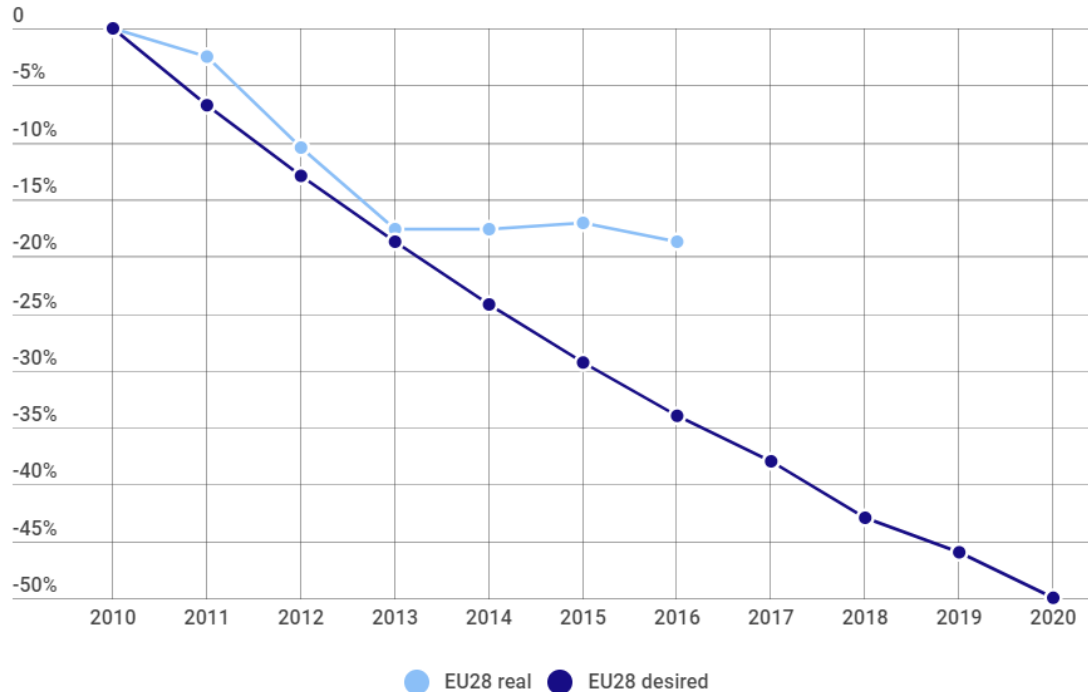
- EU “Connected and intelligent cars” – C-ITS platform -> 2019/2020, EC priority
- Actual EU safety regulation is very weak (German influence?)
- Expected upcoming ‘new car’ regulation (2020) is step forward, including black box & half open ISA most probably. (Cycling detection obligation only in 2028 ??)
- But it takes about 20 years before having your car fleet replaced!
- I have neighbours driving 25 year old cars in our neighbourhood like if they are on a race track....

# Automotive industry & large ICT players

- Integrated ADAS (Advanced Driver Assistance System) in new cars (all major brands)
- Big new players are coming in: Intel, Nvidia, Panasonic, Sony, Google, ... ADAS market is growing 10-25% on a yearly basis!
- Self driving car ( mass production starting from 2022-2025?), but will be quite expensive in the beginning and mass penetration for after 2035
- BUT: Almost all car manufacturers profit from 'high power' 'high profit' margins...

**Are we doing enough?**

# Widening gap between the actual and desired progress towards the EU 2020 target



# The 'miracle pill': how cycling could save the NHS

Cycling can make people healthy and live longer, and cut public health costs, so why can't it be prescribed to the nation?





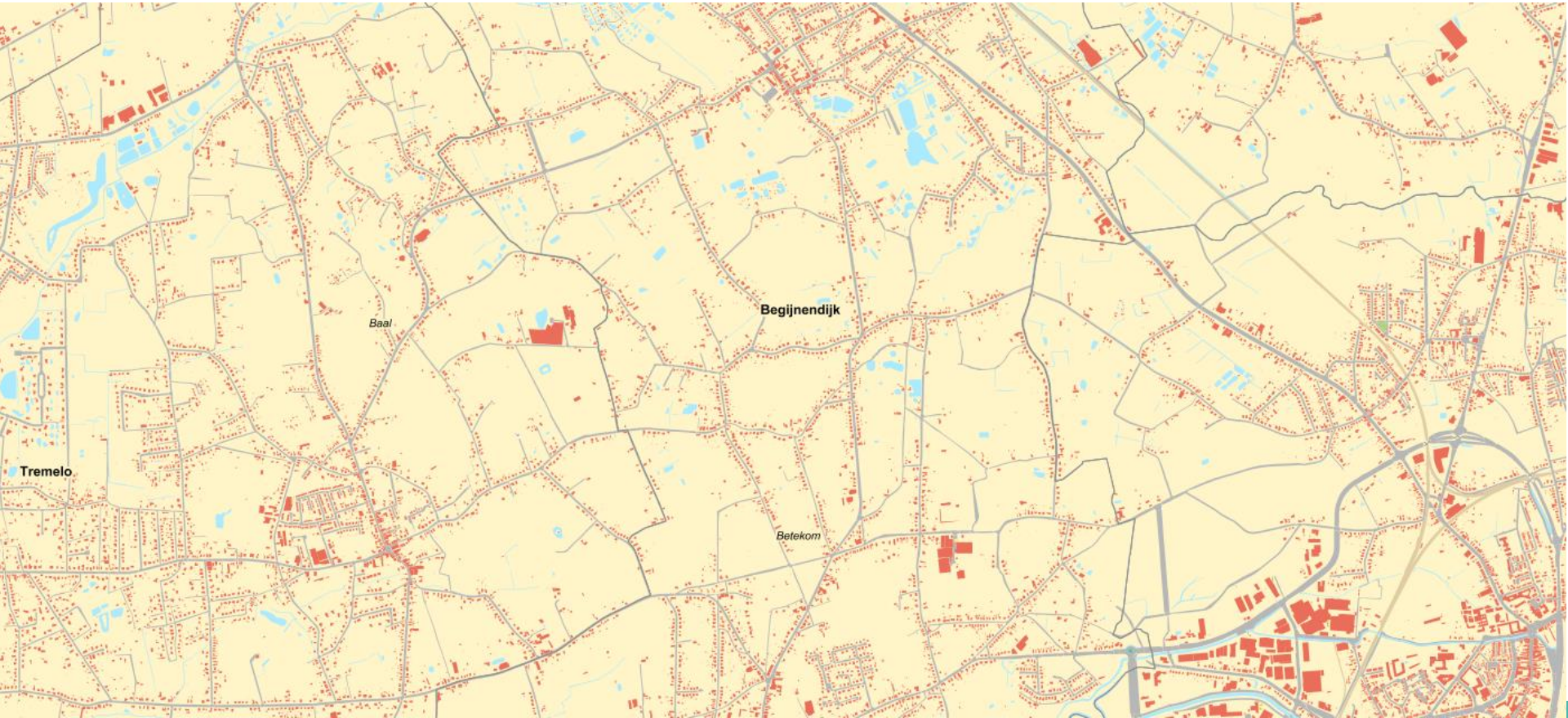
# The need for *effective and rapid* action

- 2020 EU & national target: reduce traffic casualties **by half!** This asks for serious measures! (if not, politics undermine their own credibility)
- Traffic insecurity is costing society way too much (around € 14 billion in the Netherlands)
- Sustainability transition can no longer wait after Paris climate agreement
- **Active road users are a blessing for society and need a safe environment!** Effective 30/40 km/h zones & local traffic/cycling roads are paramount!
- Severe **morality issue**: how can you advise people to walk & cycle more while not guaranteeing their safety at a reasonable & feasible level? (nice European court case, Dieselgate proved external triggers are necessary for institutions to move )

## **Part II**

# **The challenges and opportunities ahead**

# The challenge: safe sustainable traffic



# Connected Traffic Cloud & TM 2.0

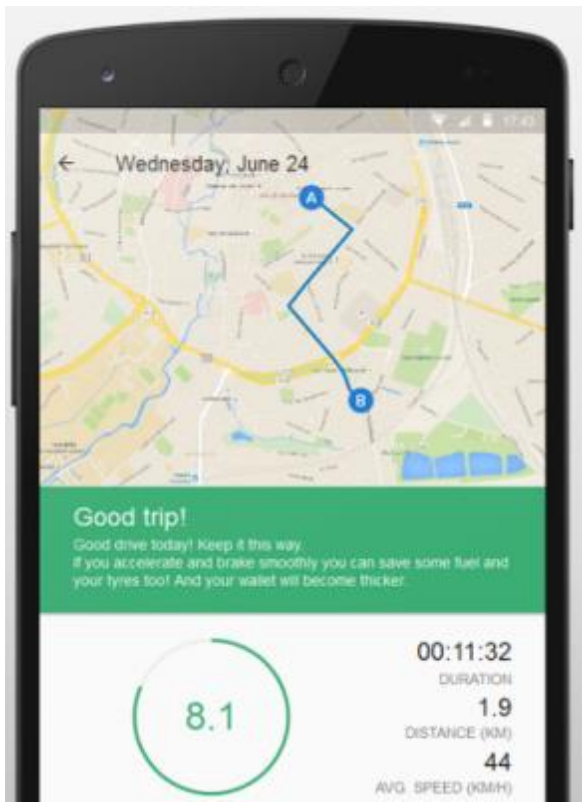


# The rise of 'excellent driving' in company fleets



- Large transport companies have their own 'excellent driving' programs and tools (eg. Tom Tom Optidrive 360°).
- SME's (Prodongle, Suivo, Drivolution, VivaDrive, ULU...) support fleet owners
- Telematics penetration in company fleets is still low, around 15% in Europe, but growing at 15% per year

# ... first steps for the general public



**JOIN THE DRIVING REVOLUTION**  
Download. Drive. Earn.



**DRIVING YOU TO BE A BETTER DRIVER**

Flo is an app that makes you drive more safely, save on gas and logs all of your trips!



# Connected car hardware for everyone

## TOMTOM CURFER

Connect your car. Improve your driving.



### Driving Score Dashboard

Get feedback on your acceleration, cornering, braking and idling.



### Advanced Car Data

Learn more about your car's performance.



### Trip Review

Get trip performance scores and tips to do better.



### Car Finder

The CURFER app will guide you back to your car.



### Driving Style Badges

Earn badges showcasing your personal driving style.



### Easy Set-Up

Just turn on your engine and follow the step-by-step instructions.

# PHYD- Pay How You Drive: the insurer as coach

- Origin in the US, now mainly in UK & the Netherlands
- Mostly via a dongle/chipin & OBD port: more reliable & more info
- Danlaw market leader





# NL (1) - Fairzekering



Bereken hier je faire premie!  
Drive safe, save money.



## Elke maand geld terug!

Onze Autofairzekering is een van de goedkoopste van Nederland. Daar bovenop ontvangen veilige rijders elke maand 35% premie terug!



## Privacy gegarandeerd

Al jouw gegevens blijven van jou. De enige die jouw dashboard kan inzien ben jij. Verder meet onze Chipin niets wat je telefoon niet ook al doet. Check voor meer details ons [privacy statement](#).



## Een veiliger Nederland

Nooit meer net zoveel premie betalen als alle bumperklevers en veel-te-hardrijders en meteen ook meehelpen aan het veiliger maken van het verkeer!

# NL (2) Aegon

Bespaar 20% op je autoverzekering  
door veilig rijgedrag

Kroodle belooft verantwoord rijden

## Waar staat 'ie ook alweer?

Geen zorgen, het overkomt de besten wel eens. Open de app en bam, daar staat 'ie.

## Bespaar op je premie én brandstof

Veilig rijden gaat hand in hand met zuinig rijden.



# NL (3) ANWB

## Nieuw: Veilig Rijden Autoverzekering

Wij belonen veilig rijden met extra korting

Bij de ANWB heb je keuze uit 2 aantrekkelijke autoverzekeringen: de Reguliere en de Veilig Rijden Autoverzekering. Met onze autoverzekeringen, sta je er bij een botsing of andere schade aan je auto nooit alleen voor. Bekijk welke verzekering bij je past.



### Zeer veilig rijgedrag

Rijscore 80 - 100

20% tot 30% veilige rijderskorting

### Veilig rijgedrag

Rijscore 50 - 80

10% tot 20% veilige rijderskorting

### Onveilig rijgedrag

Rijscore 0 - 50

0% tot 10% veilige rijderskorting

Omdat je 10% korting krijgt, betaal je een deel van deze korting terug

***“The average score that people with a “drive safe insurance” have, is 75. They received on average a reduction of 17.5% insurance fee”***

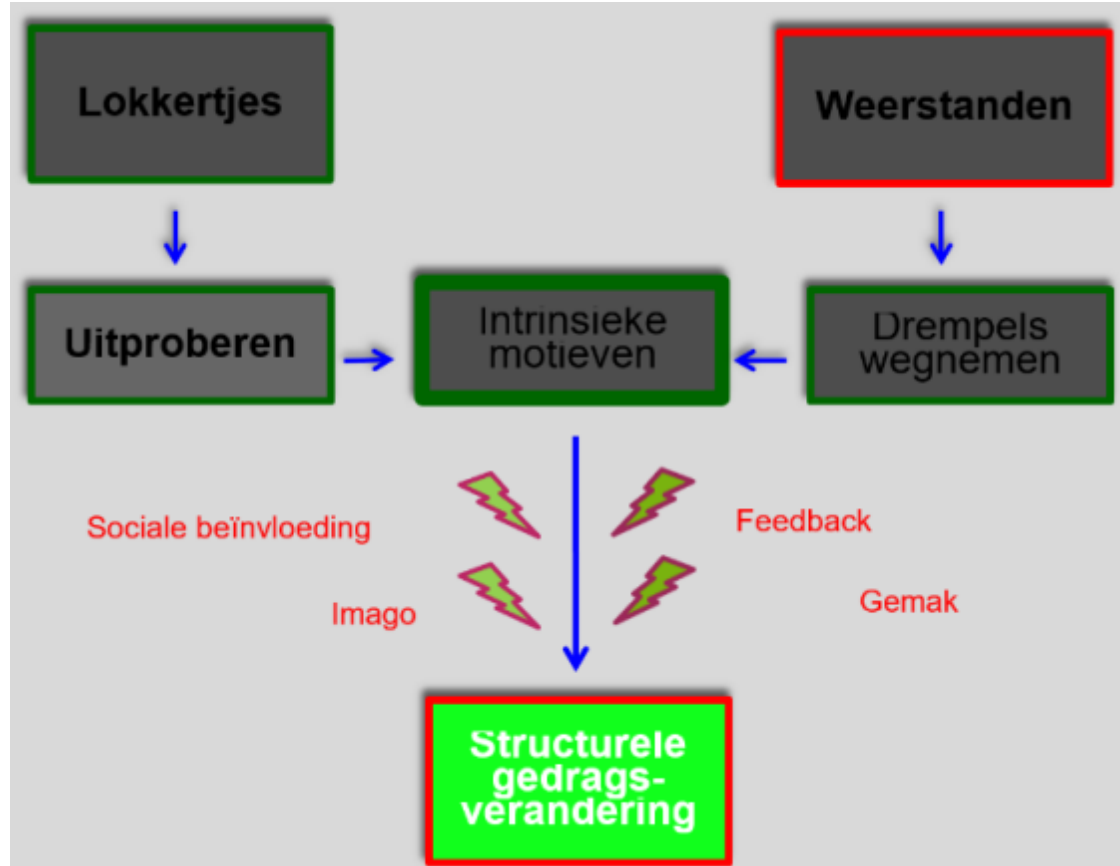
# NL (4) Nationale Nederlanden

VOOROP<sup>©</sup> beloont de beste automobilisten van Nederland.

VEILIG RIJDEN MOET  
WORDEN **BELOOND**



# From speed culture to safety culture



# Those cases show exemplary driving programs based on ICT follow up work and are very cost-effective!

- They go much broader than speed alone!
- A 'Norwegian' driving style becomes the norm: exemplary driving, no drinking, paying attention.
- Users are satisfied!
- They are still mainly popular inside a business context with visionary CEO's
- **For most drivers, traffic safety suffers from a market failure --> public authorities should create/stimulate the market!**

## **Part III**

**New technology for, finally,  
a civilized public domain**

# The Railroads example: safety first, no exceptions

- After the Buizingen railroad disaster in 2010 (19 casualties), a “special commission on Railroad safety” was appointed, next to existing railroad safety bodies.
- They discovered the “red signal” crossing detection system (TBL1) was not present in one of the trains
- This resulted in an accelerated and mandatory introduction of the TBL1+ “warning and automatic braking” system for *all trains*. This involved heavy costs (compared to the small number of avoided casualties and the fact that ETCS will replace it soon) and caused the cancelling of a lot of trains because of maintenance.  
But, everybody of the commission, and the minister, agreed that “**safety should take precedence at all times**”
- Also, **all data is recorded and transmitted**, and, after infringing a stop signal, **immediate replacement** of the train driver is required. Even if this means blocking the train & railway for hours!
- If you want to use the Belgian railroads, safety equipment TBL1+ is now an **obligation. Similar rail-systems are also mandatory in most other European countries. This seems logic, no?**



# Road traffic: a new context asks for a new policy

- Until recently, 'in car safety' systems were too expensive (6 million cars in BE)
- Price of gps/gsm/camera components have dropped dramatically and ICT processing capacities have exploded.
- AI & deep learning made image and voice recognition reliable & cheap
- **Electric cars do not pay fuel taxes so we will need the tech equipment for 'smart road taxes' anyway**  
(price & models breakthrough around **2020**).
- We are the smartphone, Strava and Facebook generation! Hip brands like Tesla, BMW have your car data already...

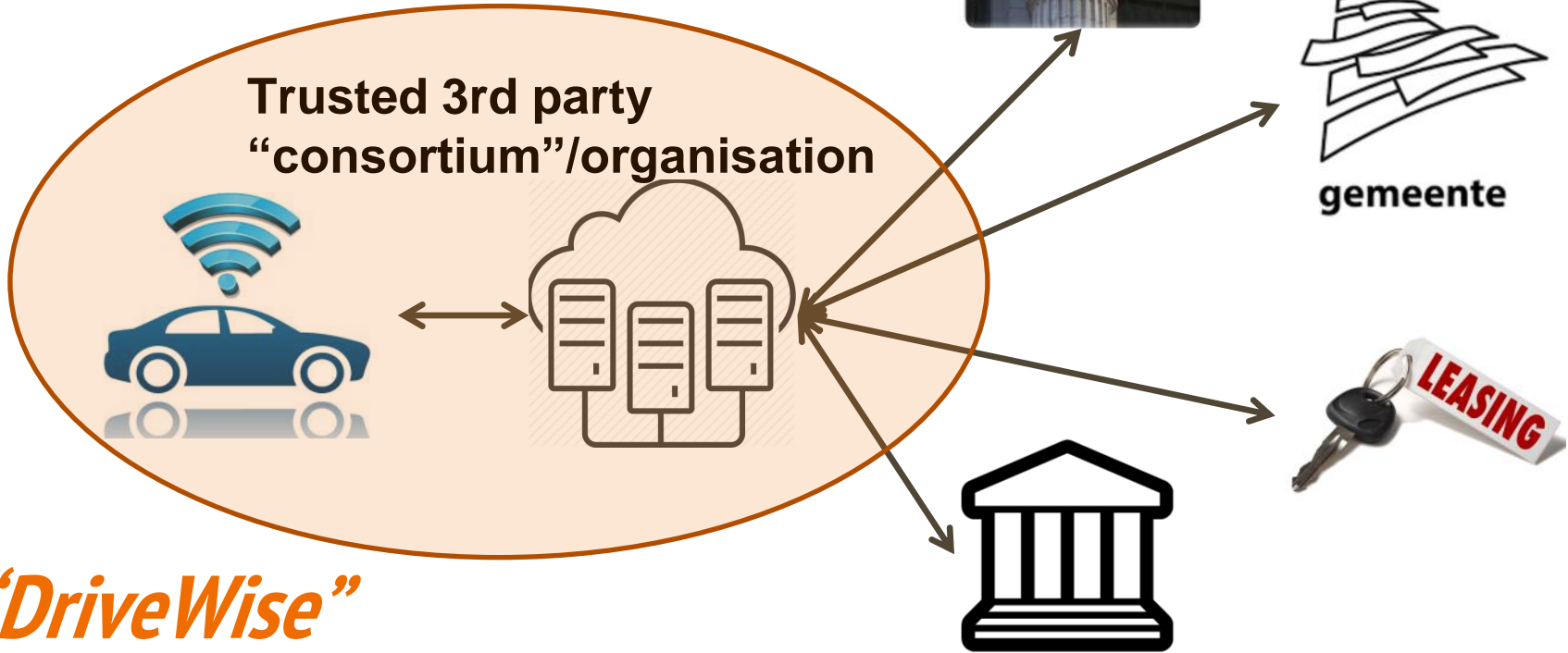
# How to make 'exemplary driving' the new normal?

- Multitude of possible pathways
- The proposition on the following slides is just one possibility, the author's best guess of a fast-track take-up
- Variations are possible: not a "take or leave" story
- All components exist already today in some form
- There are NO fundamental technical, legal or economic objections
- If you can dream it, you can build it

# Everybody his proper solution?



# We need a better ecosystem!



*“DriveWise”*

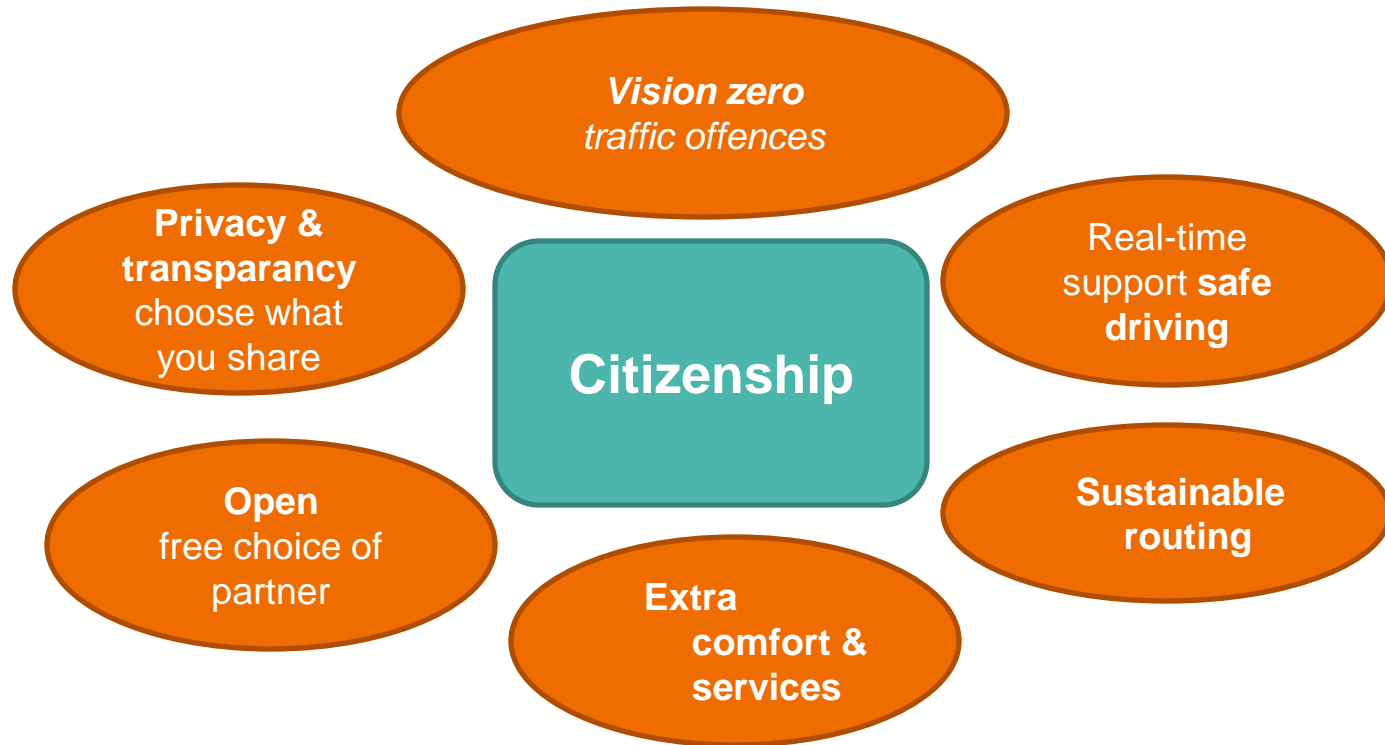
# Wise driving = safe driving with sustainability in mind



# DriveWise: the quality label for responsible driving

- DriveWise will be the standard for drivers who take up full responsibility of driving a dangerous vehicle
- DriveWise will consist of a **trusted entity, quality label** and an **ICT platform**
- A consortium of private and public partners will need to develop this label and the ICT backend
- Devices who implement DriveWise will be remotely upgradable: supporting upcoming Belgian and EU standards will thus be possible
- It will be an Open ecosystem: any company can sell compliant ICT hardware or offer services

# 'DriveWise': new technology as enabler of citizenship on our roads



# DriveWise Basic



- Basic 'connected car' equipment ; < 100 € - Smartphone as an option
- Analysing car data 100% of the time
- *Smart* infraction prevention mechanism (speaker/car audio, microphone, cheap bright LED).  
**"If OK, then do nothing"**



# DriveWise Basic: connected car hardware

- Design of new hardware can offer additional service/cost advantages:
  - GPS/Galileo receiver; Bluetooth, Wifi (USB module?)
  - 4G and/or new 'Mobile IoT' network hardware (LoRa/Sigfox/Orange NB-IoT)
  - C-ITS compatible hardware (ITS-G5)
  - Optional Driver ID authentication via RFID, smartphone auth.
  - Speaker, microphone & maybe screen

(Development cost about € 1 million)

# DriveWise Basic: additional use cases

- Real time & targeted traffic info/guidance
- Services for ride sharing & car sharing
- eCall
- Parking card & payments
- Ecodriving and real consumption measurements & business/personal km's distinction  
(‘carte blanche’ tank card has reached end-of-life because of Paris agr.)
- Road assistance & dealer service
- Smart road pricing

Would you like to live in a region where everybody has such a system?



# DriveWise Advanced – ‘Copilot’



- Basic AND
- Ideally, HUD (HeadUpDisplay): enables visual navigation, indications and warnings while keeping focus on road
- Assistance camera's & high end processing device

# ~ After market ADAS inc. Day 1 C-ITS services

## Day 1 C-ITS services list

### Hazardous location notifications:

- Slow or stationary vehicle(s) & traffic ahead warning;
- Road works warning;
- Weather conditions;
- Emergency brake light;
- Emergency vehicle approaching;
- Other hazards.

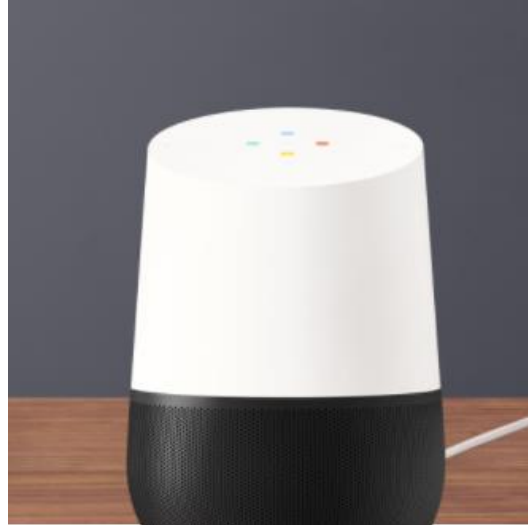
### Signage applications:

- In-vehicle signage;
- In-vehicle speed limits;
- Signal violation / intersection safety;
- Traffic signal priority request by designated vehicles;
- Green light optimal speed advisory;
- Probe vehicle data;
- Shockwave damping (falls under European Telecommunication Standards Institute (ETSI) category 'local hazard warning').

# Breakthrough of AI & arrival AI assistants



Amazon Echo



Google Home



chris  
Driving with a friend



# chris

Driving with a friend



## Digital co-driver with Artificial Intelligence

	Chris	Smartphone in the car	Siri & other assistants	Car Play / Android Auto	GPS navigation device	Your mum
Works in every car	✓	✓	✓		✓	✓
Listens and talks to you	✓		✓	✓		✓
Gesture control	✓					not sure
Learns and responds	✓	✓	✓	✓		✓
WhatsApp / Messenger	✓	✓				✓
Make and receive calls	✓	✓	✓	✓		✓
Offline navigation	✓				✓	✓
Playing Spotify	✓			✓		other playlists
Fun to drive with	✓					depends
Police thinks OK to drive with	✓			✓	✓	✓

# NVIDIA Keynote CES 2017: AI CO-PILOT

ANNOUNCING  
AI CO-PILOT

Careful, there is a motorcycle  
approaching the center lane.



MOTORCYCLIST

LEFT



Redwood City



# Nauto (\$ 159m in july 2017, GM, Toyota, Allianz)

## Safety the smart way

Don't let the interior and exterior camera fool you. Our multi-sensor device detects collisions, monitors risky maneuvering, and even tracks driver behavior all in real time. With Nauto you can retrofit any car with safety in just a few minutes.



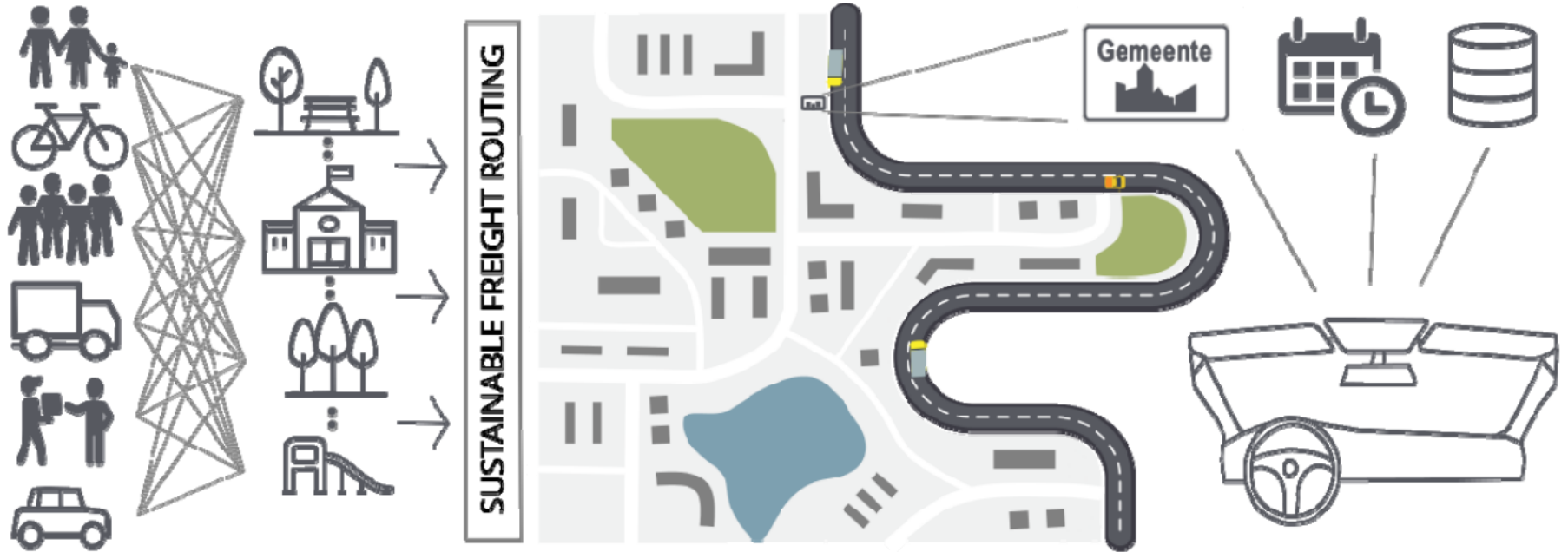


## Connected smartphone AI network

*“An autonomous vehicle will (hopefully) cost anywhere between \$20K and \$50K. It will require trillions of dollars and decades of production to get penetration high enough to rid the world of collisions. In the next decade 13 million people will die on our roads. Probably over 20 million in the next two. We can make a real dent in these numbers starting this year if we rapidly connect our vehicles. **In three years we can create a ‘new normal’.** One where collisions are not an act of God, but rather, a handled problem.”*

**The Nexar vehicle-to-vehicle network is live: we can reduce car crashes today**

# Mobility brain – sustainable routing



# How could this work in practice? Some thoughts

- Determine the amount of motorized km's we would like to have every year
- Every citizen gets a yearly 'road use' budget (in points or € )
- If you need more, you can buy them on a market, where people who don't use them can return them (thus a tax shift from the rich to the poor)
- Every suggested displacement gets a price/point tag, reflecting the societal cost
- If you really need to be somewhere on time, *respecting the traffic rules*, you can choose a route which is faster but more expensive (societal).  
(now the "good guys" are stuck in traffic and the "free-riders" take unwanted short cuts)

# DriveWise: what's in it for me?

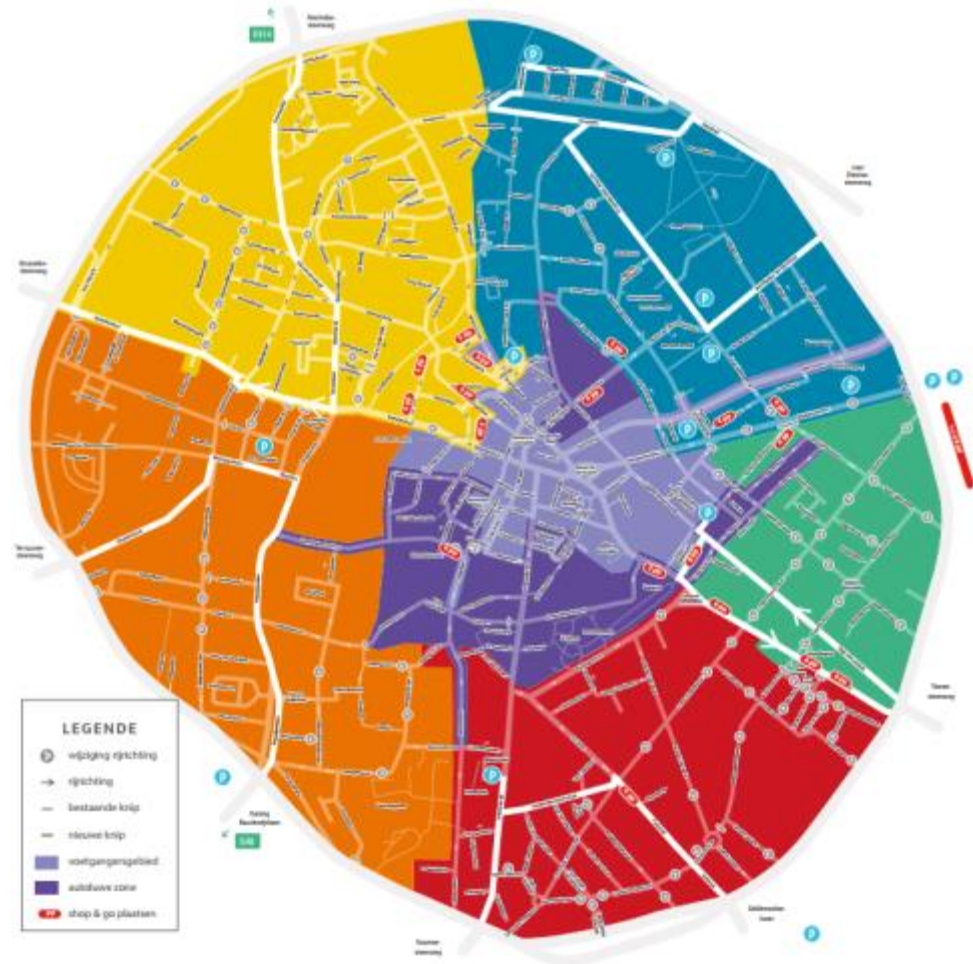
- Higher driving comfort & more fun ( gamification, the 4th E: Enjoyment!)
- Enhanced security for you and your loved ones!
- No more traffic fines!
- Reduced insurance fee
- No risk of a lifelong bad conscience because you injured/killed someone in a car accident because you behaved irresponsibly

# DriveWise: societal benefits

- Road safety at another level
- Less traffic jams
- Lower fuel consumption & real time ridesharing (Carpooling 2.0)
- Lower police & justice expenses
- With full penetration:
  - ✓ End of the 'far west' of traffic -> revalorisation of public space; effective zone 30's, local cycle roads instead of 'high speed secret auto roads'
  - ✓ We can get rid off expensive speed slowing infrastructure
  - ✓ Greatly increased quality of life (more cyclists, less stress, no speed offenders waking you up, ...)

# -> Accelerate transition towards sustainable mobility in a smart way

- Wit much less expensive infrastructure investments
- Without extra vehicle km's
- Without extra bottlenecks



Making a network of safe cycling roads would be tenfold easier if we would have law-respectful drivers...

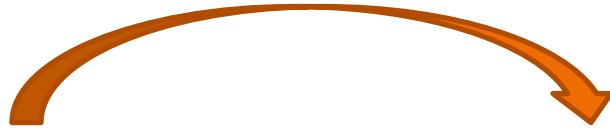


**ZONE**





# In-car enforcement: just another IoT option



°1899 in Belgium  
(before general voting!



°2020: aConnected car-service

***Why are we still using metallic plates and camera's for public safety, when Google & Apple are already tracking our every movement to sell us more stuff?***

# Virtualizing traffic enforcement: no fines without warning!

- We only need one drive assistant and virtual number plate of < € 100 in every vehicle
- By doing so, speeding becomes a data problem: every thinkable –fine tuned- policy can be applied without the current physical and financial constraints
- You can then leverage data analysis, deep learning, predictive actions, ...
- Traffic policy 2.0: transparency instead of playing cat & mice between citizens & and police. This is such a daily anachronism that we don't even realise it!
- Societal advancements can be implemented ***overnight***

# Public acceptance & policy support

- Anonymous driving will be the default, there is *no real privacy issue!*
- The **'freedom' argument can be falsified easily (def. John Stuart Mill)**: freedom gains are *a lot* bigger than the loss of being able to violate the law without almost any repercussion.  
Which society has the most freedom, the 'Wild west' of 1800 or 2016 Norway?
- Majors are becoming sick of having to invest in speed policy, noisy, traffic slowing infrastructure. Major of Antwerp, Bart De Wever, almost begged for ISA in his 2016 speech on the 2016 city of Antwerp safety congress!
- BUT: politicians are afraid of coming out of their comfort zone. Mostly, they wait for 'popular support' or large events to make bold moves.

# Policy making can be “slow” ...

## -> Use bottom up approach as a leverage

- Focus on **advantages** & **intrinsic motivation**
- Company fleets; employees of leadership enterprises; insurance companies can lead the way (Corporate Social Responsibility)
- The current scattered initiatives need to be put together for *efficiency*, *effectivity* and *impact* reasons!
- A “coalition of the willing” will grow and grow, attracting more and more users, thus putting pressure on others and the government ( ~ Paris 1.5°C agreement)
- Until, finally, government 1) obliges users of public roads to make an on board assistant obligatory, or, 2) obliges the insurances companies to do so

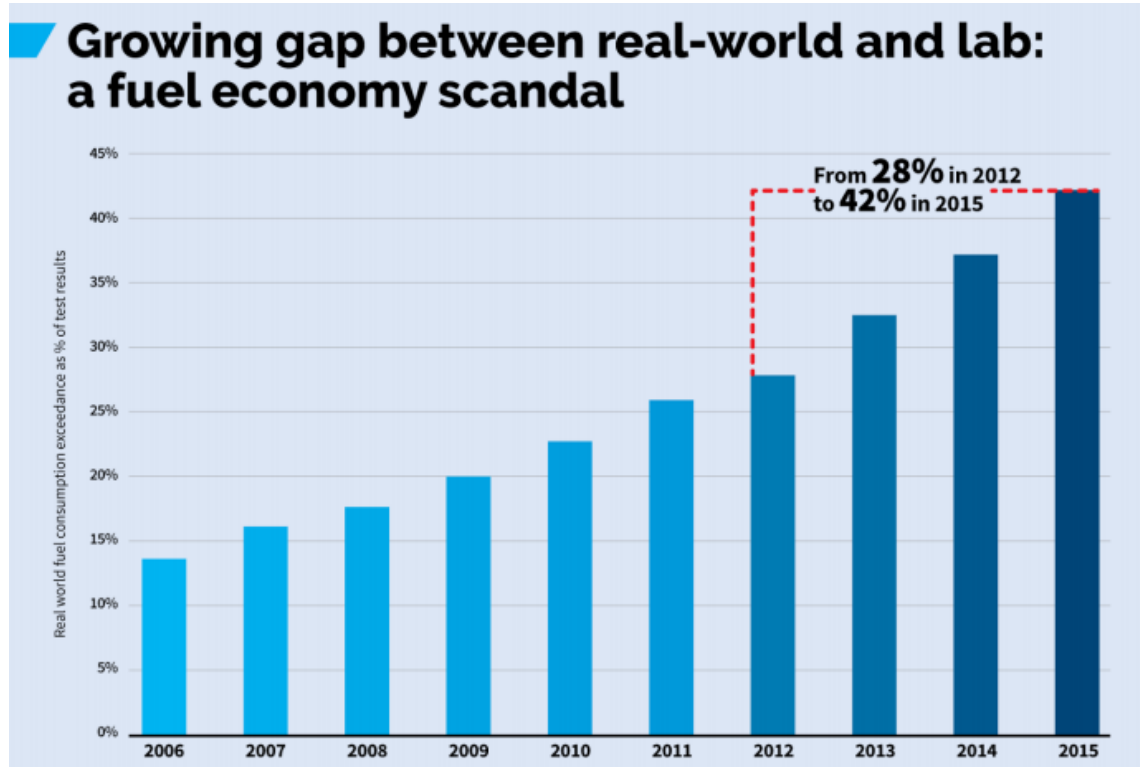
# Additional leverage by central government

## *Taxes can change the world!*

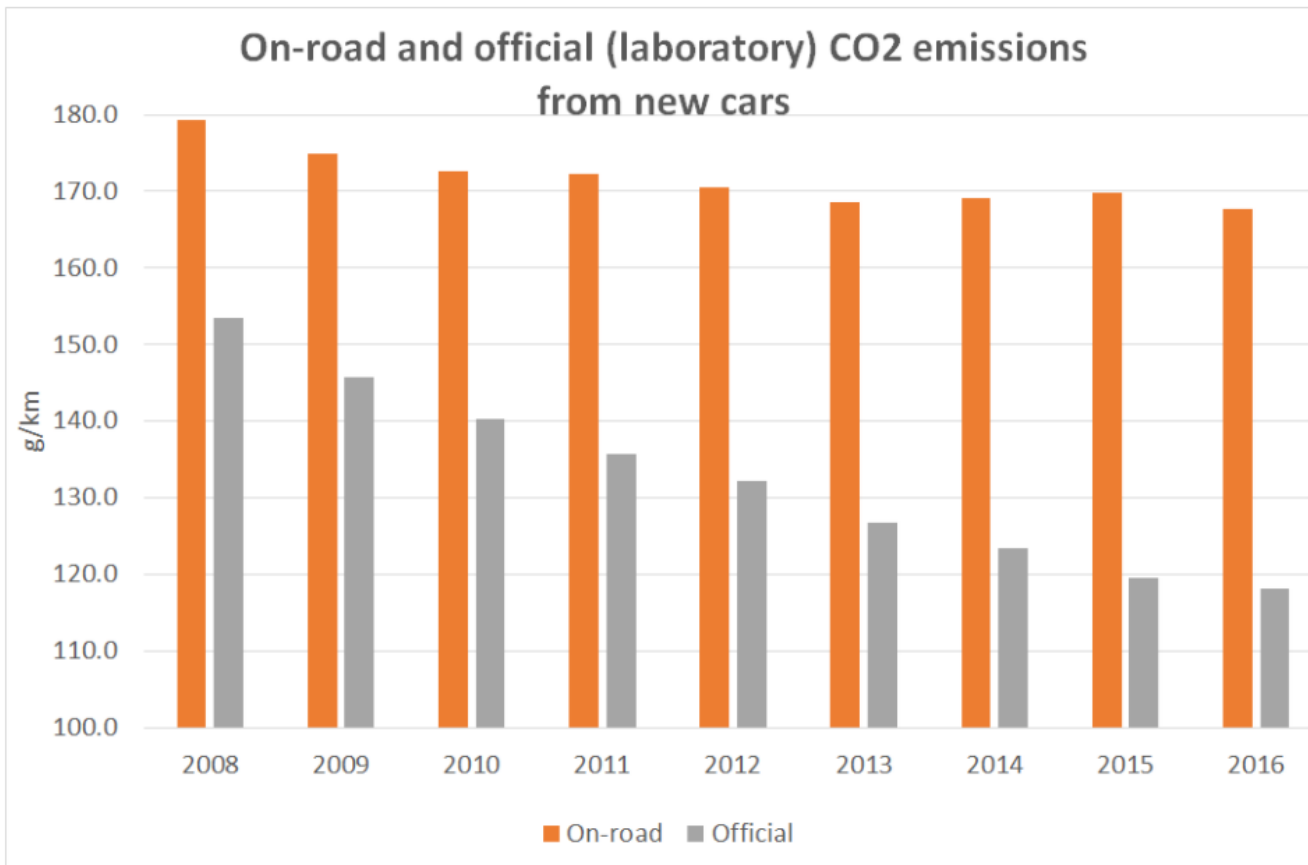
[www.ex-tax.com](http://www.ex-tax.com)

- Reduced yearly traffic fee for all participants
- No traditional speed checks if you choose the DriveWise option of the “digital assistant & number plate” + additional income tax reduction
- When combined with smart road pricing: **pay back of fuel taxes** should be possible! (eg. via paying card/smartphone payment). Or even income tax!
- Tax benefits for insurance policies using this system, tax penalties for others
- Make tax-advantages worth € 4 billion/year for company cars dependent on the presence of DriveWise and ecodrives real measurements!  
The current tax base, “official CO2 emission” **has lost all credibility!**

# CO2 emission on paper is now *useless* as tax base!

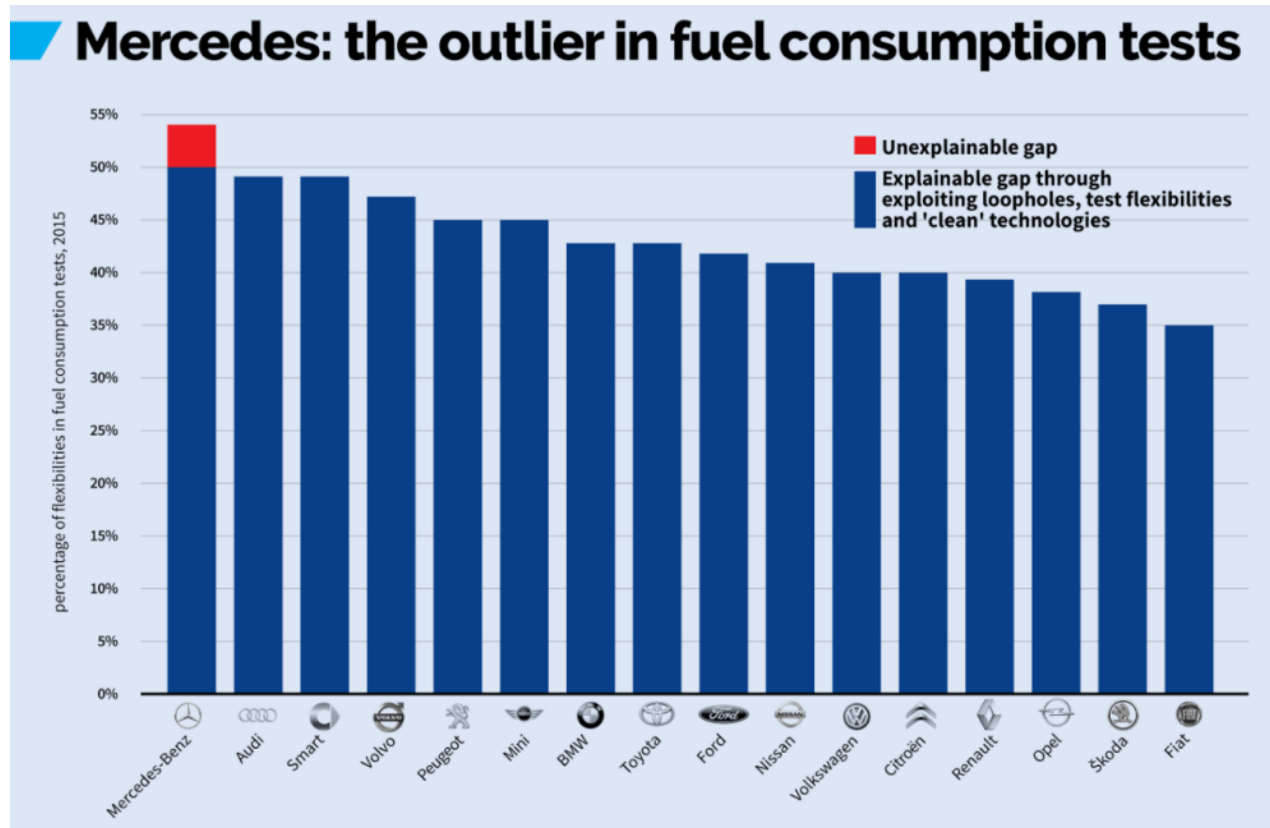


[°Mind the Gap 2016 - Report](#)



*Based on data from the ICCT Laboratory to Road Report 2017 and Official Fleet average new car CO2 emissions from the European Environment Agency, 2017*

# You even can't compare models!





# Additional leverage by local government

- Cities/regions can offer reduced parking fees/road toll for DriveWise cars (~Norway stimulus package for electric cars)
- Introduce a concept like 'Low Emission Zone', eg. A 'Smart cars city', 'DriveWise zone', 'Responsibility zone'

# In which column would you like to be?

## **DriveWise drivers**

- Get tax bonus
- Zen driving experience
- Make our region a better place
- No worrying about route choices
- Be engaged & proud

## **'Freeriders'**

- Higher taxes to start off
- High risk of losing your driver license
- Constantly at the lookout for enforcement
- Social pressure

# Masterplan in short

- Private & public stakeholders should come together and define wanted services and a quality brand that guarantees people extra comfort, safety & life quality
- Invest in virtual traffic infrastructure & virtual enforcement; stimulate the use of them by tax incentives
- Implement driver license with points: since 'accidental' speed infractions as well as dumb speed limits will disappear, political opposition should go to zero
- After penetration of X % (or the instauration of smart road pricing): make this mandatory (in Israel, Waze now has 60% of drivers on board!)

# Nobody can do this alone! Cooperation is needed

- Innovation platform 'DriveWise' ('Het Slimme Rijden')  
~NL 'Partnership Talking traffic'
- Cluster  
~ e-mobility
- Coalition  
~ NL '[Verkeersveiligheidscoalitie.nl](https://www.verkeersveiligheidscoalitie.nl)
- Foundation  
~Stichting Keurmerk Ritregistratiesystemen
- Governmental organisation ~ Viapass

# Similar cooperative initiatives



- Bankcontact/Betaalvereniging Nederland: online payments, identification (Credit card only became success after associations with enough partners!)
- CradleToCradle quality label
- “Passivehouse” certification + tax reduction
- PowerToGas cluster



- <http://www.verkeersveiligheidscoalitie.nl/>

# CityOS: boiler plate for a Traffic OS?



- [cityos.io](http://cityos.io) ; °Barcelona
- Some big players enable infrastructure & ict-framework: Accenture, Tellnex Telecom & Engie
- More then 30+ SME extend or offer services
- This open dataplatform is now exported worldwide and become a de factor standard (Amsterdam, Tokio, Toronto,...)

# December 2016: start of Flemish e-mobility cluster

- Organizer: i-cleantechvlaanderen
- 20+ companies joining forces
- A new cluster for fast take-up of traffic safety enhancing ICT seems our best bet?

Cross-sectorale samenwerking



# Stichting? Vb. NL bedrijfswagensfiscaliteit



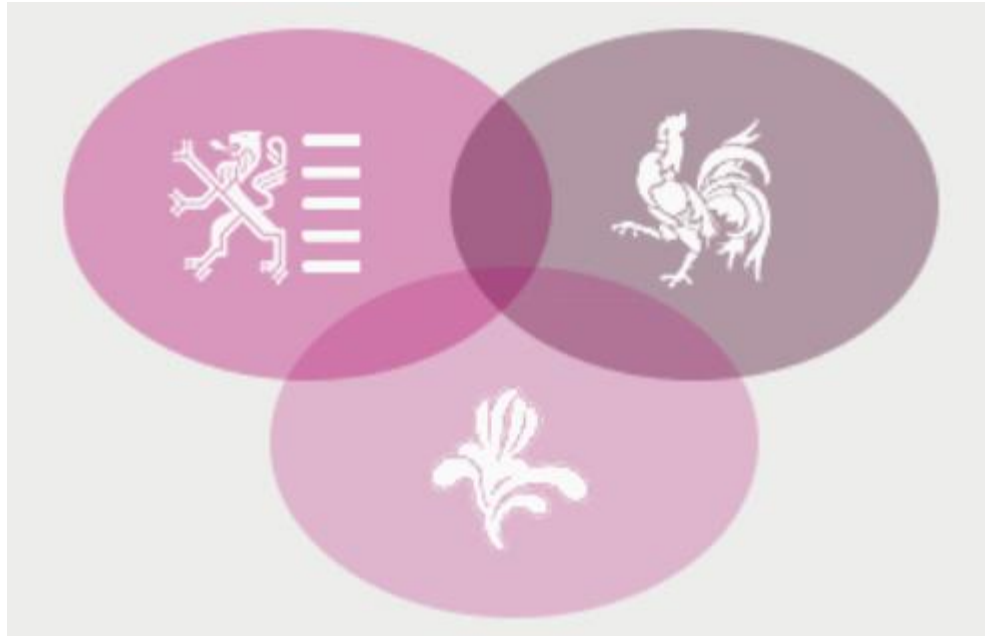
Vanuit de markt ontstond de behoefte om samen met de Belastingdienst duidelijkheid te scheppen over de wensen en eisen rond rittenregistraties. Naar aanleiding hiervan is met enkele vooraanstaande leveranciers en branchepartijen het normenkader en de auditfile ontwikkeld. Deze documenten zijn geaccordeerd en gepubliceerd door de Belastingdienst en vormen de basis voor het keurmerk. Een eis van de Belastingdienst is dat dit Keurmerk objectief en onafhankelijk is.

De Vereniging Zakelijke Rijders (VZR) heeft samen met de Branchevereniging van Leveranciers Ritregistratiesystemen (BVLR) en de RAI Vereniging het initiatief genomen om het Keurmerk te gaan ontwikkelen. Ieder van deze partijen heeft ook het recht om een bestuurslid voor te dragen mits deze onafhankelijk is bevonden door de Raad van Toezicht.

Na het opstellen van het normenkader en het vaststellen van de eisen zijn alle leveranciers ingelicht. In eerste instantie hebben direct 25 leveranciers zich aangemeld om in aanmerking te komen voor het Keurmerk. De Stichting werd een feit en ook andere belangengroepen werden geïnformeerd en uitgenodigd deel te nemen aan de verschillende commissies en klankbordgroepen. De Stichting is formeel opgericht in augustus 2013.



# Flemish, Belgian or Benelux cooperation?



# Flanders, the ideal place to start

Concentration of SME's, innovation hubs and public institutions working on traffic solutions

Enormous traffic jams jeopardizing the economy and an anachronistic traffic safety problem

Driver's mentality problem is huge! We have a very bad reputation in Europe as reckless drivers!

Bad infrastructure mix of living & transport

From 'worst student in the class' to top-5 in 5 years?

*“The difference between what we do and what we are capable of doing would suffice to solve most of the world's problems”*

Mahatma Gandhi

# Questions?

Any suggestions are welcome!

For more background & links, see:

<http://www.rdrive.eu>

Joining me?

[info@rdrive.eu](mailto:info@rdrive.eu)

# Addendum

List of some after market solutions

# ULU (NL): hardware & cloud platform



The automotive industry is  
about to disrupt.

ULU is redefining mobility by bringing cutting edge technology, data insight  
and analytics to the automotive industry.

# “The automotive cloud is finally here”

[driveulu.com](http://driveulu.com) & [driveulu.github.io/api](http://driveulu.github.io/api)



## Connect

### CONNECTED DEVICES

Cellular connectivity and unprocessed data forwarded to any endpoint.

- ✓ Best in class telematics OBD-II devices
- ✓ Scalable back-end solution
- ✓ Global cellular connectivity
- ✓ Secure data transmission
- ✓ Configure data frequency



## Cloud

### READY TO READ

Do no re-invent the wheel. Access our API and leverage next-generation connected vehicle technology.

- ✓ Data analytics & processing
- ✓ Driving behaviour analysis
- ✓ Geo-mapping & coding
- ✓ Predictive analytics
- ✓ Easy to use API documentation



## Mobility

### USABLE SOFTWARE

Your vehicle's data merged in usable software ready to go instantly

- ✓ Web & Mobile applications
- ✓ White label availability
- ✓ Go to market instantly
- ✓ iOS and Android applications
- ✓ Third party integrations

# Xee (FR)



## Sécuriser

Effraction, phares allumés,  
problème technique...  
Ma voiture m'alerte !



## Protéger

Appel d'urgence, partage de position,  
état de la voiture, malaise...  
Mes proches sont protégés !



## Évoluer

Des dizaines de fonctionnalités,  
ce n'est qu'un début...  
Entrez dans un monde sans limite !

## Xee évolue

Aujourd'hui la sécurité, le contrôle, demain l'éco-conduite, les jeux, la voiture communautaire.

À partir de maintenant, ma voiture est connectée !



# Xee store & dev platform

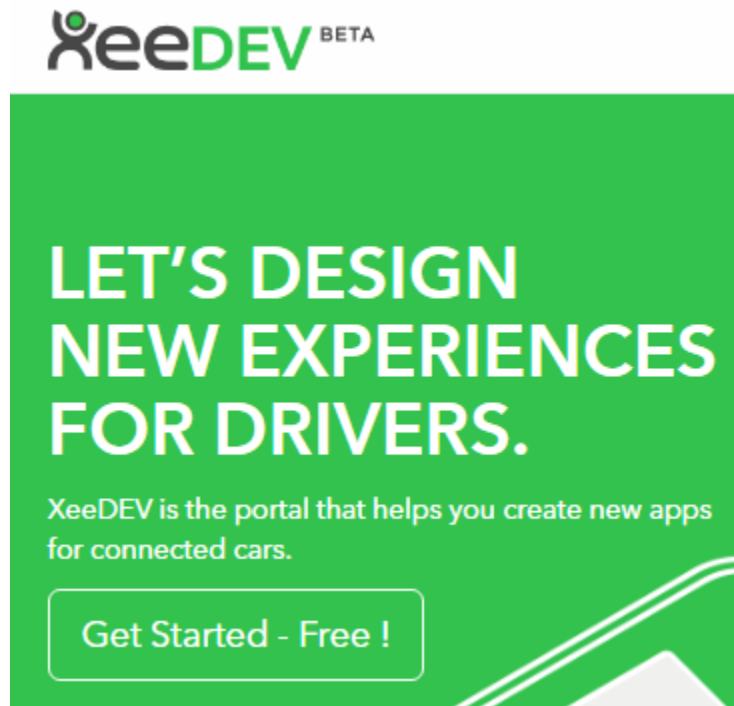


**Xee** **XeeSTORE**

Le premier store d'applications dédié aux véhicules connectés !  
Trouvez et téléchargez des applications pour mieux vivre votre voiture.

PRODUIT		PRIX
	<b>XEE CONNECT</b> EAN: 3662748000116	139,00 €

*Pas d'abonnement, carte SIM européenne intégrée*



**XeeDEV** BETA

## LET'S DESIGN NEW EXPERIENCES FOR DRIVERS.

XeeDEV is the portal that helps you create new apps  
for connected cars.

[Get Started - Free !](#)

# Vinli platform (OBD & 4G & dev platform, US)

YOUR LIFE,  
CONNECTED™

Vinli is the leading cloud platform for bringing smart car functionality to any car on any lot, in any fleet, or in any shop.



MY VINLI

Browse Apps



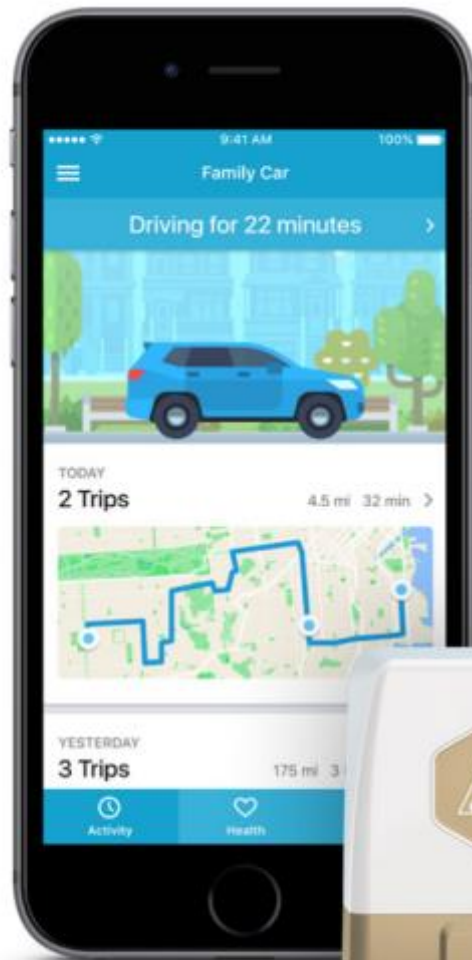
DEVELOPER

Home

Docs

Blog

# Automatic (US)



## Automatic Pro

\$129.95

[ADD TO CART](#)

- ✓ Trip logging
- ✓ Business tagging
- ✓ Business expensing apps
- ✓ Engine light diagnostics
- ✓ Fill-up logging
- ✓ iPhone and Android apps
- ✓ Web dashboard
- ✓ **Unlimited 3G syncing**
- ✓ Crash Alert
- ✓ Parking tracking
- ✓ Live vehicle tracking
- ✓ Event-based apps
- ✓ Streaming apps

# HUM (US)

## How it works



**1. Download the Hum App  
and create your account**



**2. Clip the Hum<sup>x</sup> Speaker to  
your visor**



**3. Plug the Hum<sup>x</sup> OBD  
reader into your compatible  
car's OBD-II port**

# ConnectMy.car (BE): a false start?

- Not so open as they claim?
- Vendor lock-in
- No attention for road security!
- € 20/maand



ConnectMy.car



# Bosch Retrofit eCall

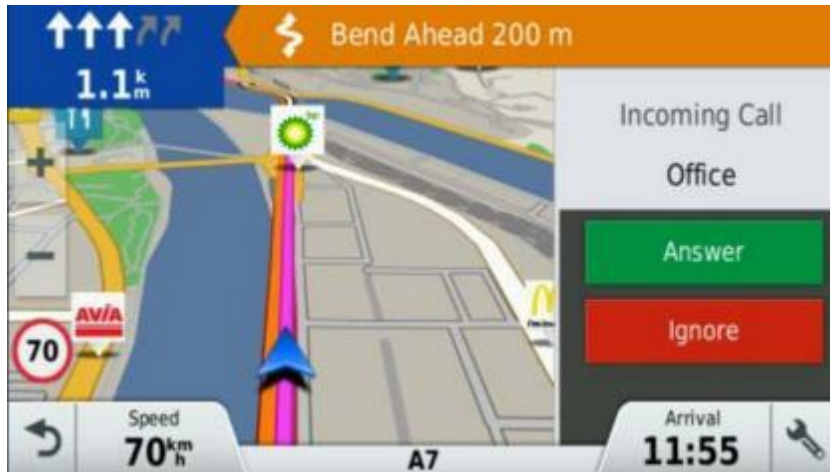
## Retrofit eCall



# Garmin DriveAssist



# 100% focus on road security not there yet



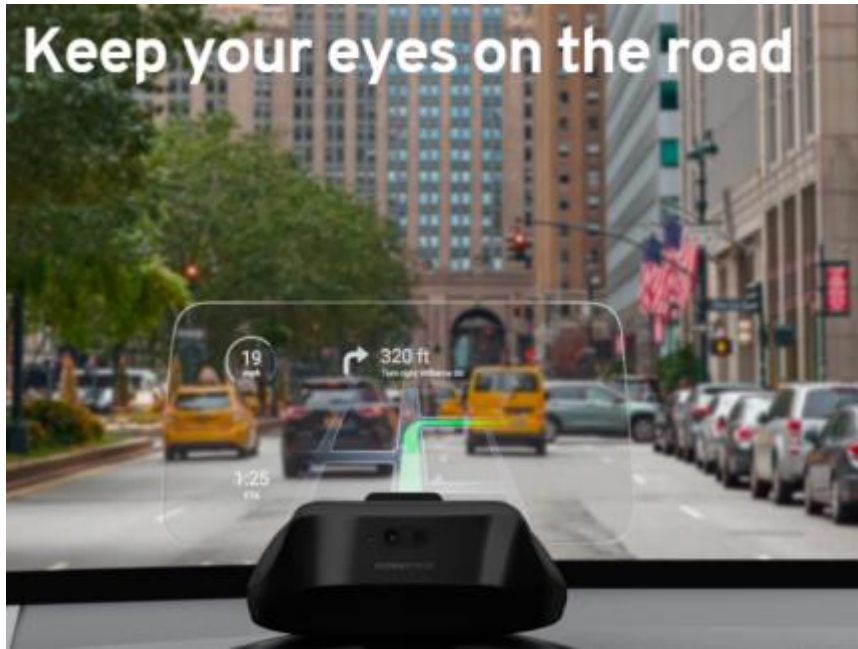


# Mobileye Series 6 (Munich Re collaboration)



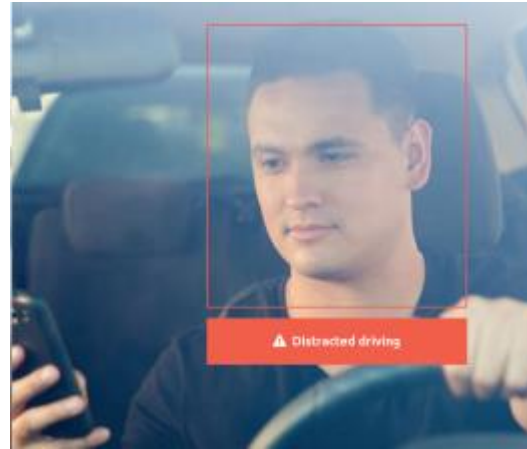
*Six lifesaving alerts in one single system*

# After market HUD – HUDWAYDrive (\$500)



Keep comfortably focused

Three ways to control it: gestures, voice, and remote dial



Front camera sensor recognises when you're tired, falling asleep, or being distracted.

It alerts you to "wake you up"

# Bosch myDriveAssist app



Send detected speed limits automatically on a daily basis to the myDriveAssist-Cloud and benefit from latest speed limits of the other drivers

# NVIDIA AI Copilot platform

AI CO-PILOT

PERSONAL INTERACTION FOR SAFER DRIVING

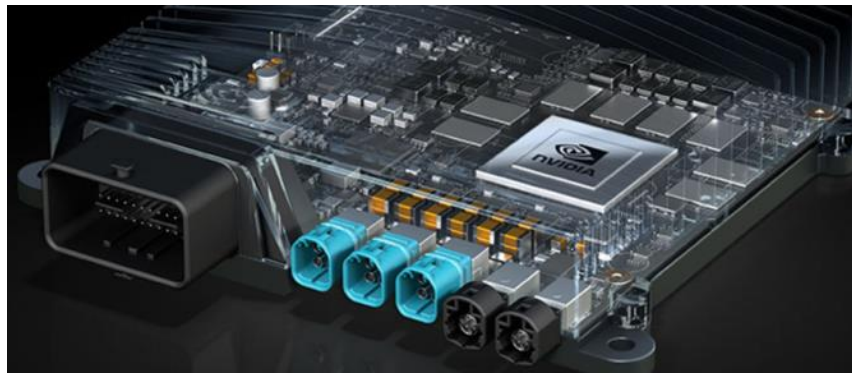
Co-Pilot is your AI assistant

**STAY SAFE.**

AI offers advanced capabilities to keep you out of harm's way. Co-Pilot tracks where you're looking to determine objects you might not see—like what's coming up around you, toward you and in your blind spot. It can notify you and, if configured to do so, can also take appropriate action.

**STAY ENGAGED.**

Co-Pilot is always engaged. Using deep learning networks, it can track head movement and gaze, and have a conversation with you using advanced speech recognition, lip reading, and natural language understanding.



# TIP: NVIDIA KEYNOTE AT CES 2017

# XAVIER

# AI CAR SUPERCOMPUTER

8 Core Custom ARM64 CPU

512 Core Volta GPU

Designed for ASIL D Functional Safety

30 TOPS DL | 30W



# Netradyne: Driveri



*The Driveri platform includes an intelligent video analytics device, with an AI deep learning TeraFLOP processor and QUAD HD cameras.*



HARD  
BRAKING



FUEL  
EFFICIENCY



ENGINE  
REVMG



U-TURN  
DETECTION



LANE  
DEPARTURE



ROLLOVER  
STABILITY



FOLLOWING  
DISTANCE



COLLISION  
AVOIDANCE



VIDEO  
ANALYTICS



TELEMATICS

## Multiple Sensors + Intelligent Triggering



COLLISION  
NEAR-COLLISIONS



SPEEDING  
ROLLING STOPS  
TEXTING/DISTRACTIONS



DROWSY DRIVING  
CLOSE FOLLOWING  
U-TURNS



BACKING COLLISIONS  
SIDE-SWIPE  
LOW/NO IMPACT



180M

Events Reviewed & Scored



50%

Collisions Frequency Reduction



2%

Less Fuel Consumed



133

Issued & Pending Patents

Driver-Facing Cameras:  
Why We Use Them

# Toucango: detection of driver attention





# Iphone Safety Lens

New



## Safety Lens

The world's first Advanced Driver Assistance System for iPhone

BUY YOURS NOW

iPhoneLife

★★★★☆

Learn more about our successful project on **KICKSTARTER**



# Tom Tom Optidrive (° EU Ecodriver project)



# Anderen

- <http://www.prodongle.com/indexpro>
- <https://hudwayglass.com/>
- <https://www.navdy.com>
- <https://wayray.com>
- <http://comma.ai/>
- <https://www.theguardian.com/technology/2017/mar/05/aimotive-driverless-cars-artificial-intelligence-cameras>

# Anderen

- <https://exploride.com/>
- <http://www.carloudy.com/>