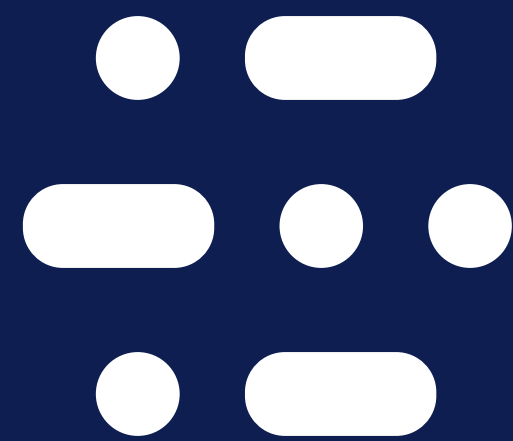2019 DevBot 2.0

2018 Robocar

motorsport as **#AIforGood**

AUTONOMOUS
DRIVERS
ALLIANCE

When **AI** becomes our **driver**, **co-driver**, **guardian** & **instructor**…

…what should our **minimal performance** expectation be?

AI should be held to same **legal standards** as **human** drivers

It starts with a **universal** assumption that all road users are;
"**aware**, **willing** and **able**" to avoid collisions

motorsport precedent

Realtime field monitoring of driver behavioural performance

BATTLE FOR 1st

1	LECLERC	
2	VERSTAPPEN	
3	BOT	+14.661
4	HAM	+5.014
5	VET	+0.978
6	NOR	+45.088
7	GAS	+4.379
8	SAI	+9.776
9	RAI	+1.124
10	GIO	+3.238
11	PER	+1.593
12	HUL	+1.708
13	RIC	+5.226
14	STR	+3.901
15	ALB	+2.585
16	GRO	+10.434
17	KVY	+14.954
18	RUS	+20.637
19	MAG	+25.793
20	KUB	+34.610

P ZERO
P ZERO

ADA Turing Test for **Autonomous Driving**
a global performance standard for AI on our roads

An **in-vehicle continuous assessment programme** for **AI System driving behavior**

Meeting the **minimum** public **expectation** is that **AI Drivers** never engage in **reckless**, **dangerous** or **careless** driving…

…by comparing **AI Driver** performance to that **expected** of a *competent* and *careful driver* (with humans as the starting baseline)

…through **continual monitoring** of the AI Systems **self-reported situational awareness** and **situational risk assessment** while **in operation**…

…to **validate** that the **AI Driver** always remains "**aware**, **willing** and **able**" to **avoid collisions**
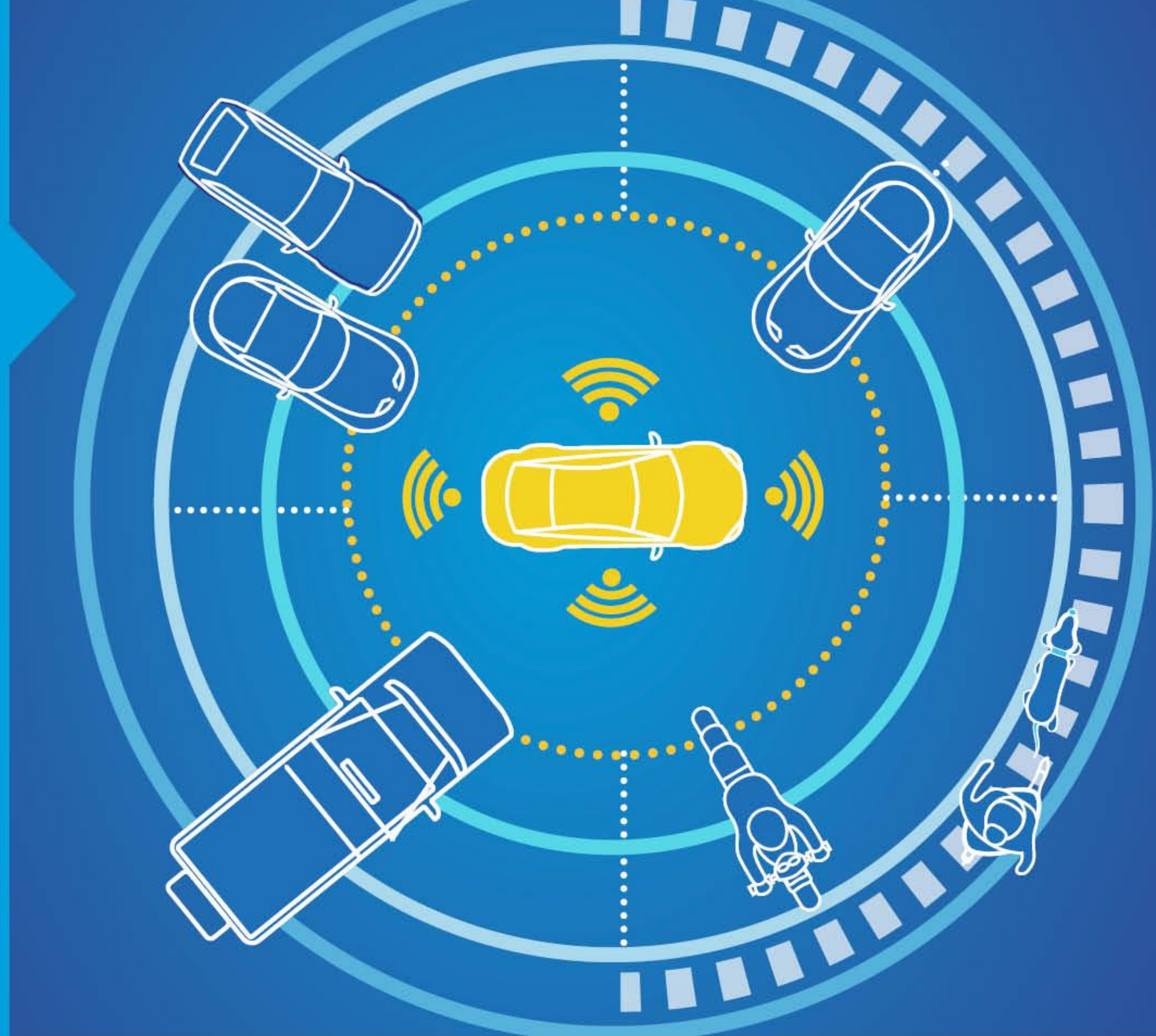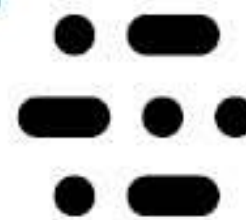
ITUEvents

One-day workshop

The Turing test for autonomous driving

A global performance standard for AI on our roads

10 September 2019
ITU Telecom World
Budapest, Hungary

Partner

AUTONOMOUS
DRIVERS
ALLIANCE

Organized by

ITU

The need for three essential assessment programmes

*i*RAP	Roads
GLOBAL NCAP	Cars
ADA	Drivers (AI Software)

RDW (Netherlands Vehicle Authority), the next phase of AI enhanced mobility requires a shift of focus;
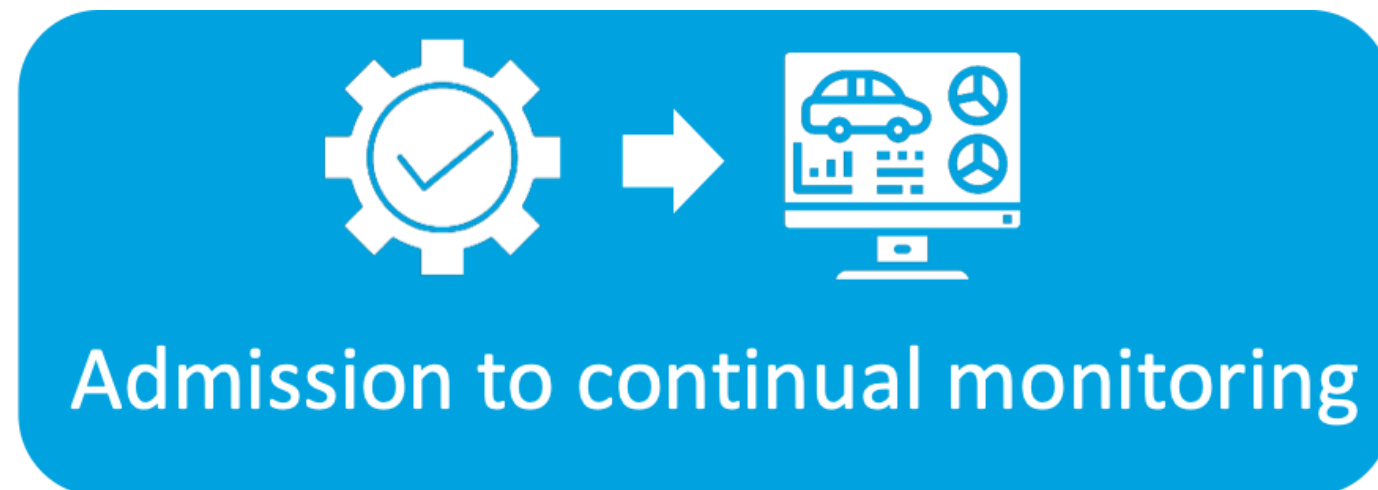
Hardware to behavior

Compliance to performance

Admission to continual monitoring

International Harmonization

Behavioural proofs for *AI Systems* *on our roads*

Prove AI Systems never engage in **careless, dangerous or reckless driving behavior**

Prove AI Systems **meet, or exceed**, the performance of a **competent** and **careful** human driver

Prove AI Systems remain **aware**, **willing** and **able** to **avoid collisions** at all times

ADA

Prove AI Systems never engage in **careless, dangerous or reckless driving behavior**

In accordance to Article 7 of the Geneva Convention on Road Traffic *"not to endanger"*

ADA

Prove AI Systems **meet, or exceed**, the performance of a **competent** and **careful** human driver

In accordance with Article 10 of the Geneva Convention on Road Traffic "**reasonable and prudent**" driving

ADA

Prove AI Systems remain **aware**, **willing** and **able** to **avoid collisions** at all times

In accordance to Article 7 of the Geneva Convention on Road Traffic *"**shall avoid all behaviour that might cause damage to persons, or public or private property**."*

Global Forum for Road Traffic Safety (WP.1)
resolution on the deployment of highly and fully
automated vehicles in road traffic

IV. Recommendations for **automated driving systems** in **highly** and **fully automated vehicles**

Recommendations;

*4(a) Make **road safety** a **priority***

*4(b) **Monitor** and **safely interact** with the **surrounding traffic environment***

*4(c) Endeavour to **safely tolerate errors**… of other road users in order to **minimize potential effects** of such errors*

*4(d) **Comply** with **traffic rules***

*4(g) **React** to **unforeseen situations** in a way that **minimises danger** to the vehicle's users and other road users*

Behavioural proofs for AI Systems on our roads;

Prove AI Systems never engage in **careless, dangerous or reckless driving behavior**

Prove AI Systems **meet, or exceed**, the performance of a **competent** and **careful** human driver

Prove AI Systems remain **aware**, **willing** and **able** to avoid collisions at all times

ADA Turing Test

Codifies WP1 recommendations *for automated driving systems in highly and fully automated vehicles into* **three universal behavioural proofs** *which can be* **continually monitored** *while* **AI Systems** *are* **in use***.*

Next steps…

UN #AIforGood community proposal to establish a new ITU-T Focus Group on "AI for Autonomous & Assisted Driving (AI4AD)", with the terms of reference as provided in Annex A and ITU-T SG16: Multimedia as the parent study group.

Established to create a technical definition and specification for the three universal behavioural proofs.

Recommendation…

Establish collaboration between ADA, ITU Focus Group (AI4AD) & the Informal Group of Experts on Automated Driving to ensure harmonisation of technical specifications with WP1 recommendations.

ADA

Thank you for your consideration

Bryn Balcombe

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