

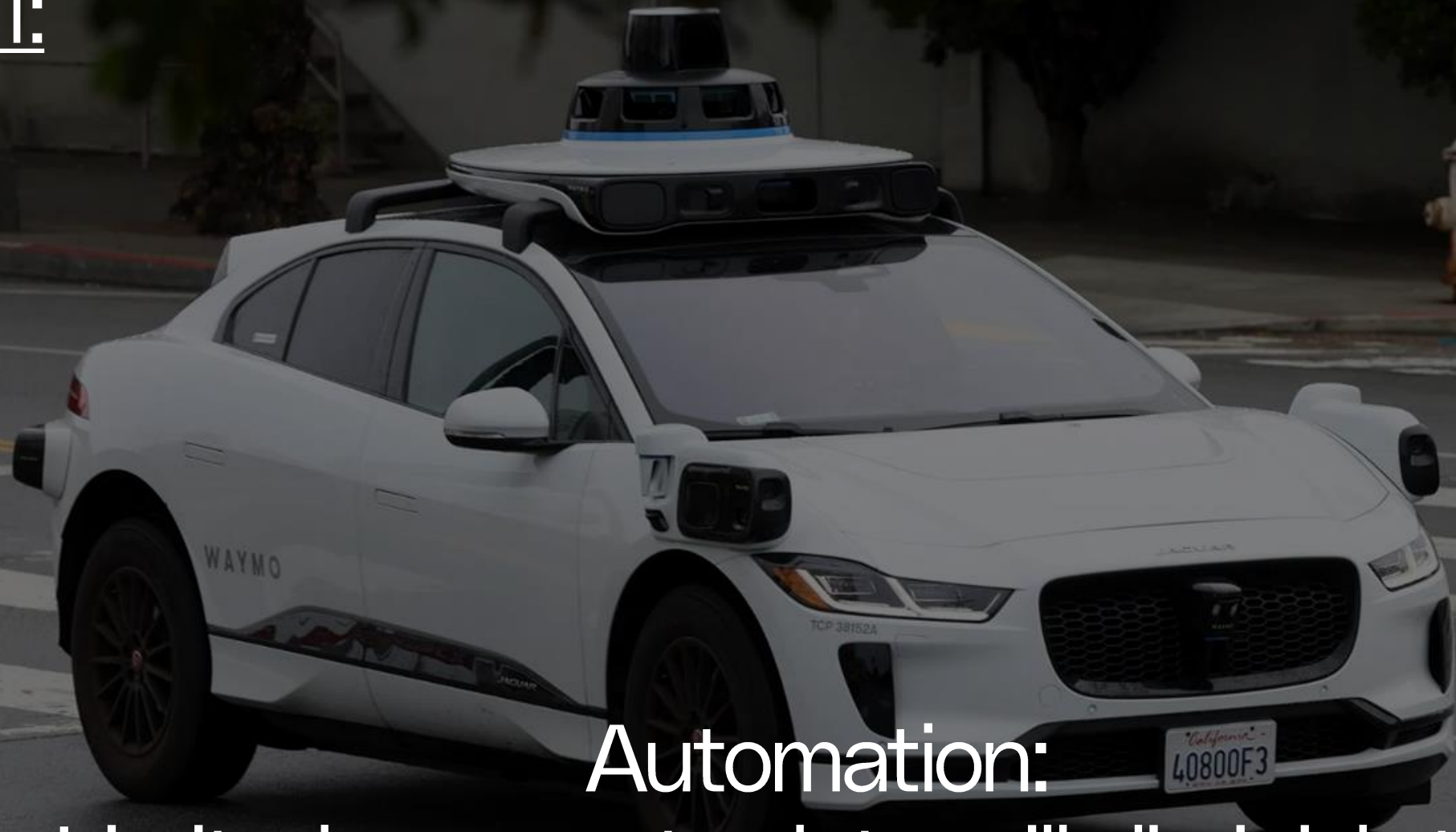
Future Technologies: the risks to vehicle safety

11.03.25

Tom Leggett - Vehicle Technology Manager



Risk 1:



Automation:

-Limited access to data will diminish trust

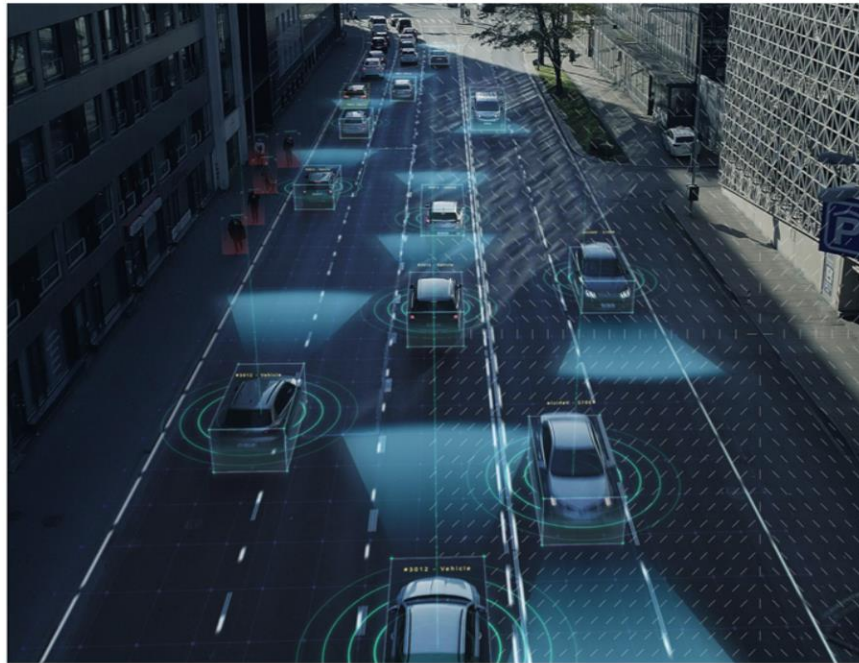
Insurer Requirements for Automated Vehicles

Thatcham Research
Automotive Risk Intelligence

ABI

Insurer Requirements for Automated Vehicles

Version 1.1/April 2024



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2.2 4 KEY ASKS FROM THE UK MOTOR INSURANCE INDUSTRY:

- 1) **Safety First Principle**
Automated vehicles should follow a safety first principle. Clearly defined capability and operational constraints of the systems to ensure users understand their roles and responsibilities when using and/or owning such a vehicle.
- 2) **Visibility**
Transparency of the authorisation process. Visibility of authorised automated vehicles. Authorisation requirements per feature, the level of functionality, and software versions authorised for road use.
- 3) **Data Access**
Access to relevant vehicle data in order to ensure that consumers are protected and that insurers are able to fulfil their obligations to their customers as set out by AEVA 2018. Timely and unhindered access to data is required.
- 4) **Cybersecurity**
Cybersecurity threat is addressed. Vehicle systems and connectivity, either by the vehicle manufacturer or other source, must be robust to detect and mitigate the risk of a cyber induced incident over the life time of the vehicle.

2.3 RESPONSIBILITIES FOR INSURING AUTOMATED VEHICLES

A vehicle is defined as autonomous if it is designed with capability for the vehicle to travel autonomously, either with a user capable of resuming control or no intended user in the vehicle. The self-driving test defines requirements for an autonomous feature to be operated safely and legally on UK roads. An autonomous vehicle is not permitted for use until it has satisfied the self-driving test, at which point specific features are authorised and the vehicle is defined as automated.

There are distinct and fundamental differences between levels of autonomous functionality, which in turn means that the user of the vehicle has different responsibilities based on the level of automation. It is therefore vital that the users of these vehicles have a clear understanding of their legal obligations to ensure their safe use and prevent the risk of misuse and dangerous situations arising.



Autonomous

Designed to travel autonomously



Self-Driving Test

(Contains requirements for Authorisation)



Automated

Possesses feature(s) which has passed self-driving test to become Authorised

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Risk 2:



Hands off, Eyes on:
-L2.99
-Uncertain benefits

Hands off, Eyes on



Goal:

Compare continuous eyes-off road time in manual driving vs hands-on and hands-off assisted driving using Ford BlueCruise - a L2 ADAS feature allowing hands-off driving on motorways.

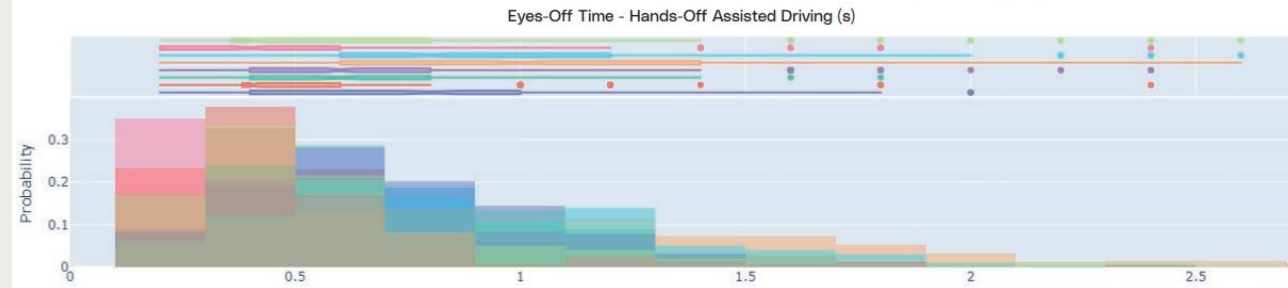
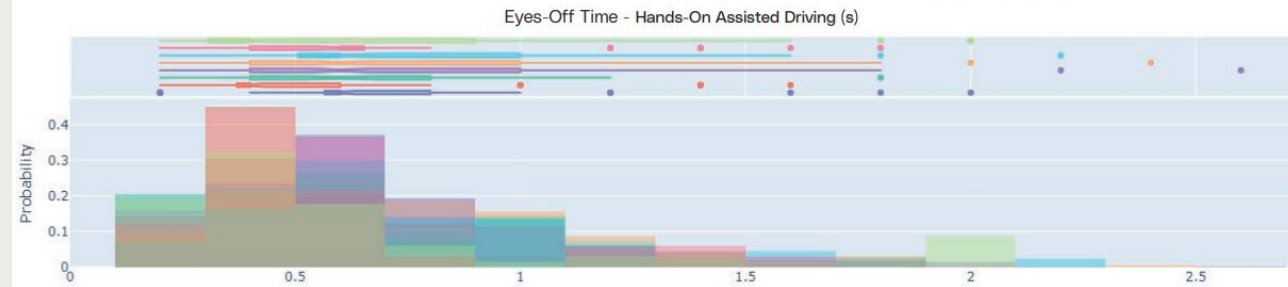
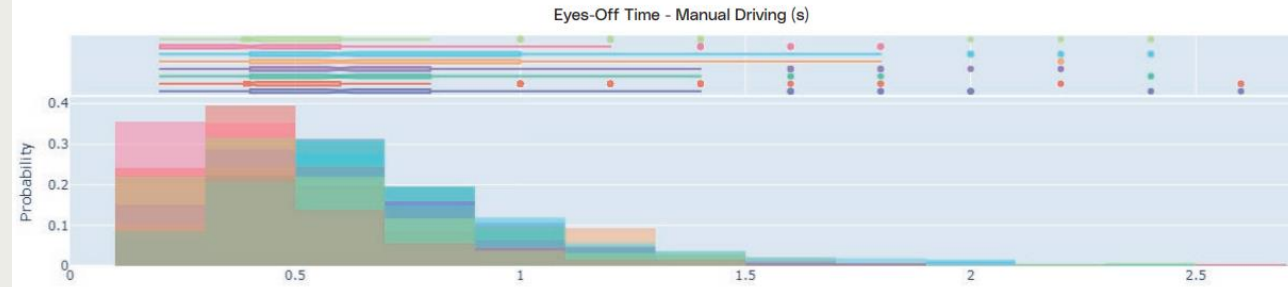
Assess if the new technology of hands-off, eyes-on assisted driving presents an increased probability of driver disengagement.

Scope:

Participants: 12
 Distance: 4618km
 Test drive: 472km
 Commuting: 1566km
 Business Travel: 2580km

User Behaviours Reference Route

Reference Route - Drivers 1-8



No significant difference observed in eyes-off road time distributions between driving modes.

Driver 1 (Blue) Driver 2 (Red) Driver 3 (Green) Driver 4 (Purple) Driver 5 (Orange) Driver 6 (Cyan) Driver 7 (Pink) Driver 8 (Light Green)

Warning Type	#
Eyes-Off Road	2
Hands-Off Wheel	3

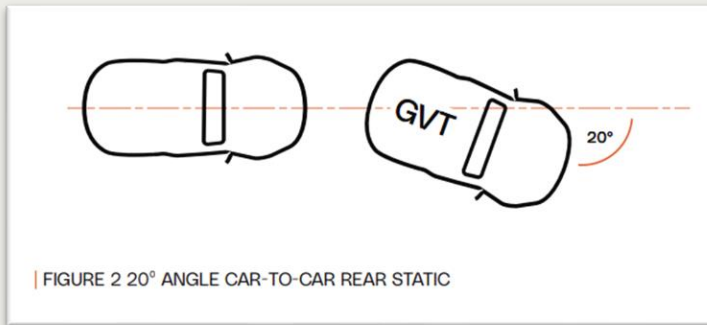
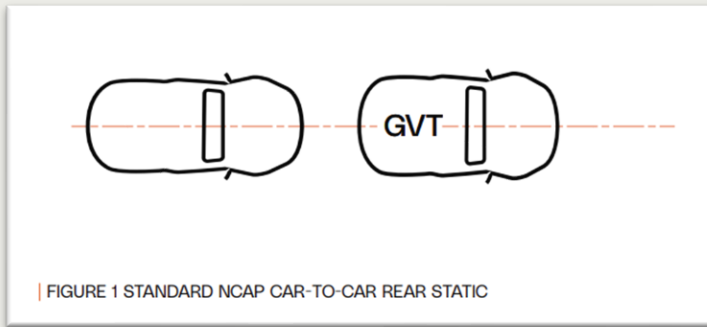
Driver Experience Level	
Never use ADAS	1
Use ADAS but not hands-on assisted driving	4
Use hands-on assisted driving but not BlueCruise	2
Use BlueCruise	1

Risk 3:



ADAS: Real-world robustness

ADAS Robustness



Run #	40km/h CCRs Standard NCAP (morning runs)			40km/h CCRs Standard NCAP re-runs (afternoon)*			40km/h CCRs 20° Angle		
	Result	Impact Speed (km/h)	FCW TTC (s)	Result	Impact Speed (km/h)	FCW TTC (s)	Result	Impact Speed (km/h)	FCW TTC (s)
1	Avoid	0	2.43	No Response	40	hgv detected	No Response	40	hgv detected
2	Avoid	0	2.39	No Response	40	hgv detected	No Response	40	hgv detected
3	Mitigate	6.28	2.35	Avoid	0	2.5	No Response	40	hgv detected
4	Avoid	0	2.37	Avoid	0	2.53	No Response	40	
5	Mitigate	12.99	2.33	Avoid	0	2.43	No Response	40	hgv detected
6	No Response	40		Mitigate	5.6	2.46	No Response	40	hgv detected
7	No Response	40		Avoid	0	2.48	Avoid	0	2.43
8	No Response	40		Avoid	0	2.15	Mitigate	6	2.08
9	No Response	40		Avoid	0	1.79	Avoid	0	2.07
10	No Response	40		Avoid	0	2.46	Avoid	0	2.26
11	Mitigate	17.6	2.36	Avoid	0	2.09	Avoid	0	2.19
12	Avoid	0	2.43	Mitigate	9.75	2.34	Mitigate	10 (est)	2.3
13	Avoid	0	2.08	Avoid	0	2.34	Avoid	0	2.25
14	Avoid	0	2.43	Avoid	0	2.44	No Response	40	hgv detected
15	No Response	40		Avoid	0	2.5	No Response	40	hgv detected
16	No Response	40		Avoid	0	2.38	No Response	40	hgv detected
17	No Response	40		Avoid	0	2.43	Mitigate	8	1.7
18	No Response	40		Avoid	0	2.53	Mitigate	37 (est)	1.72
19	No Response	40		Avoid	0	2.4	No Response	40	car detected
20	Avoid	0	2.4	Avoid	0	2.48	No Response	40	hgv detected
21	Mitigate	15 (est)	2.45	Avoid	0	2.33	No Response	40	car detected
22	No Response	40		Avoid	0	2.36	Mitigate	30 (est)	1.56
23	No Response	40		Mitigate	7.4	2.37	Avoid	0	2.27
24	No Response	40		Avoid	0	2.36	Avoid	0	2.11
25	Avoid	0	2.41	Avoid	0	2.36	Mitigate	38 (est)	1.59

Thank you



Tom Leggett - Vehicle Technology Manager

