

SELF-DRIVING *Vehicle of the Year*



LOOKING BACK
AT **#SDIA23**

>> AND FORWARD
TO **#SDIA24**

“Cars of the Future are epic”

Prof. Paul Newman CBE, Oxa

THE UK AV ACT
Landmark Legislation

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Philip Swift, Technical Director at motor insurance loss adjuster Claims Management & Adjusting, part of the QuestGates Group

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ANOTHER 1ST FOR CARS OF THE FUTURE

Well, this is exciting; welcome to the first ever Cars of the Future magazine. As all the best people know, Carsofthefuture.co.uk provides thought-provoking news and views about all things self-driving.

Before you ask, yes, we do also support clean fuel technologies, but our core focus is self-driving vehicles and their role in the wider connected and automated mobility (CAM) ecosystem.

This is, after all, the most fascinating sector in transport. It's about to completely revolutionise safety, massively reducing the 1.3 million road deaths that occur every year, and that's just for starters. Providing access to mobility for those that can't drive, freeing up huge amounts of time – economic, environmental and societal benefits.

The feature that sparked all this was my 2018 long-read for The Institute of the Motor Industry, “Autonomous Now: The Shift to Self-Driving”. Following a deluge of passionate feedback (!) we clearly needed a free, independent, UK-centric self-driving news source. Cars of the Future was born!

A pivotal moment came in 2020. In lockdown, with the Covid 19 pandemic raging, we were recognised as a Zenzic CAM Creator. This led to a series of in-depth interviews with senior industry figures – still our most popular form of content – and massively broadened our perspective... from ‘cars, cars, cars’ to CAM.

There are welcome signs now that we're entering the ‘Slope of Enlightenment’, with better-funded pilots, more mature products and the benefits becoming increasingly well-publicised. So, last year, we launched another first – the inaugural Self-Driving Industry Awards – to celebrate excellence in automated mobility.



Stagecoach and Alexander Dennis won the headline Vehicle of the Year award for Project CAVForth, with other big winners, nominated by their industry peers, including Alex Kendall of Wayve, Rebecca Posner of CCAV and Oxa's Paul Newman.

If you're interested in the 2024 Awards, comms support from our Self-Driving Public Relations team, or you've got a story for Cars of the Future, please do get in touch. Happy reading!

Neil Kennett

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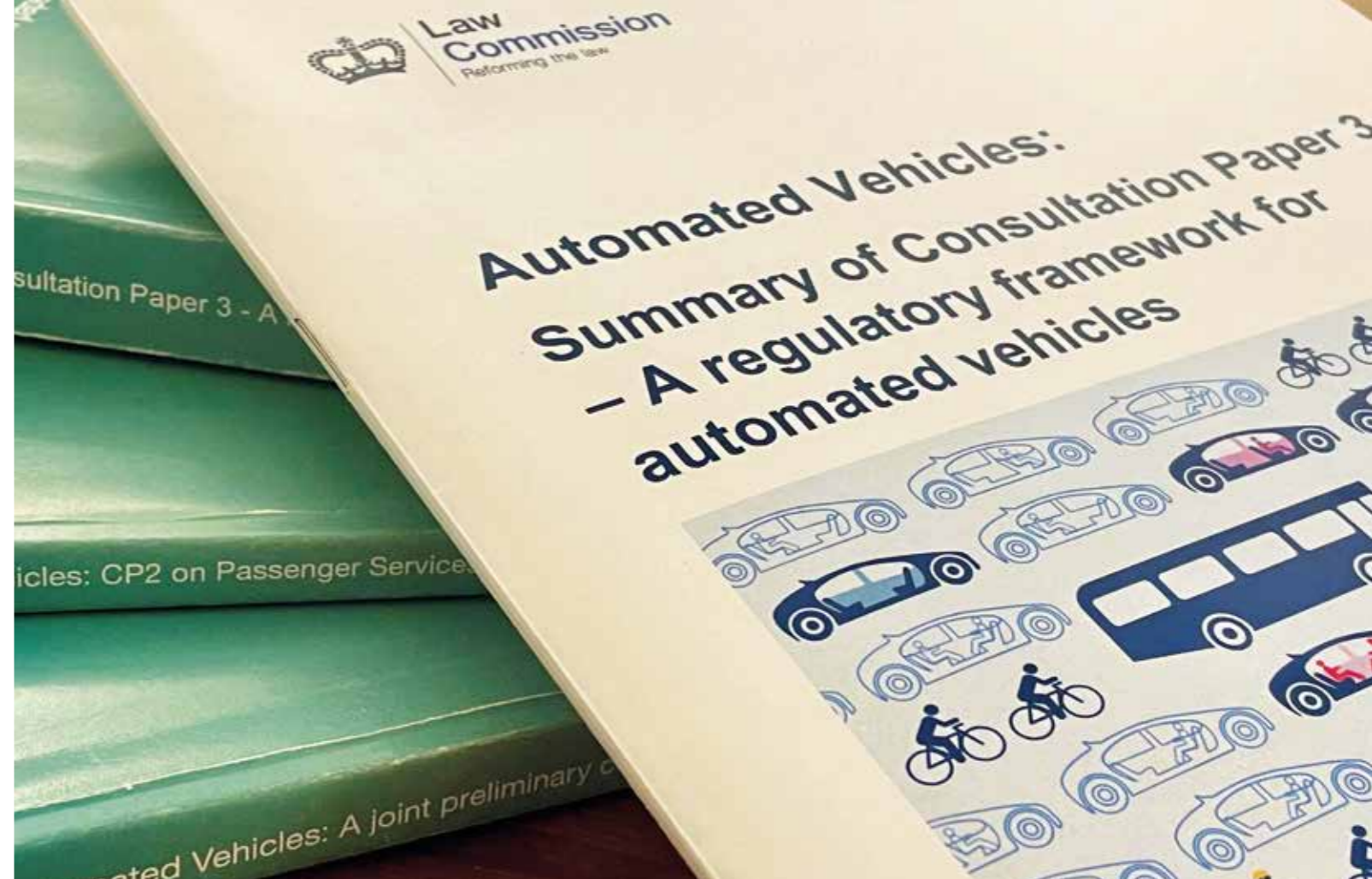


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Neil Kennett is an NCTJ-qualified journalist with 25 years' experience in automotive. Before establishing Featurebank in 2007, he worked for Blake Publishing, The National Crime Squad and The Retail Motor Industry Federation. Cars of the Future is a division of Featurebank Ltd (Company No. 5964028).

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World-leading self-driving legislation:

THE AV ACT

“Britain stands at the threshold of an automotive revolution and this new law is a milestone moment for our self-driving industry, which has the potential to change the way we travel forever,” said Transport Secretary, Mark Harper, as the Automated Vehicles (AV) Act became law in May 2024.

It means that self-driving vehicles could be on UK roads in just two years, creating over 38,000 new jobs.

“The immense work put in by DfT, Law Commissions and CCAV in crafting the Automated Vehicles Bill has helped it pass into law with the strongest cross-party backing,” said Paul Newman, Founder and CTO of Oxa.

“We now have autonomous vehicle legislation, which is more comprehensive in scope and clearer in its requirements than in any other country.”

We covered the passage of the AV Bill extensively on Cars of the Future, from its inclusion in the 2023 King’s Speech, to the excellent Self-Driving Vehicles All-Party Parliamentary Group (APPG) media briefing at Wayve.

For the sake of posterity, let us record here that its long title was: “A Bill to regulate the use of automated vehicles on roads and in other public places; and to make other provision in relation to vehicle automation.”

It was sponsored by Lord Davies of Gower, Parliamentary Under Secretary of State at the Department for Transport (DfT), and Secretary of State for Transport, Mark Harper.

Lord Davies of Gower said: “My Lords, I extend my gratitude to colleagues across the House for their supportive comments on and contributions to this Bill. Your Lordships’ careful and considered scrutiny has been hugely valuable.

“Over the coming months, we will launch a comprehensive programme of secondary legislation, building the new regulatory framework piece by piece.

This will incorporate several statutory instruments, including guidance in the form of the statement of safety principles. Among the first elements to be consulted on will be regulations on misleading marketing, as these can apply before the authorisation system has been established.”

What might this mean for Tesla’s Full Self-Driving package, we wonder? Tellingly, prominent early reactions came from the automotive and insurance industries.



Jonathan Fong, of the Association of British Insurers (ABI), said: “While this represents a significant step forward, further consideration is needed to address concerns around safety and cybersecurity. It’s critical that insurers have access to relevant data in order to support the adoption of this technology.”

Hayley Pells, Policy Lead at The Institute of the Motor Industry (IMI), added: “Clearly this is just the first step, and the IMI is keen to ensure that future legislation also takes into account the skills that will be crucial in the aftermarket for safe use of automated vehicles.”

As Nelson Mandela noted in his Long Road To Freedom speech: After climbing a great hill, one only finds that there are many more hills to climb.



SIMULATION STANDARDS

Simulation specialist rFpro has joined the prestigious Association for Standardization of Automation and Measuring Systems (ASAM). Of particular interest to self-driving is the OpenMATERIAL project. Initiated by BMW, it aims to create a complete set of standards for the simulation-based testing of automated driving functions.

NYC SELF-DRIVING TRIALS WITH SAFETY DRIVERS

New York City has announced plans to trial self-driving cars with safety drivers. Department of Transportation Commissioner, Ydanis Rodriguez, emphasised that all companies applying for permits will have to go through a rigorous approval process. They must also agree to share data relating to any occasions when the safety driver intervenes.

PARTNERS FOR AUTOMATED VEHICLE EDUCATION

Partners for Automated Vehicle Education (PAVE) started in America, bringing together industry, non-profits and academics to engage with the public on self-driving.

Robotaxi fleets are already operating there, and the recently passed AV Act means they could be here in just a couple of years. Hence the launch of PAVE UK at the Royal Automobile Club in London.

To give a sense of the occasion, high-profile speakers included Minister for the Future of Transport, Anthony Browne MP, and road safety campaigner, Meera Naran MBE.

Browne drew on the salubrious surroundings, calling for a 21st century



version of the 1,000 Mile Trial, organised by the Royal Automobile Club in 1900 to convince vocal sceptics of the benefits of the motor car.

“We are making the UK a great place to develop and deploy,” he said. “The future is closer than most people think.”

The presence of Naran was particularly poignant – not just a huge vote

of confidence in the safety credentials of self-driving (from someone who lost her young son, Dev, in a crash on a smart motorway), but also a much-needed independent voice.

“My background is health, and we put the patient at the centre everything,” she said. “In this industry, the road user should be in that position.”

VW DEEPENS STRATEGIC PARTNERSHIP WITH MOBILEYE TO DELIVER SELF-DRIVING ID BUZZ

In what it claims is a first for a global vehicle manufacturer, Volkswagen has partnered with self-driving technology specialist, Mobileye, to develop a level 4 electric van for “large-scale production”.

The agreement will see Mobileye supplying software, hardware and digital maps for the self-driving ID Buzz. In particular, a self-driving system based on the Mobileye Drive platform.

Further key components include two independent high-performance computers, 13 cameras, nine lidar and five radar units, plus constant online connection to clouds providing swarm data from other road users.

“Bringing autonomous shuttles on the road in large quantities requires cooperation from strong partners,” said Christian Senger, member of the Board of Management at VWCV.

“We are developing the first fully autonomous large-scale production vehicle, and Mobileye brings its digital driver on board.”

In the longer term, VW aims to develop its own system, leveraging its partnerships with Bosch and Qualcomm, as well as Horizon Robotics in China.

“New automated driving functions will significantly boost convenience and safety,” said Oliver Blume, CEO of VW and Porsche.

“These functions, which will be tailored to our brands and products, will make every trip a personal, individual experience. In Mobileye, we have an additional first-class partner to shape this automotive future together.”



SMMT CONNECTED 2024

The Society of Motor Manufacturers and Traders (SMMT) put self-driving front and centre of its eagerly anticipated Connected 2024 event. Lined up outside The Q&E Centre, in the shadow of Westminster Abbey, were some of the best British self-driving vehicles – a CAVForth bus, an Oxa modified Ford pickup, and an Aurrigo airport Auto-Dolly.





GETTING THE SHOW ON THE ROAD

A perennial highlight of the self-driving calendar is the Zenzic Connected and Automated Mobility (CAM) Innovators' Day at the IET in London. If 2022 celebrated the shared vision of societal benefits, and last year focused on global R&D leadership, CAM Innovators 2024 majored on the self-driving business case.

In a short welcome speech, self-driving industry legend Prof. Paul Newman CBE highlighted the extraordinary progress in AI over the last three years, the importance of the AV Act, and the need to progress beyond R&D to real-world issues like where to deploy.

He then introduced Minister of State for the Investment Security Unit, Nusrat Ghani MP, who also focused on commercialisation. "Self-driving represents an enormous opportunity," she said. "The AV Bill [now AV Act] provides a comprehensive framework for British firms to lead the world in greener, safer and more reliable transport."

Dr Martin Dürr of Dromos was the first, but not the last, speaker to praise CCAV and Zenzic for their commercial acumen.

"We moved to the UK because of their support," he said. "We are now close to our first deployment, are involved in an exciting project to revitalise old railways using the Dromos system, and are also looking at manufacturing our vehicles here."

The 'Getting the show on the road' panel provided further pleasing evidence of multiple viable UK self-driving businesses. Moderated by Amy Marshall of PA Consulting, it featured, among others, Miles Garner, of Aurrigo, and Jim Hutchinson, of Fusion Processing.

Coventry-based Aurrigo is enjoying commercial success in automated baggage handling, notably at the multi-award-winning Changi Airport in Singapore. "We now have paying customers, and we thank Innovate, CCAV and Zenzic for their help in getting us here," said Garner.

Fusion, of course, provided software to our reigning Self-Driving Vehicle of the Year champion, CAVForth. "The next step is taking out the safety driver and moving to commercial success," said Hutchinson.



AV myth-busting:

FROM SELF-DRIVING DENIAL TO TERRORIST HACKS



"It's clear that many people are still not sure whether self-driving vehicles will be safer than human drivers, and don't know whether they will improve travel or who will benefit most," concluded the 2021 Myth-Busting Self-Driving Vehicles paper by the road safety charity, Brake.

Compared to bizarre but persistent urban legends like "dogs can't look up", these sound like reasonable doubts which can and should be addressed. To move the debate on, we've divided the vocally anti-self-driving into three groups: 1) deniers, 2) opponents, and 3) catastrophisers. Let's take their concerns in turn and see if they stack up.

Self-driving deniers

The it'll never happen brigade – those living, wilfully or not, in denial of the capabilities of modern transport technologies. Being as balanced as we can, the industry has somewhat brought this upon itself by overpromising. In 2018, Elon Musk felt "very confident" that Tesla owners would be sending their cars out as robotaxis the following year. That didn't happen.

Fast forward to 2024, however, and AVs are on the road. In America, Waymo says it has conducted "7+ million miles of rider-only driving". In Scotland, Project CAVForth – using a specially modified fleet of Stagecoach buses – has been taking fares daily since May 2023, giving tens of thousands of UK passengers their first taste of self-driving public transport.

Self-driving opponents

The I don't like it mob – fair enough, that is their prerogative, but it is often extended to an assertion that nobody loves AVs. Ok, why should they? Last summer, The Self-Driving All-Party Parliamentary Group published a well-informed policy paper to make the case, starting with some pretty eye-catching benefits.

On the safety impact, it listed the four leading causes of road accidents – driver error, reckless behaviour, disobeying traffic laws and driver impairment – saying: "Research from the insurance industry shows that self-driving vehicles could save the NHS £2.3 billion annually in medical and ambulance costs by eliminating the 85% of accidents where human error is a contributory factor."

Self-driving catastrophisers

The nightmare scenario obsessives – sometimes quite knowledgeable, who focus on the worst potential impacts of automation. Cybersecurity has been one of the hottest automotive topics for a decade now, with increasingly frequent and sophisticated attacks met by ever more advanced defences. It was highlighted at the SMMT's Connected 2024 event that we don't invest as heavily as the banking sector. Maybe we should.

Another go-to for catastrophisers is the trolley problem – the question of who to save in no-win crash situations. As Elliot Hemes, of IPG Automotive UK, says: "99% of the time, great brakes will get you out of trolley problem scenarios."

The Self-Driving Industry Vehicle of the Year Award goes to...

CAVFORTH

The headline Vehicle of the Year prize at the inaugural Self-Driving Industry Awards, held at the Turner Contemporary in Margate on 17 November 2023, went to Project CAVForth – a fleet of five single-decker, low-emission Stagecoach buses which have been taking fares in Scotland daily, giving tens of thousands of passengers their first taste of Self-Driving public transport.

Presented by Carsofthefuture.co.uk, the Self-Driving Industry Awards celebrate excellence in connected and automated mobility (CAM), in the UK and internationally. Peer recognition plays a vital role, with all entrants gaining the right to nominate individuals and vehicles for the top honours.

At the glittering awards ceremony, Councillor Rob Yates, Town Mayor of Margate, presented the inaugural Self-Driving Industry Vehicle of the Year Award to Peter Stephens, Public Affairs Director at Stagecoach, and Matthew Lawrence, Fleet Business Development Director at Alexander Dennis.



Peter Stephens said: “We are proud to have provided the first autonomous bus fleet to the UK and the first service to our local communities in East Scotland. This Self-Driving Industry Award stands as a testament to the belief of our partners, our staff, and our customers, who have all put their trust in our vision. The service is live, and we invite anyone to come and experience AB1, autonomous bus no.1, for themselves!”

Matthew Lawrence added: “We are honoured to receive the Vehicle of the Year award at the inaugural Self-Driving Industry Awards for our first fleet of Enviro200AV. This achievement is a testament to the dedication and hard work of our engineering team and partners. Together, we are driving the future of autonomous transportation, setting new benchmarks for passenger experience, safety, efficiency, and sustainability.”

Carsofthefuture.co.uk editor, Neil Kennett, said: “Apart from the eye-catching livery, the CAVForth buses appear quite ordinary. In fact, they are extraordinary, operating with a safety driver at SAE Level 4 on journeys across the iconic Forth Road Bridge. With partners including Alexander Dennis, Fusion Processing and Stagecoach, we were delighted to present Project CAVForth with the first ever Self-Driving Industry Vehicle of the Year Award.”



#SDIA23 WINNERS

- Vehicle of the Year:** Project CAVForth
- Person of the Year:** Alex Kendall, Wayve
- Consumer Champion:** Rebecca Posner, CCAV
- Industry Legend:** Professor Paul Newman CBE, Oxa
- Aftermarket Award:** Jifeline
- Design Award:** Dromos
- Hardware Award:** Arbe Robotics
- Foundational Software Award:** Applied EV
- Insurance Award:** Marsh
- Legal Award:** Burges Salmon LLP
- Research Award:** Reed Mobility
- Sensing Software Award:** LeddarTech
- Testing Award:** Kodiak Robotics
- Trust Award:** Angoka
- V2X Award:** Beam Connectivity
- Special Recognition Award:** Kenneth Clarke, Silvera Automotive Solutions
- Special Recognition Award:** Alex Wells, Aftermarket Magazine

#SDIA23 Update:

RESEARCH AWARD WINNER DR NICK REED DEVELOPING DIGITAL COMMENTARY DRIVING CONCEPT



Welcome to #SDIA23 Updates, a new series exploring what our reigning Self-Driving Industry champions have been working on recently. First up: winner of the 2023 award for Research, Dr Nick Reed of Reed Mobility.

Since the awards in November, Dr Reed has continued his work as Chief Road Safety Adviser to National Highways – including plans to reduce deaths and serious injuries on England’s strategic road network (SRN), and supporting activity in relation to connected and automated mobility (CAM), smart motorways and cybersecurity.

He recently became a founding member of the Department for Transport’s College of Experts, was appointed a trustee to the Road Safety Trust, and joined the Advisory Board of PAVE UK.

As if that weren’t enough, he also found time to update BSI’s CAM Vocabulary, and continued his work with colleagues there to develop a technique for assessing automated vehicle (AV) safety performance – Digital Commentary Driving (DCD) – as he explains here...



NR: The 20th century economist, William Deming, is quoted as saying “In God we trust, all others bring data”. This captures his sense that when it comes to important decisions, gut feel and belief are not enough; objective evidence in the form of data is necessary to support decision-making.

My work that won the research category of the Self-Driving Industry Awards 2023 identified that trust was the most important value to the public in their appreciation of automated vehicles, and that this trust is encapsulated by four key attributes.

AVs should:

- Be governed by a clear, legal framework;
- Be at least as safe as a good human driver;
- Protect other road users at least as well as they protect their occupants;
- Share data with stakeholders to improve safety.

These principles are enshrined in the recently passed AV Act 2024, but what will be the data that enables us to trust that they will be safe?

My work with colleagues from BSI to develop a potential technique for assessing AV safety performance may offer a solution. We looked at the ways that we assess the safety of advanced human drivers, and the metrics used to assess safe performance of mobile robots.

Bridging these worlds, we proposed the concept of Digital Commentary Driving (DCD) – a standardised protocol for the collection of data from AVs. This may start the process of building the trust so valued by the public, and would perhaps satisfy Deming’s expectation for objective data to support critical decision making.

Talking our language:
The CAM Vocabulary



WHY SELF-DRIVING MUST KEEP ITS ACCESSIBILITY PROMISE

In the spirit of Prof Paul Newman's challenge to "ask difficult questions", we invited Gordon McCullough, CEO of the Research Institute for Disabled Consumers (RiDC), to expand on his assertion that the disabled community tend to feel excluded when new technologies, like connected and automated vehicles, are introduced.



What do you see as the likely impacts of self-driving for disabled people?

Self-driving can clearly be a transformative technology for a lot of disabled people, particularly those who find public transport inaccessible or cannot drive. In a world where you are unable to drive, whether that's due to a vision or dexterity impairment, or a learning disability, the first and last mile is a huge issue. An on-demand self-driving service, taking you from your door to wherever you need to go – a transport hub, hospital or shopping centre – could be a gamechanger, theoretically a wonderful step forward.

The problem is nobody's really talking about how to design these things to make them accessible, and nobody's really talking to disabled people about their concerns. We're actively working to address that now – doing research with TRL into disabled peoples' attitudes to connected and autonomous vehicles, and doing webinars and panels with Zenzic to engage more with the self-driving industry.

Can you give some examples of the transport challenges that need solving?

For starters, the Motability Foundation found that disabled people are 38% less likely to use UK public transport than non-disabled people. That's a damning statistic and it hasn't changed in over a decade. The fact is our public transport services have structural, financial and attitudinal issues which act as barriers to disabled people.

There are approximately two million people registered blind or partially sighted in the UK. Street environments alone present enough challenges for them, things like travelling on the tube can be fraught with difficulties – from annoyances like people petting their guide dogs, to the lack of audio feedback on contactless payment terminals, to anxieties like 'what if something goes wrong?'

As we've seen with charging points for electric vehicles, the anxieties are multiplied for disabled people. To try and understand the pain points, and then to use design to build trust and acceptance, that's still a fanciful concept for a lot of people. It should be considered best practice.

Is human-to-human customer service essential to building trust in self-driving?

Regardless of whether you're disabled or not, there will initially be a degree of anxiety about travelling in a driverless vehicle, even if there's a member of staff on board. The existence of very responsive support is vital, but we don't yet know what level of assurance is enough. If there's a special assistance button – somebody on the end of the line who knows where you are, understands your impairments and can sort the problem quickly, or get somebody out to help you – is that enough?

Any disabled readers interested in joining The RiDC Panel, the charity's 4,000-strong research group, please visit ridc.org.uk

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"I thank Cars of the Future for organising the Self-Driving Industry Awards and providing a platform for recognition."

Quresh Sutarwala, Kodiak
2023 Testing award winner

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