BSI's research team accelerate UK leadership in connected and autonomous vehicles

Industry challenge

Connected and Autonomous Vehicles (CAVs) have the potential to change our daily lives. CAV technologies that allow for 'self-driving' or automated driving features have the potential to offer many potential benefits for the economy, industry and society. This includes significantly **reducing accidents, improving social inclusion, productivity and increased road efficiency**, and opportunities to reduce emissions.

But **there are barriers associated with CAV development**. Public acceptance of the technology is a challenge and CAVs must be integrated with existing transport systems, despite a lack of common standards.

The government's Centre for Connected and Autonomous Vehicles (CCAV) aims to make the UK a premier destination for CAV research development.

This involves carrying out national trials and advanced testing, including on public roads. Not only will this help the industry to deploy automated vehicles safely and successfully, but it will also contribute to UK economic growth.

CCAV, in conjunction with the Department for Transport, Innovate UK, and Zenzic (part of Testbed UK), partnered with BSI to **deliver a UK-led programme of standards** to support this.

The challenge was to understand the barriers and opportunities facing organizations working on CAV development and identify where UK-led standardization efforts, alongside core government policy and legislation, could **support the safe and successful deployment of CAVs**. This would help position the UK as a global leader in the CAV market.

BSI's solution

To understand market needs and priorities to support CAV technology, clear visibility of all relevant global standards - published, in draft, or at proposal stage - was crucial. Our multi-skilled Research and Intelligence team provided ongoing research services throughout the programme.

Our team of Information Specialists and Data Analysts used their in-depth visibility of global standards work to provide a detailed standards landscape and a map of all relevant published and developing standards related to CAV.

The team conducted extensive research to understand the current situation. This included:

- Formal standards developed at national, European and international level.
- Standards created by other standards organisations.

This allowed us to:

- **Establish which countries and standards bodies were leading on CAV standardization and seek opportunities for UK participation.**
- **Identify gaps in global CAV standardization that the UK could address and lead.**
- **Assess and analyze the relevancy of the current standards landscape to CCAV's priorities and areas of interest.**

As CAV technology and related standards are evolving rapidly, we monitored and reported standardization work on an ongoing basis through our Standards Watch service. This provided both CCAV and BSI's CAV Standards Advisory Board (an essential part of the programme's governance, comprised of industry experts) with recent market updates.

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"To ensure that the UK is ready to deploy autonomous driving systems once they are established as safe, we need an increasingly flexible standards environment. The work undertaken by BSI, particularly the "Standards Watch" so the UK is abreast of what is happening elsewhere in the world, has been essential in positioning the UK as a global leader in this field."

Professor John McDermid OBE,
Director, Assuring Autonomy International Programme.

Our team is working to distil this future foresight into a standards roadmap tool to track developing standards, applicable to key phases of the design, testing, trials and deployment of CAV, as the technology evolved.

Gaining market insight

To ensure the programme focussed on market priorities for the UK, our professional market researchers worked with technical experts to conduct stakeholder workshops and in-depth interviews with key representatives from industry, academia, and policy to determine the priority areas for standards.

The findings of the research highlighted several priority areas for CAV standardization including vehicle-to-vehicle communications, traffic and road-space management, and managing cybersecurity attacks. Research participants stressed that standards could **significantly help lower market barriers and resolve outstanding issues** with connectivity, safety, and testing.

The result

The insight helped BSI, working with our CAV Standards Advisory Board, to make informed decisions that shaped UK CAV standardization by:

- Determining key priorities and opportunities for the UK CAV programme, including areas of interest for potential cooperation on standards globally.
- Ensuring that the series of PASs (fast-track standards) established the UK's global influence by addressing specific gaps in global standards.
- Identifying leadership opportunities in CAV international standards – increasing UK engagement with international standards, gaining influence, and strengthening the UK's position in the global CAV market.

CCAV commissioned BSI to deliver a series of PASs (A fast-track standardization document.) which could each be published within 9-12 months, providing a **quick route to standardization in the global market**.

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The PASs were created using our consensus-based development process that brought together a steering group of experts across many of the current CAV trials and R&D projects, these steering groups included: CAV developers and technology companies, industry bodies, including, technical experts, academia and relevant authorities.

The PAS series (starting with PAS 1880, PAS 1881) will help to **overcome technical barriers of CAV deployment, instil public confidence and promote UK leadership in areas of CAV design and testing**. This is supported by a digital CAV vocabulary, intended to provide some initial guidelines and technical specifications to support the trial and development of automated vehicles in the UK and to be used alongside DfT's Code of Practice.

Additional PASs are being developed to further ensure the safety of automated vehicle trialling but also looking to deployment and services. They are relevant to multiple stakeholders including manufacturers and developers of automated vehicles, trialling organizations, local authorities and road operators.

Moving the automotive industry forwards

BSI has a track record of supporting research and innovation in the automotive and transport sectors in emerging areas. This includes the advancement of UK-led battery technology capability (Faraday battery challenge), materials design and development, and more recently the opportunities for future mobility services using transport data.

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Find out how our Research and Intelligence team can help you:

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