ADEPT President's Awards 2023
Entry form

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Award category   Digital Innovation/Technology

Project Title   Digital Highway Safety Inspections

Local authority entrant   Essex Highways - Essex County Council

Partner/s if applicable   Vaisala - Road AI

Headline summary (150 characters max.)

This project was to provide digital records of highway safety inspections that could be produced by a single driver at normal driven road speeds.

Digital innovation: How has this project shown evidence of successful digital innovation and the imaginative use of new technology? (150 words max.)

The RoadAI technology automatically analyses video readings from vehicle mounted smartphones and the Road AI applies UKPMS methodology to categorize and report defects. Video data is collected at normal road driving speeds, thus improving safety for the inspectors and public, and because the analysis process is automated, the results are available within hours of being uploaded, enabling data to be collected and results produced. After consultation with key stakeholders, a decision was taken to continue verifying defects identified by the AI technology to ensure accuracy and a robust defence in court should the public query any survey data. Real-time information can now be provided when the public raise defects on the network, this has enabled public enquiries to be answered quicker with more immediate and accurate responses.

Digital innovation: How has this project shown evidence of improved outcomes for users? (150 words max.)

Implementing this has made Essex one of the first UK authorities to undertake highway safety inspections using Artificial Intelligence. RoadAI has transformed the way inspections are undertaken with an innovative shift in process.
By adopting this technology, Essex Highways has,
1. reduced the number of highway inspectors by 50%,
2. saved over £1m in inspection costs,
3. improved the quality of retained data,
4. provided a permanent visual record of the condition of each road for comparison later,
5. enabled earlier interventions with lower cost treatments,
6. having a positive impact on the environment by reducing CO2 emissions from reduced driven mileage.
This data has been used successfully in defending claims from third parties due to the quality and accuracy of the data.

Digital innovation: How has this project shown evidence of the transformation of a

service/department/organisation by changing behaviours, delivering savings or improving ways of working? (150 words max.)

Using RoadAI has produced sustainable tangible benefits through,
1. early intervention of defects with lower cost treatments based on asset condition to deliver >5% increase to life of the asset,
2. reduced the number of follow up site visits thus reducing carbon emissions,
3. an annual revenue budget saving of £1.028m for ECC,
4. adopting this process has also reduced the need to drive at slow speeds on high-speed roads, again, reducing risks to the inspections team and also to the public, and improved data quality,
5. reduced a significant amount of network investigations,
6. improved the safety of inspectors by taking them off the network and into a desktop environment,
7. reduced the number of ad-hoc site visits,
8. performance is managed through monthly PowerBI dashboards by a collective of stakeholders and continual improvements made.

Digital innovation: How can the innovation/technology in this project be applied in multiple sectors/areas? (150 words max.)

This technology could be applied to any similar inspection regime where a video can be made from any form of transport and recorded on mobile device and where the surface defects can be seen visually, for example footways, cycleways, airport runways, etc.

Digital innovation: How does this project demonstrate scalability and resilience - the ability to use technology in a wider scope and in a way that encourages longevity of use? (150 words max.)

Key to good asset management is regular documented safety inspections to identify and assess defects on the network. The Essex Highways network consists of over 5000 miles of roads and this could easily be applied to a much larger network, for example National Highways and Transport Scotland. Being able to be record the inspection route at normal road speeds and view at any time and in any location by any trained person and supported by a permanent visual record is invaluable and economic and efficient.

All categories: please add anything else that supports your award entry

RoadAI has transformed the way inspections are undertaken with an innovative shift in process driven out of necessity, due to the COVID pandemic. It has reduced the number of inspectors by 50%, provided a permanent visual record of each road's condition for comparison later and enabled earlier interventions with lower cost treatments, all having a positive impact on the environment.