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ADEPT President's Awards 2024

Entry form

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Award category	Digital Innovation/Technology
Project Title	Drones Data and Artificial Intelligence
Local authority entrant	Transport for West Midlands

Headline summary (150 characters max.)

Transport for West Midlands are taking to the skies using drones to capture data and utilising Artifical Intelligence to produce fast accurate data

Please note we need at least one supporting image per award submission. Upload your image/s below.

Video - please paste links to any video evidence here. (Leave blank if not relevant.)

Introductory video

https://www.youtube.com/watch?v=9QDetpwrKpI

Example of data/AI capture

https://www.youtube.com/watch?v=PR1X4Z5gu1I

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

Transport for West Midlands established a drone team in December 2022 and have flown 121 missions in that time. With five qualified drone pilots the team have been involved in live-streaming traffic congestion, traffic surveys, infrastructure surveys and have now ventured into capturing data from the sky and using artificial intelligence to harness that data to better assist traffic planners. A recent example of innovation involves the live streaming of traffic behaviour at Junction 1 of the M5. Subject matter experts were able to join the livestream using Microsoft Teams and have an entire view of the gyratory and each of the approaches. They were quickly able to identify the causes of congestion and how to improve the traffic signal timings. The drone surveys have assisted new technology and upgraded traffic signal systems to significantly improve performance across the whole gyratory and bus journey times have specifically improved by 13%.

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

Transport for West Midlands (TfWM) have a network of over 2700 fixed CCTV cameras. These cameras are monitored to help monitor and minimise traffic congestion. But what happens where there aren't fixed cameras available? This was the case in the Digbeth area of Birmingham which was experiencing wide spread congestion and disruption. The drone team were deployed to the area, they became a mobile CCTV resource live streaming images into the control room. With a panoramic view of the area the Duty CCTV Manager quickly identified the cause of the issue namely cars queuing to get into a full car park and blocking a yellow box junction. Social Media messages were sent warning the public to avoid the area and Transport Safety Officers (who have the power to stop traffic and are employed by TfWM) were deployed into the road to clear the congestion and reduce pollution.

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.)

Historically specialist drone services would be supplied by an external private company at significant cost to the public purse. Setting up our own drone team and marketing our services internally has led to a huge increase in awareness and demand for our services. The services are charged internally at a fraction of the cost that private companies charge. An example of delivering savings involves using one drone to

gather data from above road junctions instead of say four fixed cameras which each need installing and manually reviewing and recording the data from each camera.
The drone with its panoramic camera and stable images sees the whole junction and how it works. Applying the recorded images to an Artificial Intelligence software package has automated vehicle/pedestrian counts, classifications of vehicles, speeds, stationary times, all of which can be exported into a data sheet in a fraction of time than previously.

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

Currently by law all drone flights have to be within visual line of sight (VLOS). As beyond visual line of sight (BVLOS) flights become a reality there are clear opportunities for interoperability where drones can deploy for numerous use cases. Examples include transport monitoring, transport systems, emergency response and smart infrastructure. Drone technology is cost efficient and regulatory compliance can easily be adopted across different sectors. We have already demonstrated that live image data can easily be transmitted into a control room and subject matter experts can interpret those images for the best outcomes.

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.)

Our use of drones epitomize scalability and resilience through their diverse applications across industries and ability to operate in varied environments. The drone team cost £15 000 to establish and in just over a year we have recovered our costs. Regulatory compliance is easily achieved by following the legislation and guidance. Their versatility enables tasks ranging from transportation to infrastructure inspection, showcasing adaptability to different sectors. We have already demonstrated that drones offer cost-effective solutions, reduce operational expenses and enhance productivity. Technological advancements, including longer flight times, beyond visual line of sight flights and improved sensors, continually enhance their capabilities, ensuring relevance and longevity. How we now monitor fixed CCTV cameras will evolve into monitoring drone images and capturing data and analysing the results to transform organisations and help change behaviours We are only at the start of the drone technology journey, the future is exciting!

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

Drone Show Reel Video
https://www.youtube.com/watch?v=URUBbtbDEcY
BBC/ITV News Article
https://www.youtube.com/watch?v=nKGaZ3Cahig