

ADEPT President's Awards 2023

Entry form

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Award category Digital Innovation/Technology

Project Title Digital Twin - A working Model

Local authority entrant Hertfordshire County Council

Partner/s if applicable Ringway and WSP/Arup

Headline summary (150 characters max.)

Working together Hertfordshire, Ringway and WSP/Arup have automated the flow of data from design and maintenance to produce a GIS digital twin.

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

<https://www.dropbox.com/s/rzv7pq5m7msvplz/HCC%20Digital%20Twin%20ADEPTS%20Awards.mp4?dl=0>

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

Designs done in AutoCAD allow asset data to be extracted into ESRI GIS and then to the asset management system Confirm. With the three systems working in harmony it ensures that data is transferable and useable through its life from conception through its operational life. The Service sets out to share data from the start avoiding data sitting in isolation and and over time forgotten. To Hertfordshire data is seen as the life blood of the service and used to make informed and targeted decisions. Systems have been selected and implemented to ensure both horizontal and vertical integration. All information is important, from enquiries from the public to data generated by the day-to-day activities. It can now be analysed and visualised allowing secondary information data to be generated and therefore better informed decisions made.

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

Good examples of developing practices are in areas that have often been seen as difficult. The collection and use of the drainage system assets is currently benefiting from this new approach. New pipe layouts to be installed and drawn in AutoCAD allow the location of the pipe to be collected onto a GIS layer once it has been installed to be used by future generations maintaining the asset. At the same time, pipes picked up during maintenance work, such as CCTV surveys or when dealing with blockages, is collected in the same format on the same layer in GIS to be used by designers when considering and working on new projects thereby creating a circular use of the data and reducing time in findings these assets; a significant savings in cost and specialist resource.

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.)

All parts of the service are working to share data in a single geo space making use of a common environment ESRI GIS. Traditional areas of expertise have used different digital tools to design, record installation and to make decisions about assets. The service has strived and found ways of exchanging data between the traditional systems to create a flow of useable data. This data exchange is driven by the recent collaboration between AutoDesk and Esri who have vastly improved the compatibility and transferability of data between their systems. At the same time the partners with the Highway Service, Ringway and WSP Arup have embraced and contributed to these systems as a common way of working. Each partner building high quality expertise in these digital based compatible systems for common data exchange.

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

Above we focused on drainage and the various associated assets. A similar approach is being applied to traffic signals again with all designs done in a set format allowing data to transfer onto a GIS layer. In this way the traffic signal data is available to all in the Service, the location of loops can be seen by teams looking at resurfacing, Ducts and cables are available to those looking to excavate in an area ensuring that damage by our own works can be eliminated. Similarly, the private power cable network HCC have for street lighting is being updated and added to the ESRI data set making the cable location available to all. As a collaborative service, many such data assets are being collected, managed and used in a single digital format allowing both assets above and below ground to coexist in a common platform that all users can access.

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.)

The number of datasets in the system is growing and is scalable to allow more to be added in the future. The ESRI system has many users around the world with access to data sets outside of just the physical assets that make up the highway asset. It can and does allow access to weather and population data. This gives us the ability to combine multiple data sets into our analysis visualising the results and using data to support the difficult decisions that need to be made when managing a local highway network. We are building our Local Highway Digital Twin, which given its wide usage will allow others, in time to use the data we hold. A great example is the alignment and in preparation for the National Underground Asset Register (NUAR). All the partners providing the HCC Highway Service are now aligned and contribute to this digital model.