Atkins and Cardiff University Collaborate to Develop an Advanced Digital Twin Programme



Atkins – a member of the SNC-Lavalin Group – and Cardiff University are working in partnership to develop a digital twin programme that will help drive digital transformation across the built environment. The organizations will focus on leveraging Cardiff University's Computational Urban Sustainability Platform (CUSP) which creates a digital twin of buildings, infrastructure and cities to optimize the design, build, operation and maintenance of assets.

The state-of-the-art Internet of Things platform – underpinned by building information modelling (BIM), geographical information systems (GIS) and artificial intelligence (AI) – engages users in real time to allow a more informed, immersive decision-making process, and promotes machine learning to automatically refine solutions based on the data gathered.

Autonomous asset operation and maintenance

Atkins – who are currently working with Ordnance Survey to research the benefits of creating a national digital twin of the UK's infrastructure on behalf of Digital Built Britain – will now collaborate with clients, industry partners and Cardiff University to test, enhance and deploy CUSP which has the potential to enable autonomous asset operation and maintenance.

Nick Tune, digital director at Atkins, said: "The technology developed by Cardiff University is extremely advanced, giving us an incredible opportunity to drive real change across the industry. While digital twins are becoming more prevalent in engineering, we're at the start of a journey which – through platforms such as CUSP – can fundamentally change the way assets are designed, operated and maintained."

Professor Yacine Rezgui, who is leading the CUSP development team at Cardiff University, said: "We are delighted to team up with one of the world-leading engineering businesses who will take our platform to another level by integrating it with their in-house software solutions, thus contributing to the digitalization and informed performance management of buildings and infrastructure."

To date, CUSP has been used on a number of collaborative research and development programmes to reduce energy consumption and optimise low carbon energy production on major regeneration projects in Wales and across Europe.

Cardiff University's Computational Urban Sustainability Platform (CUSP)