

Geospatial platform delivers Biodiversity Net Gain and huge cost savings for the construction industry

AtkinsRéalis

The Challenge

- Develop an industry-leading Common Geospatial Data Environment to drive analytics such as Biodiversity Net Gain while delivering tangible cost and process savings.

The Benefits

- Tangible cost and time savings
- Significant projected biodiversity net gain
- Enhanced decision-making
- Ease of use

Infrastructure renewal and growth are vital to economic and societal growth and, thanks to new methodologies, biodiversity enhancement can sit parallel to these aims. The AtkinsRéalis SpatialCDE platform (or Spatial Common Data Environment) uses a technology stack including Esri to deliver huge qualitative and quantitative benefits while supporting Biodiversity Net Gain.

The Challenge

Biodiversity Net Gain (BNG) strategies have been introduced to mitigate against the impact of construction projects, and the Environment Act 2021 makes BNG mandatory for all but small sites with Environmental Impact Assessments (EIA). However, the legislated requirements can be complex and time consuming. The process is constantly changing, and it can be difficult for developers and their partners to keep pace.

AtkinsRéalis' Geospatial team observed that, at any one point, there could be up to 500 people working on large development projects such as a road design or rail construction, and every individual team member requires the most accurate, up-to-date data. This could be within a single large multidisciplinary organisation or spread across multiple contractors. And the specialties required use vastly different techniques, terminology and task plans; an ecologist surveying badger setts for instance, versus a civil engineer considering the curve of a junction. Offering the same centrally managed data to all is a challenge, but also an opportunity for enhanced collaboration, and development of innovative methods such as BNG analytics.

When designing its SpatialCDE in 2015, AtkinsRéalis identified the opportunity for major process improvements; what was required was a standardised, geospatial approach to improve workflows, bring context to reporting and increase collaboration across all the contractors on any one project. The development of a common SpatialCDE techstack has enabled design and roll-out of multiple tools, frequently utilising the ArcGIS python powered widgets within interactive WebApps.

The Solution

AtkinsRéalis knew that the ArcGIS System offered the versatility it required to create an integrated digital geospatial platform and data system. The resultant AtkinsRéalis SpatialCDE (Spatial Common Data Environment) combines spatial analysis techniques with qualitative assessments, enabling a broad range of specialists working on any one construction project to share data, insights and knowledge.

Field workflows are now streamlined with ArcGIS Field Maps, which is downloadable to any mobile device. Ecologists use map-driven mobile forms to capture different assets and observations to complete their work efficiently and accurately. Data is automatically uploaded to the AtkinsRéalis SpatialCDE and, where there is no reliable data connection, they can continue to work offline.

Portal for ArcGIS allows users across a complex project to access the AtkinsRéalis SpatialCDE with a simple log-in and, with its gallery of spatial apps including Map Viewer and ArcGIS Dashboards, view and analyse data collected in 2D and 3D. A custom integration of FME and Microsoft Azure enables the data management toolbox used to manage both primary data collection, and data collated from other sources such as the Environment Agency. The whole platform is aligned with ISO 19650 and is BIM Level 2 compliant.

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