CYIENT

ECOLOGICAL & HABITAT MONITORING AT SCALE

Business Challenge

England`s leading national agency wanted to transition to new schemes focused on environmental benefits, following The UK's departure from EU sponsored schemes. These schemes underpin the UK government's efforts to support sustainable farming, enhance biodiversity, reduce soil erosion, and achieve carbon sequestration targets.

Overview

The Executive Agency of the England needed a national-scale monitoring solution capable of producing accurate, repeatable, and cost-effective agricultural and ecological maps. Traditional approaches—such as field surveys and conventional supervised classification methods were too resource-intensive, slow, and prone to inconsistencies when applied at scale.

Cyient harnessed new earth observation datasets, deep learning models, and AI-driven platforms to provide timely, precise insights for various payments schemes.

The Cyient Solution

Cyient, a trusted government body partner since 2007, evolved its geospatial services from conventional remote sensing classification to a highly automated, cloud-based, machine learning approach.

Key elements of the solution included

Deep Learning & GeoAI Integration:

In collaboration with Picterra, Cyient developed pre-trained GeoAI models to detect and map landscape features such as grass buffer strips, cropped extents, and nesting plots.

Multi-Source EO Data:

Leveraged 25 cm APGB aerial photography alongside high-frequency 3 m PlanetScope multispectral imagery to train and validate models across diverse geographies and seasonal conditions.

Automated Object-Based Workflows:

Applied segmentation and Random Forest classification on temporal spectral data, enabling more reliable detection of land cover features and changes.

End-to-End Digitisation & QC:

Delivered full-cycle services—from model development and annotation of thousands of training examples to digitisation, validation, and continuous improvement.

This methodology not only reduced dependence on localised surveys but also ensured mapping processes were scalable, resilient, and faster to implement.

The Results

Cyient's solution has delivered tangible value to the executive body's environmental monitoring and policy programmes:

Enhanced Accuracy:

Deep learning models improved feature detection by leveraging both spectral and spatial patterns in EO data cubes, outperforming traditional supervised methods.

Faster Turnaround:

Enabled rapid, on-demand mapping of new imagery, accelerating decision-making for environmental schemes.

Reduced Costs:

Minimized the need for frequent ground surveys by building resilient models using extensive historical datasets.

National-Scale Capability:

Supported the maintenance of the England crop map and the delivery of accurate, timely data for various payment schemes.

By combining AI innovation, scalable automation, and multi-source EO data, Cyient has positioned the RPA to achieve its ecological monitoring goals and drive the UK's transition toward sustainable farming at national scale.

Designing Tomorrow Together

From ultra-low-power chips to patient-friendly design, Cyient creates healthcare technologies that are efficient, precise, and built for tomorrow.

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Cyient (Estd: 1991, NSE: CYIENT) delivers intelligent engineering solutions across products, plants, and networks for over 300 global customers, including 30% of the top 100 global innovators. As a company, Cyient is committed to designing a culturally inclusive, socially responsible, and environmentally sustainable tomorrow together with our stakeholders.

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