



IMPROVING COUNTRYSIDE MANAGEMENT

STAR-APIC GIS PLAYS AN IMPORTANT ROLE IN MANAGING THE AGRI-ENVIRONMENT IN NORTHERN IRELAND



The new Northern Ireland Countryside Management Scheme (NICMS) is a 7-year, £220 million agri-environment scheme designed to help farmers and landowners to reverse the decline of farmland biodiversity, enhance the landscape, and manage natural resources to improve the quality of water, air and soil.

Previous agri-environment schemes involved farmers completing complex application forms. Eligibility checks were then carried out by the Department of Agriculture and Rural Development (DARD) across different government departments and agencies using outdated IT systems before the application could be processed. This often took many months.

The Countryside Management Unit (CMU) within DARD is responsible for managing agri-environment schemes. Recognising the deficiencies in customer service and the frustrations of staff, CMU worked with DARD's IT team on a complete re-design of agri-environment scheme administration.

Project Objectives

A number of project objectives were identified:

- Improve the timescales for issue of scheme agreements to farmers from up to eight months to less than 10 weeks and introduce efficiency savings of 15%.
- Increase the percentage of data captured automatically to over 85%.
- Provide the capability of seamless integration with other IT systems in delivering improved customer access to information.
- Widen the range of users capable of accessing this data electronically including inspectors, managers, administrators and eventually customers.
- Support the adoption of an end-to-end client support programme.

The Principles

The guiding principles were based on:

- Consulting and taking on board the wishes of customers, front-line admin staff, inspectors, auditors and managers.
- Innovative use of technology including web services, workflow management and GIS (Geographic Information Systems).
- Designing interfaces between the various IT systems to facilitate sharing and re-use of information across the departments and agencies who held relevant data.
- Complying with European legislation and minimising the risk of fraud.
- Using electronic file storage rather than paper.
- Introducing automated management information.
- Introducing flexibility to deal with future changes.

The Process

The starting point was a critical examination of the existing administration processes to identify where innovative use of technology offered improvements in efficiency and customer service. Workshops were held with all stakeholders to design and document business processes with a focus on ensuring a joined up solution and breaking down walls between the various organisations involved.

One driver of change was an independent customer survey, carried out for DARD, which found farmers preferred the telephone, rather than paper, when dealing with the Department. Consequently, DARD took the innovative decision to implement a paperless application for the new countryside management scheme. To apply for NICMS a telephone call is all that is needed. Previously, applications could only be handled by technical staff but the new system means that call agents can provide



Examining grants and subsidies for tree planting using DASD's NICMS system

Displaying fencing enhancement measure attributes using the Grants and Subsidies GIS

this service. A comprehensive list of frequently asked questions was developed to help call agents deal with queries that farmers may have in registering their application.

Confirmation of eligibility is built into the new application process. The ease of this belies the complex process management and IT which goes on in the background. Time consuming manual checks are replaced with sophisticated electronic checks against other Departmental systems including the corporate Customer Information System, the Single Farm Payment database and the Geographic Information System (GIS). The GIS includes data from Ordnance Survey Northern Ireland (OSNI – now Land and Property Services), DARD's own database of fields and field ownership and Northern Ireland Environment Agency (NIEA).

For each scheme application, checks are made against 18 datasets held by the Northern Ireland Environment Agency (NIEA), such as the special environmental designations present on the land. These determine the land management agreement drawn up with the farmer and can be used as a basis for prioritising applications should the scheme be over-subscribed. The workshops had highlighted the benefits of these datasets being directly accessible on GIS by DARD staff. These automatic eligibility tests make use of spatial data managed by the GIS system, but without need for any interactive use of GIS tools.

After checking eligibility, the application is passed automatically to the work queues of the relevant technical DARD staff. For example the GIS automatically produces detailed reports to help inspectors identify features (such as water courses, heritage sites.) within the farm which may require specific attention. Once a scheme is agreed between DARD and the farmer, the system produces a tailored land management agreement with colour coded farm maps, specific habitat management details and a schedule of work. Throughout the process, the application is tracked and sophisticated electronic work queue management employed

to ensure efficiency and timeliness.

In line with the Northern Ireland Civil Service and DARD ICT Strategies, the system was developed using the Microsoft .NET framework and SQL Server Database. Automated business process management and case management were developed and implemented using the Singularity Process Platform tool. Technical consultancy was provided by external partners Neueda and STAR-APIC for the GIS.

GIS development included providing web service access to GIS functionality such as creating scheme entities, producing the specific plots and reports required by the scheme, and checking and validating data. Data is stored and maintained within an open ORACLE database which allows non GIS applications to access critical data. In addition a custom data editing application was developed which is fully integrated within the workflow process. The editing application ensures data quality and integrity.

Major technological components

The end-to-end computerisation of the system required a number of technology components: The STAR-APIC GIS linked to an Oracle 9i spatial database. This provides the data capture and validation required to record farm business agreement details and map/farm management reporting output.

- Microsoft ASP.NET with SQL Server database. This provides the web based forms which manage the system flow and data inputs.
- Singularity workflow. This workflow product controls the process from initial reporting on eligibility to join the scheme, through farm visits, map data capture and agreement production.
- Web service connectivity between .NET and GIS. This provides map based production, reporting and output through remote calls from within the .NET environment.

Benefits and Outcomes

When the scheme opened, it was three times

oversubscribed with 4,500 applications. At the time of writing some 1,000 agreements are now in place. Feedback from farmers, farming organisations, technical and front line staff has been very positive. The system has delivered clear benefits including:

- ease of application for farmers and landowners,
- ease of use for the wide range of users, most of whom had no previous interaction with GI systems,
- immediate assessment of eligibility (compared to months previously),
- automated prioritisation and much faster notification to applicants,
- reduction in the time from application to drawing up the completed land management agreement (from about eight months to eight weeks),
- scheme administration savings of some 20%,
- automated processes and direct access to data reduce dependency and workload on external organisations,
- strong protection against fraud,
- applications are tracked throughout, with electronic files immediately accessible to assist queries from customers and provide detailed management information on work queues to ensure targeting of scarce resources,
- farmers are not asked for information again if another part of DARD already holds it
- significantly improved spatial data relating to Agri-Environment schemes,
- the modular design provides for re-use of the new streamlined processes into other similar schemes,
- joined up government.

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