

CASE STUDY

IRISH SPATIAL DATA EXCHANGE

THE MARINE INSTITUTE

“Actively sharing data with other marine research Organisations is the most effective way to ensure best use is being made of the data being collected around Ireland”

JOHN EVANS, IT MANAGER, THE MARINE INSTITUTE



ORGANISATION

The Marine Institute

SERVICES DELIVERED

Web Services Solution (Irish Spatial Data Exchange & Geographic information System)

BUSINESS BENEFITS

- Combine marine data from a number of different Organisations
- Improved reuse of marine data between participating Organisations
- Minimising administration through single source metadata maintenance
- Nationwide view of marine data
- Reduction in overlapping marine projects

Customer's Challenge

The Marine Institute is the Irish government agency responsible for marine research and development. This agency works in partnership with national and international organisations to help enhance and sustain the marine sector in Ireland.

Annually, the Irish marine business sector generates revenues of approximately 3.2 billion euros in the areas of marine food, tourism and leisure and technology. The continued development of this sector depends on the protection of the environment in which they take place and on ongoing research and development to identify opportunities for sustainable development. Marine research and monitoring takes place in a distributed context with some of the official organisations gathering and retaining marine data being:

- Department of Communications, Marine and Natural Resources
- Environmental Protection Agency
- Department of Environment, Heritage and Local Government
- Teagasc – the Irish agriculture and food development authority;
- Electricity Supply Board;
- The Coastal and Marine Resources Centre, University College Cork;
- The Hydraulics and Maritime Research Centre, University College Cork;
- The Martin Ryan Marine Institute, National University of Ireland, Galway;
- The Centre for Coastal and Marine Research, University of Ulster

With these and other organisations collecting data the exchange and dissemination of scientific data in a useful way can prove challenging.

The Marine Institute wanted to create an **Irish Spatial Data Exchange** and Query Service for marine-related metadata. *A number of organisations in Ireland are actively carrying out marine research and storing their data in disparate databases. The Marine Institute approached us to pull these databases together without having to build a big data warehouse* comments John Walker, Technical Architect, Fujitsu.

As the national agency with responsibility for the research and development of Ireland's marine resources, the Marine Institute acted as the lead partner for the project.

Fujitsu Solution

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Fujitsu implemented a simplified version of the Reach Public Service Broker protocols (ReachLite). This 'lite' implementation of protocols circumvented the more complex requirements for a complete hub-and-spoke Reach implementation. The solution included:

- Web Browser (Requester) – The user of the service via the host application server
- Web Server (Application Host) – The Enabler that manages the web services and accepts HTTP requests and augments and routes the message appropriately
- ReachLite (Fulfiller) – The provider of the service functionality based on a partial implementation of the Reach Public Service Broker interface standards.

The ReachLite Fulfiller has been designed with software components to work both in a Microsoft and Open Source environments.

Benefits to Our Customer

The Irish Spatial Data Exchange solution demonstrates the value of data exchange within the marine sector and public services sector as a whole. It provides immediate practical assistance to those agencies and organisations and individuals that require a nationwide view of the available marine data.

By maximising the reuse of marine data by using a federated database integrated using Reach technologies, the key benefits will be the improved selection of marine research locations, topics and questions to be answered about Ireland's coastal and offshore resources.

The project will also increase Ireland's ability to manage and benefit from the marine related data resource that exists within the public services and will demonstrate the potential of web-

enabled Geographical Information Systems (GIS) and related technologies at a national level.

It is hoped that the successful sharing of metadata will demonstrate the usefulness of the Irish Spatial Data Exchange and prompt other organisations to make funding available at a later stage to allow all marine data from various repositories to be exchanged seamlessly, such as a thematic search for temperature variations for pre-selected coastal and offshore locations.

Our Approach

Having been the Marine Institute's strategic IT partner for over four years, Fujitsu have a deep understanding of the Marine Institute and the Web technologies applied.

The key focus of this project was the development of a metadata discovery mechanism that allows metadata catalogues held by the different organisations to become searchable via the Web.

In collaboration with ESRI Ireland (our GIS partners), Fujitsu developed and deployed an online mechanism whereby publicly funded bodies can provide seamless public access to Metadata relating to marine data sets that they hold. We also identified suitable standards for Metadata exchange in the context of metadata catalogues and indexed data stores.

Our Expertise

Fujitsu's core strength is designing, building and operating IT systems and services for clients in the public and private sectors. Fujitsu has a proven track record in providing innovative and reliable IT services and solutions, incorporating the best and most appropriate technology that creates value for its customers by helping them to realise their business vision and deliver impeccable customer service.

We have also built a reputation for understanding the business requirements of a wide range of different organisations. We support these solutions with a deep and thorough understanding of mission critical systems that is based on over thirty years of working with some of the world's most demanding organisations.