



IRISH ORGANISATION FOR GEOGRAPHICAL INFORMATION

GIS 2011

PRESENTATION ABSTRACTS



Paul Synnott
ESRI Ireland

The Real Business Case for GIS

It's not the "what" and "how" thats important, it's "why". The successful use and application of geographic information within a business, whether it be public or private sector, is no longer about features and function (the What) nor is it about delivery methodologies and engagement (the How). The real business case for GI is impact and evidence (the Why).

This presentation will explore the above assertion with a view to raising the value proposition for what we do as an industry way above technology and into results, outcomes.

Dominic Byrne
Fingal County Council

Open Data - What does it mean for Government, Business and Inspire

Open Data is the publishing of data in non-proprietary, machine readable formats available to the widest range of people for the widest range of uses.

Open Data and social media technologies are enablers for Open Government – increased Citizen participation through the use of technology.

Open Data also enables economic opportunities through online services, analytics and apps based on this data, in line with the European Union PSI Directive.

A large proportion of Open Data is Spatial Data. Applications and services built with Open Spatial Data will utilise geospatial technologies to provide mapped visualisations and mobile apps. Spatial Data Infrastructures and work on INSPIRE should consider the implications of Open Spatial Data and whether such infrastructures are capable of supporting non-spatial Open Data.

Fingal Open Data launched in 2010 and was the first Open Government Data website in Ireland (<http://data.fingal.ie>). Dublinked is a new Dublin Region Open Data initiative which will provide a model for government, business and universities to interact on developing services for "smart" urban regions based on Open Data.

This presentation will look at Open Data, its role in Open Government, its potential for economic opportunities, its relationship to the INSPIRE directives and opportunities for the geospatial sector. It will give an overview of Open Data and the experience of Fingal Open Data and Dublinked. It will also examine the current state of play of Open Data worldwide and the challenges facing Ireland to maximise the potential of Open Data to be a driver for the Knowledge Economy.

Ciaran Kirk
IMGS

Open Source GIS Solutions

Ciaran Kirk will present how GIS systems are moving from large scale proprietary systems with huge mapping costs to easy to use web solutions using web mapping services such as MapGenie and Open Street Map. As part of the presentation Ciaran will discuss the latest Open Source web GIS technologies such as Open Layers and Map Server and how these technologies are providing end user performance and capabilities previously only found in desktop solutions. As part of this presentation Ciaran will also discuss how web services will enable users to choose and easily integrate mapping data from whatever sources – be it enterprise databases, Google Maps, Bing Maps or Ordnance Survey.

Peter Keenan
UCD Business School

SDSS : From geographic information to management decisions

Considerable progress has now been made in the collection and organisation of spatial data. The challenge is now to make use of that data to solve problems. It is widely accepted that many management and business problems have a spatial dimension and so management and business problem solving must include appropriate spatial data in decision making. Spatial Decision Support Systems can facilitate the inclusion of a spatial dimension in problem solving by management. Such systems are necessarily specialised and directed at quite particular sub domains, yet these will require the use of spatial data that will also be of interest quite different sectors. More widespread use of SDSS in Ireland requires the ready availability of data, sufficient appreciation of spatial techniques and awareness of decision-making techniques. There remains substantial work to be done in all of these areas if the potential of spatial techniques in Ireland is to be fully realised.

Andy Day Compass Informatics

Management System - A Hybrid Technology & Data Approach

The Local Government Management Agency / LGCSB has developed a roads-related ICT system, MapRoad PMS (Pavement Management System), which builds on the existing MapRoad system currently in use within the local authority sector. This Management Information System combines both web, desktop, and mobile (iPad) GIS elements. It comprises various modules relating to different roads datasets and is used by Local Authorities to manage, store, analyse and report on these datasets.

The primary users will be road engineers and GIS staff in local authorities with secondary users in local authorities and relevant agencies. The solution is being rolled out with success to date and will ultimately support all local authorities.

The Web Pavement Management System combines proprietary elements such as SQL Server 2008 and C# coding, with Open Source elements including MapServer, OpenLayers, and GeoExt, and builds on the core map viewer tools from Compass Informatics. An n-tier architecture is followed with data sources published and consumed as WMS/WFS web services, including those from OSi MapGenie and OpenStreetMap.

The desktop element retains the MapInfo based approach but with enhancements, while a mobile iPad-enabled approach is being piloted for rapid road conditions survey, with subsequent data integration to the desktop and web systems.

The system is of interest in terms of its approach towards combining technologies to create a system that is functionally rich and suited to on-going maintenance and further development. It also practically illustrates the value of data web services including OSi MapGenie.

Jerry O'Sullivan
Aviva Ireland

The Use of GIS in Aviva Ireland

Aviva Ireland is one of Ireland's leading insurers, with businesses in general insurance, life and pensions and the health sector. GIS have many applications within the Insurance sector and can be used to solve many complex business problems that have a specific location element.

In this presentation Jerry O'Sullivan will outline some of the ways Aviva have used GIS to solve these problems while highlighting the achievements and challenges faced along the way

Bkazej Cipluch
NUI Maynooth

In which direction Crowd-sourcing OpenStreetMap may go in near future.

What will be the near future of crowd-sourcing project of OpenStreetMap? During our work when we try to check quality of VGI dataset authors start to ask themselves what happens with this data in near future? This is an attempt to show how crowd-mapping may evolve when some level of saturation and completeness may be achieved. We think that further evolution by observing actual trends in community may go into mapping of interiors of the buildings. These maps of the interiors may be a foundation to aggregate all the data from "smart" appliances and lead to creation of Web oriented spatial aware SCADA system for the masses. Another way of evolution may be marked by incoming HTML5 standard in web browsers and more interactive web environment that maybe a final abandonment of tiles and presentation of map based only on vector paradigm which may allow easy visualization of changes on the map like Tides when shore changes in time. Third revolution may be induced by cheap available! for everyone microcontrollers which may lead to changing way of contributing data. Instead like today people add buildings which are solid features they may feed OSM database with fast changing data from autonomous devices like electricity meter reading value.

Brock Ryder
KOREC

Aerial Photography in Your Hands

Aerial photography is a very powerful and decisive tool for planning, management and monitoring. The ability to get a bird's eye view of a project can be a valuable contribution to any project, along with the ability to utilise the data for mapping/survey purposes.

Presently a drawback of this type of data can be costs involved with gathering or accessing this data and if you rely on existing aerial photography you have the issue of when was it taken and was it exactly what you wanted and at the height you wanted and to the detail level you wanted. You can alternatively pay for a helicopter or fixed wing service with the costs totalling up accordingly.

What we now have is the ability to control your own aerial photography projects from concept to completion with a UAV system. UAV stands for Unmanned Aerial Vehicle and is a light weight, hand launched, fixed wing plane that will fly a predetermined route that you have planned, automatically, without the need for you to manually fly the plane. The plane is fully automatic and completes the survey and returns back to home for its automatic landing. You then have immediate access to the photos taken and can work with this or upload to the web service for automatic photo stitching, rectifying and modelling if desired.

You now have the control of what you want surveyed, when you want at a very affordable price.

Tim Willoughby
LGCSB

Cloud/Open Source Opportunities

There is a growing Hype Cycle on Cloud computing happening around the world, there is also a growing awareness and need for Governments to Open their data, with the potential for commercial applications?.. The Spatial world is also changing from the status quo of proprietary domination to a more open source and certainly more open standards dominated world in a very short timeframe.. there are issues in here for Government in terms of Standards, Standardisation, Open Government and who and what to believe. I will endeavor to map a path through all the hype to a sensible conclusion

John O'Flaherty
MAC - The National Microelectronics Applications Centre Ltd

Plan4all – making Spatial Planning Data INSPIRE-compliant

The Plan4all project, with 24 partners (including EUROGI) from 15 EU Member States, is harmonising Spatial Planning Data and related Metadata according to the principles of the INSPIRE Directive, and based on existing best practices in the EU Regions, Local Authorities and research projects. Plan4all is co-funded by the EU eContentplus Programme.

Spatial Planning is a complex and holistic activity, in which many tasks and processes must be solved comprehensively with inputs from various sources. Even though the ideas and concepts behind urban and Spatial Planning across Europe are basically the same, the legal situation is fragmented. For investors and decision makers it is almost impossible to compare planning regulations across Europe. Plan4all is improving this situation by making Spatial Planning data more accessible, usable and exploitable, by developing a Metadata Profile that is making 7 INSPIRE themes that are core to the planning process, standardised, open and interoperable. This allows users to search the data, view it, download it and use it with the help of ICT technologies. The Profile has been updated and tested to comply with the 2011 version 2.0 of the INSPIRE Data Specifications.

Irish planning best practice has been input to the Plan4all Profile and an Irish Plan4all test platform established, working with Planning Authorities to explore the complete INSPIRE-compliance process, using both the Irish and Plan4all Metadata Profiles. The platform is available on both the Irish Spatial Data Exchange (ISDE) and Plan4all GeoPortal, confirming its National and pan-European INSPIRE compliance. We are now sharing our experience and results through the international Plan4all Network.

Conor Calahane
National Centre for Geocomputation

Initial investigations into the use of a GIS to model obstructions and ascertain satellite visibility as an aid to survey planning.

In high accuracy surveying the number of satellites visible to the surveyor is of the greatest importance. To aid with this, there are software packages that are capable of predicting Global Navigation Satellite System (GNSS) visibility at any location of the globe at any time of day. These prediction packages operate by using regularly updated almanacs containing positional data for all navigation satellites. One of the major problems that impacts on real world applications of satellite prediction packages is the fact that most assume that there are no obstructions on the horizon. In an attempt to improve on these earlier versions, some modern planning packages are now capable of modelling simple obstructions whereby portions of the horizon visible from one location can be blocked out simulating buildings or other vertical structures and this is very useful for static surveys. However, this is not applicable for dynamic surveys when the receiver is in motion. Current methods would require obstructions to be modelled for each receiver position, which is a time consuming and impractical method.

One possible solution which will be presented is our initial investigations into the use of existing satellite prediction software to ascertain satellite location, incorporating a 2.5D model of the buildings in an area, and finally applying the 3D Analyst Viewshed tool to ascertain simultaneously over a wide area what areas exhibit poor GNSS visibility due to obstructions. This presentation will explain our method in detail and also suggest how it could be of benefit in survey planning.

Aidan Gallagher Centroid Systems

INSPIRE 2011 - An Information Society Without Obstacles or Borders?

My 20 minute presentation will seek to report on the 2011 INSPIRE Conference. I will underline the practical and legislative importance of this adopted EU Directive for Ireland – north and south as well as succinctly but relevantly communicate the above ideals to the IRLOGI Conference attendees. As a Spatial Planning Consultant and Chartered Environmental Planner, I may focus on the topic of - Spatial planning and trans-national/inter-regional spatial data Infrastructure - for the benefit of IRLOGI members, and those interested in GI matters.

As a Chartered Spatial Planner, I was one of the representatives of IRLOGI to travel to the INSPIRE Conference in Krakow, Poland. The INSPIRE directive came into force on 15 May 2007 and will be implemented in various stages, with full implementation required by 2019. On my return, after attending the Conference, I provided IRLOGI with a written report on general and specific items of significance from the EU directives, and in particular on lessons learned / insights gained which I believe could be of benefit to advancing SDI matters in Ireland. In addition, I presented on this same subject on the day of the Conference as required.

This year's 2011 INSPIRE Conference in Edinburgh offers GI Professionals and the GIS community alike an opportunity to take cognisance of this mandatory EU Directive and its massive relevance for Ireland. There are 3 key areas of consideration: A) SMART GROWTH: the INSPIRE directive explores its contribution to Europe's Digital Agenda and more in particular its role in eGovernment and the development of eEnvironment services. B) SUSTAINABLE GROWTH: the INSPIRE directive calls for ideas and demonstrations of its contribution to resource efficiency and greenhouse gas reductions, for protecting the environment and preventing biodiversity loss, and for strengthening the resilience to climate risks, as well as disaster prevention and response capacities. C) INCLUSIVE GROWTH, the INSPIRE directive opens new avenues for INSPIRE in the context of New Skills for New Jobs. It calls for an exploration on the kind of jobs and the potential for job creation related to INSPIRE. ! What skills and competences are needed? What kind of education and training is needed? What kind of INSPIRE applications can help people integrate in the communities where they live?

In summary I will seek to Report back to IRLOGI and its Conference Attendees on the progress being made in the development and implementation of INSPIRE Directive and Implementing Rules. As mentioned above, I may focus on Spatial planning and trans-national/inter-regional spatial data Infrastructure.

Brendan Kennedy National Roads Authority

The Role of GIS in Strategic Noise Mapping

In 2006, the EU Directive 2002/49/EC relating to the assessment and management of environmental noise was transposed in Ireland as the Environmental Noise Regulations S.I. No. 140 of 2006. The primary aim of the Directive was to provide a common basis for the identification and treatment of environmental noise problems across the EU. The Directive requires member states to produce strategic noise maps of various environmental noise sources including road traffic noise.

In the regulations, the National Roads Authority (NRA) is designated as the noise mapping body responsible for the production of noise maps on all major roads across the country. By July 2012, the NRA has to prepare strategic noise maps for approximately 3,000 km of the national road network.

GIS technology plays a pivotal role in creating strategic noise maps. The data requirements for noise modelling are significant and the project requires the assimilation of data from numerous sources. The principal information required to generate strategic noise maps include data held in-house detailing road specific information, an accurate depiction of the surrounding topography which was derived from a LiDAR survey commissioned specifically for this project. Finally in order to assess the impact of road noise on the population an accurate representation of buildings in the study area is also required.

This presentation will outline the work of the NRA in creating strategic noise maps. It will outline our requirements as part of the Regulations and demonstrate how GIS plays an essential role in successfully creating strategic noise maps.

Tony Kent
EPA/UCC

Is it possible to determine if a methodology to develop a viable national scale run-off map can be established?

The EPA have recently undertaken a project, the aim of which is an investigation to determine if a methodology to develop a viable national scale run-off map can be established, given the data currently available. It could then possibly be integrated with Land Use and Land Cover maps to determine the impact that this run-off has on water quality within a particular river catchment area.

Run-off has an effect on water quality as it transports agricultural chemicals, such as nitrates and phosphate, into rivers and other waterbodies. Because of the Water Framework Directive regulations, the EPA are required to ensure that all waterbodies reach a good ecological status by 2015.

This project investigates whether it is possible to develop a methodology to produce an accurate surface water run-off map that in turn could be implemented to conduct further analysis and thus assist in achieving Water Framework Directive targets.

The initial approach taken will involve intensive discussion with a number of water experts to determine the best methodology. A matrix will then be developed based on a number of datasets including: DEM, rivers, flow direction raster, land use and land cover, river catchment data, percolation data, precipitation data and raindrop trace data. Model building and Python scripts will then be used to implement the matrix using ArcGIS.

There will also be a number of challenges and limitations that will need to be evaluated. The main challenge will be the overall accuracy of the output. The impact that hedgrows or ditches have on run-off will need to be determined. Areal extents of land use and land cover can have an immense effect on run-off and infiltration, for example, pastures are likely to have higher levels of chemicals in the run-off than forests.

It is hoped that by combining and working with a number of datasets, an accurate surface water run-off map can be produced within a time period of a few months.

Barry Doyle
Roscomonn County Council

Managing G.I. in an Irish Local Authority in 2011

Local Authorities were early adopters of GIS in Ireland and as such have been collecting and creating digital geographically referenced information for over 20 years in some cases. The amount and variation of Geographical Information (GI) that is being produced by Local Authorities is clearly shown in the fact they have ownership of approximately 2/3rds of all datasets identified in the national audit of Irish datasets for INSPIRE.

The aim of this presentation is to give a high level insight into the current environment within which digital Geographic Information is created, collected, managed, and used within Local Authorities in Ireland and to identify the main trends and pressures that are determining how this area will evolve in the future.

There are 34 Local Authorities in Ireland and while the implementation of GIS, and supporting GI management methodologies, has often been coordinated it remains the case that GI is created and managed in different ways to satisfy local requirements, using different systems, to different standards, with different levels of skilled resource available.

The current economic situation leaves Local Authorities with reduced budgets and resource. Local Authorities are reacting to this by looking at ways that they can continue to provide the same level of service in key areas with less. It is felt that this situation presents many opportunities for the application of GIS and its supporting technologies in relation to maximising the value of currently held spatial and non-spatial information, streamlining business processes, improving decision making, as well supporting information dissemination and interaction with the general public.

Brendan Sheehy
Mallon Technology

Sustainable and Efficient GIS?
Open Source it.

The influence and use of spatial data in all walks of life, coupled with the growing desire for public governance and access to this data is a rapidly growing trend that places additional demands on an already stretched public sector. The public wants access to our public and private spatial data and increasingly look to be the driving force in not only improving it but also using it in new and innovative ways.

Within the context of a weak economy and slashed IT budgets, open source technologies would appear to offer a panacea for many of our GIS needs. However, as many have discovered, the theory of an Open Source GIS nirvana is a far cry from the minefield of Open Source GIS implementation realities.

This presentation aims to convince the audience that open source technologies can provide sustainable and efficient GIS IT solutions. I'll be detailing our hands on experiences with implementing an open source GIS solution. Outlining the advantages of using open source as well as offering advice on avoiding some of the common pitfalls inherent in the process. The audience will be left with a practical understanding of what it really takes to implement a useable Open Source GIS.

Justin Gleeson
NIRSA

All-Ireland Research Observatory - Supporting evidence informed planning and decision making

AIRO seeks to produce all-island, spatial datasets and specialist tools to aid their analysis and to undertake academic and applied mapping research. AIRO aims to act as a single point of access to a wide variety of spatial data and information about the various regions of Ireland. The intended audience of this free website are planners, policy makers, researchers and those interested in gaining an understanding of the dynamics that are shaping the island of Ireland today.

Carmel Worsfold Mayo County Council

Renewable Energy Strategy for County Mayo: The methodology developed for preparing the strategy.

Last year Louise Wedley presented Composite Vulnerability Maps: Making Environmental Sensitivity More Intuitive. This year we hope to present the next step – using Composite Vulnerability Mapping / Environmental Sensitivity Mapping in the Renewable Energy Strategy for County Mayo.

Mayo County Development Plan 2008 – 2014 states: “Objective O/TI-RE 1 of the Mayo County Development Plan 2008-2014, undertook to review the Wind Energy Strategy for Co Mayo within one year of the adoption of the County Development Plan. However Mayo County Council decided not only to review the Wind Energy Strategy but to go one step further and prepare a Renewable Energy Strategy for the County”.

This presentation will give an overview on how the Renewable Energy Strategy was developed using GIS technology:

- Sourcing data from external agencies
- Comparison of Potential Energy locations with existing infrastructure
- Developing a GIS template for future Strategies and Plans
- Developing an in-house SEA / AA team

Eamonn Doyle ESRI Ireland

Is there Geographic Information in Social Media?

New statistics show that the use of the traditional, or document web, is in decline in favour of the linked, or social web. Web access via Facebook, Flickr and Twitter has started to outstrip access via Google. These Social Media streams have the potential to be a totally new form of Geographic Information. But is there actually any useful information in them? This paper will take a look at simple ways to both harvest and contribute Geographic Information to and from Social Media.

Iris Gallman
Autodesk

Utilising the BIM process to improve delivery of sustainable infrastructure

In this paper we will discuss how the use of building information modelling (working from a single integrated model to collaborate seamlessly on infrastructure projects) can enable accurate, timely and low cost delivery of sustainable infrastructure projects. To explain this process we will look at the integration of key GIS (geographical information systems) data with CAD (computer aided design) information to work through the plan, design, build and manage functions of a new wind farm development. Through careful planning at the early stages, integrating CAD and GI data we are able to spot potential errors very early on and ensure that we have a sustainable plan in place for our new development. Realistic visualisations add a great value at this stage to assist in public consultation processes. (NIMBYism) The design and build processes provide models that can then be used for on-going maintenance of the assets on a long term basis to ensure we are utilising the correct maintenance schedule and getting the most from the investments that have been made whilst maintaining a low carbon footprint.

Myles Mac Donncadha
Coillte Teo

How Much Wood Would a Woodchuck Chuck? Optimised Forest Management in Coillte

A presentation on the application of state-of-the-art forestry management software (see www.remsoft.com) in the production of optimised management schedules in Coillte.

GI is used heavily in the process of constructing the management models (used to create schedules) and in validating and visualising the output and will feature extensively in the presentation.

