



DIGITAL ATLAS OF DERRY~LONDONDERRY

Contact Details:

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Executive Summary:

Based on content from Irish Historic Towns Atlas (IHTA), no. 15, Derry~Londonderry by Avril Thomas (Royal Irish Academy, Dublin, 2005), the Digital Atlas provides users with historical and topographical information about the city of Derry for selected time-periods. The key map is a reconstruction of the city in 1831, which is presented in an interactive way. Streets, buildings, city walls/gates and public buildings are mapped and further detail such as name, dates and other historical information is provided in pop-up boxes.

As well as the 1831 map, earlier and later historical maps can be overlaid and compared. The different map layers reveal not only the way the city developed but also the way that mapping evolved since the walled city of 'Londonderry' was founded in the seventeenth century. Growth phases are distinguished in colour and can be overlaid onto the maps tracing the bounds of development and the approximate extent of the city.

This web-GIS resource is for visitors to the city, to local inhabitants, scholars and all those interested in historic maps and urban history.

Business Challenge:

The Irish Historic Towns Atlas (IHTA) is a Royal Irish Academy (RIA) research project that has been producing printed atlases since 1986 (27 towns covered to date). In 2011 work was initiated to pilot IHTA contents in a GIS. Derry (no. 15 in the printed atlas series) was chosen as the pilot study. The challenge was to find a geospatial solution and test the adaption of the printed detailed text in gazetteer format and historically based paper maps for GIS organization and presentation.

The three-way collaboration involving the RIA, Derry City Council (DCC) and Queen's University Belfast (QUB) have had the following common aims in creating and developing the free to view interactive map-based resource, the Digital Atlas of Derry~Londonderry:

- (i) To offer the scope to visualise the city in a new way, for both local people and for visitors (both 'virtual' and 'real') in Derry city, particularly to enrich their experience of the city's heritage and urban landscape;
- (ii) To provide an interdisciplinary case study for teachers and students, of 'multimedia mapping', both in terms of content and technology, by integrating historic maps and modern geospatial data;



- (iii) As part of the broader Irish and European historic town atlas projects, and for digital urban-mapping projects generally, to provide a workable model of how to present and integrate topographical, cartographic and historical material in an accessible and engaging way using web and spatial technologies.

Project Objectives:

As a non-commercial project, the objectives focused on return in terms of cultural value to Derry city (DCC); and educational/research value (RIA/QUB).

- To provide an interactive, online resource for the Derry City of Culture 2013 focusing on built form and heritage;
- To produce a pilot that tests the transfer of original IHTA printed material into a GIS, and identifies the challenges of such an operation;
- To develop knowledge within teaching and learning within various third level subjects: urban geography, landscape studies, cartography and maps, digital and online technologies, particularly Geographical Information Systems (GIS), architecture, planning.

To allow a member of the public to navigate the modern city whilst tracking and visualizing their position on a variety of handheld platforms in relation to the historical mapped context.

Solution:

September 2013–May 2015. The online Digital Atlas builds on the work on the printed IHTA, presenting additional historical and topographical information about selected sites. At their core, the IHTA atlases include a 'Key Map' which is used by the IHTA to show the city as it looked in 1831, based on the first large-scale town plan of the Ordnance Survey. Here selected urban features, including streets, buildings, city walls/gates and public buildings, are mapped, and further interpretative details, such as names, dates and other associated historical information, are provided in pop-up boxes, often with additional illustrative material.

For the Digital Atlas of Derry, as well as the key map, historic maps of the city are included as iterative layers, with transparency and zoom functions. This means it is possible to overlay and compare maps from different periods, from the seventeenth century to the modern day. Using the tools provided, users can navigate through Derry's urban landscape and relate the past to the present. The different map layers reveal not only the way the city developed but also the way that mapping evolved since the foundation of walled city of 'Londonderry'.

To help understand the growth phases of the city over this long time-period the Digital Atlas has areas belonging to different development phases that are distinguished in colour. These too can be overlaid onto the historic and modern maps and aerial photograph, enabling users to trace the bounds of city development over time and the approximate extent of the city for particular periods.



The Digital Atlas uses ESRI software, specifically ArcServer, to deliver spatial data via the web. The Digital Atlas is an innovative and somewhat experimental application of ArcServer. Digitisation of the printed IHTA Derry atlas into ‘spatial data’ — the rasters and shapefiles that form the content of the resource — was undertaken using ArcGIS version 10 at QUB. The Key Map, the 1831 reconstruction map, was digitised and is served as vector data, separating out streets, plots, and public buildings. Attribute data was linked to these shapefiles and comprise information derived from the topographical information or gazetteer of the printed IHTA of Derry. The historic maps are georectified rasters, based upon supplied scans (high resolution TIFFs) from the Royal Irish Academy and its partners. Modern mapping and aerial photography is supplied via QUB’s licensing arrangements.

The key advantage of a digital atlas of this kind is that it becomes possible and relatively easy to change the content, allowing updates and revisions over time. An important feature are linked pdfs that give further details the site and the original sources used. Also, a User’s guide for further use within education.

May 2015–September 2015. Recent work has involved the migration of all existing web services from the flexviewer API platform to a cloud based platform. As an organisation QUB now has access to ArcGIS Online through the ESRI software agreement. All Derry atlas layers have been being uploaded to the cloud platform of ArcGIS online. The main benefits of a cloud based platform are improved functionality, speed and stability. All Data relating to atlas are hosted on the ESRI cloud and therefore not dependant on the GIS Unit server.

<https://www.ria.ie/digital-prototypes>

Results / Benefits:

- Digital Atlas was launched on 11 September 2013 as a Derry City of Culture resource with media interest as well as civic representation.
- The website has been used internationally as a case study within the IHTA and wider European Historic Towns Atlas scheme since September 2013 and has been the subject of discussion at and in Irish and International conferences and publications, examples:
 1. Keynote lecture by Keith Lilley ‘The Digital Atlas of Derry~Londonderry’, at 3rd Annual Digital Arts and Humanities Institute, Derry, 11 September 2013.
 2. Case study in Keith Lilley, ‘Mapping futures? Digitisation, spatial technologies and historic town atlases’ in *Maps and texts: exploring the Irish Historic Towns Atlas*, ed. Howard Clarke and Sarah Gearty (Dublin, 2013).
 3. Case study at international workshop ‘Developing historic towns atlases for the future’, Royal Irish Academy, Dublin, 22 May 2014.
 4. Feedback on the utility of the Digital Atlas of Derry~Londonderry is provided in Rachel Murphy, *Geographical Information Systems (GIS) for the IHTA: potential and practicalities*, unpublished report, prepared for the IHTA editorial board, June 2014, pp 32–33.



5. Case study in presentation, Sarah Gearty, 'Digital town atlases – making an impact?', conference 'Historic Towns Atlases in the spatial planning and promotion of cities', Wroclaw, Poland, 17–18 June 2014.
 6. Case study in Eva Chodějovská, Sarah Gearty and Daniel Stracke, 'The “digital turn” of the European Historic Towns Atlas: comparing solutions for digital atlas production and online presentation' in *Cittá e Storia*, x (2015), 1 (forthcoming 2015).
- Used as a model for other work within Education e.g. GIS module for 3rd year Geography students in St Pats Drumcondra (March/April 2014 and March/April 2015); summer research in 2013 and 2014 within Department of Humanities, Dundalk Institute of Technology.
 - See online reviews of resource:
<http://visitderry.com>
<http://www.visitderry.com/Walled-City-Heritage-Trail.T513.aspx>
<http://www.charlesclosesociety.org/files/Issue98page54.pdf>

Digital Atlas of Derry currently acting as basis for development of pilot Digital Atlas of Galway, work being carried out by IHTA in collaboration with Ordnance Survey Ireland.

Final Considerations

Ireland's past is the country's future, and the Digital Atlas represents how the past can be brought to life for a variety of end-users, involving stakeholders from research institutions to civic bodies. The project represents a successful cross-border cooperation, between two sectors (local authority and higher education), operating on a non-profit basis developing existing resources within the relevant institutions. The site uses geospatial data for making connections, between north and south on the island of Ireland, and between its peoples and communities. It provides a basis for fostering wider public engagement/understanding, and has proved to be a model for others in Europe developing digital atlases of towns/cities.