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# Collaboration projects between OSi and CSO

Colin Bray, OSi CEO NSB Seminar, 7<sup>th</sup> November 2018



# **Geospatial & Statistics collaboration**



- Introduction to OSi
- OSi's digital transformation (2004-2014)
- OSi/CSO collaboration (2016 to-date)
- What our collaboration has achieved to-date
- Collaboratively supporting National Data Infrastructure
- What's next for geospatial & statistics collaboration
- Summary





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# Introduction to OSi



# OSi – your national mapping agency



- Established in 1824
- State Body since 2002 under the OSi Act 2001
- Mandate: "To provide a national mapping service in the State... creating and maintaining the definitive national mapping and related geographic records"
- Under the Dept. Housing, Planning and Local Government
- 230 staff (30% reduction since 2008)
- HQ Phoenix Park, 6 regional offices





## **Products and Services**







# **Proud history of innovation**



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Lough Foyle Base Line (1827-28)



1st Edition 6" (1824-1846)



Analogue Stereo Plotting (1965)



Computerisation (mid-1970's)



Digital Photogrammetry (1990's)

Ordnance Survey



Digital Sensor (2005)

Reference Ellipsoid	GRS80		
Central Meridian	8° West		
Scale on CM	0.999 820		
True Origin ø λ	53° 30' North 8° West		
False Origin	600 000 West 750 000 South		

ITM Projection (2002)





Geoid Model (2002)



# **Proud history of innovation**



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# However, the last 14 years has seen the most profound organisational change in our last 194 years

'Organisational Transformation'



# Our world was changing #1

The changing use of digital mapping:









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# Our world was changing #2



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Other developments in digital mapping:

- Alternative Non-authoritative sources of mapping
- Maturity of industry data standards
- Open Data Initiative











# Our world was changing #3



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Emergence of new disruptive technologies:











# Key challenges we faced



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- Our compatibility with the Internet Of Things
- Our ability to provide greater value to our customers (adaptability, flexibility, standardisation, greater mapping intelligence)
- Our ability to develop new products and services
- How to take advantage of emerging technologies
- Optimising the bottom line (removing operational inefficiencies and maximising production automation)

Fundamentally, how to remain relevant (organisational sustainability)



# Our approach to address challenges



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- Take a long-term strategic view (steering a big ship)
- Be familiar with the current state-of-the-art
- Predict future customer requirements
- Make certain assumptions on future technologies
- Keep our initial focus on the data
- Be open-minded and re-think the concept of national mapping

Most importantly, we made a commitment to quantum change (next generation national mapping)









# Traditional role of national mapping



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Primarily used as cartographic background mapping:



Lithographic Stone



**Copperplate Printing** 



Multi Resolution Cartographic Tiles

All about the 'map sheet' and the cartographic representation
Not about intelligent real-world features



All about the geographic reference (Easting/Northing & Lat/Long)
Not about uniquely referenced database objects

# New approach to national mapping



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We developed two new concepts:

- A single source of geographic truth (one authoritative digital map)
- 'National Mapping-As-A-Service'





# Authoritative geospatial platform

- Over 50 million uniquely reference features (UGI)
- Single source of truth (scale independent)
- Maintained object lifecycles
- Real world data model
- Non-proprietary

dnance

• Based on industry standards







# Adoption of industry data standards

## **Data Modelling**

• ISO 19103 - conceptual schema language

## **Geometric Data Capture**

- OGC Validation Rules OGC geometry standards
- OGC CityGML level of Detail (LOD) 1 & 2
- ISO GDF level 1 & 2 for road networks
- ISO 19136:2007 GML transfer format

## **Data Supply**

- OGC Web Services WMS, WMTS & WFS
- OGC GeoSPARQL & W3C RDF Linked data processing
- ISO 19115 metadata services for digital supply













## **Robust data governance processes**





## Automated products and services





## **Developed new collaborative platform**



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**GeoHive** 





# National geospatial infrastructure









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# **OSi/CSO Collaboration**



## OSi and Public Service Reform 2014-2016:





### **Strategic Reforms**

- Focus on Service users
- Focus on efficiencies
- Focus on openness
- Leadership & capability



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An Roinn Caiteachais Phoiblí agus Athchóirithe Department of Public Expenditure and Reform







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OSi and the United Nations Committee of Experts on Global Geospatial Information Management, UN-GGIM (2015 to-date):











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National Statistics Board Strategic Priorities for Official Statistics 2015–2020



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OSi Statement of Strategy 2016-2018:

- **Mission:** To create, maintain and provide the State's definitive mapping and geospatial information services to support citizens, business and government
- Vision: The national providers of trusted, maintained geospatial data and platforms to ensure the State's location data is easy to find, share and use.



**Strategic Action:** OSi will seek to work in partnership with the Central Statistics Office in the development of national data infrastructure, ensuring integration and avoiding duplication in national geospatial and non-geospatial data initiatives.

# **Developing collaboration** Solution Sol

- Organisation Heads initially met in Sept. 2016.
- Discussed our respective UN activities and acknowledged the importance of authoritative national statistics data and geospatial data in NDI.
- Conversation about real collaboration, playing to our organisational strengths, removing duplications of activities where possible.
- Made a commitment in front of senior staff that we would aim to be the best example of collaboration between a statistical organisation and a national mapping agency in Europe within 12 months.
- Formalised our organisational commitment in a 3-page MOU in Oct. 2016.



# Memorandum Of Understanding (2016)



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**Aim:** To establish a closer working relationship to maximise CSO and OSi data and assets for our mutual stakeholders and in support of the Government's Public Sector Reform agenda.

- 1. Establish joint CSO/OSi technical working group to develop data visualisation.
- 2. Develop technical solution to fulfil Ireland's reporting responsibilities under the United Nations 2030 agenda for Sustainable Development.
- 3. Collaboration in developing new data dissemination channels.
- 4. Promote the statistical potential of geospatial data as part of the wider development of the National Data Infrastructure (NDI).





# What we've achieved to-date





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## **Developed Geospatial portal for Census 2016**

• Statistical and boundary data fused together to provide over 500 layers of geo-statistical information.

http://census2016.geohive.ie/







On this site Census 2016 datasets have been combined with Ordnance Survey Ireland's (OSi) official boundary data as part of a collaboration project between the Central Statistics Office (CSO) and OSi to link geography and statistics.





An Phríomh-Oifig Staidrimh Central Statistics Office



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## Developed and launched Ireland's UN-SDG Data Hub (Nov. 2017)

http://irelandsdg.geohive.ie/

- Established a joint OSi/CSO data governance team.
- We've been working on 12 of the 17 SDG Goals and have developed 60 indicators and 112 datasets at NUTS 3, county and local area geography.





Governments, businesses and civil society together with the United Nations (UN) have started to mobilise efforts to achieve the Sustainable Development Agenda by 2030. Universal, inclusive and indivisible, the Agenda calls for action by all countries to improve the lives of people everywhere.

Ireland's Sustainable Development Goals National Implementation Plan 2018-2020 provides a whole-of-government approach to implement the 17 Sustainable Development Goals (SDGs).

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## SDG 5.5.1, NUTSIII, Proportion of Seats Held by Women in Local Government, 2014, Local Government Elections & OSi

#### Showing 1 to 8 of 8

▼ OBJECTID	▼ NUTS1	▼ NUTS1NAME	▼ NUTS2	▼ NUTS2NAME	▼ NUTS3	▼ NUTS3NAME	▼ ShapeArea	▼ Shape_
1	IE	Ireland	IE04	Northern and Western	IE041	Border	33976428463.48242	4334486.
2	IE	Ireland	IE04	Northern and Western	IE042	West	40510973141.15039	4736892.
3	IE	Ireland	IE05	Southern	IE051	Mid-West	28529686404.691406	1508101.
4	IE	Ireland	IE05	Southern	IE052	South-East	19344366248.70215	1609152.
5	IE	Ireland	IE05	Southern	IE053	South-West	32387562750.646972	4373512.

Hint: Click on **T** to filter columns

APIs 🗸

Download Data 🗸

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### A y 2

Ireland's Life on Land

### Ireland's Protected Areas

The map represents SDG 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas at Electoral Division level, 2017.

At this geography a high proportion of lands covered by protected areas are apparent in the Midlands and in the East associated with major ecological areas such as the **River Shannon** and the **Wicklow Mountains**.





## http://irelandsdg.geohive.ie/





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## http://irelandsdg.geohive.ie/



#### A y 2

The Changing Patterns of Unemployment and Poverty in Ireland, 2011-2017

### A focus on cities

The map displays unemployment rate and total unemployed population from the Census 2016 at ED level. A closer look at Dublin illustrates that varying unemployment rates within the area.

Data at this level provide a detailed representation of unemployment trends. This visualisation highlights the divide (North East, South West divide) in high and low levels of unemployment.





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## **Developed a National Geospatial Linked Data Standard**

- 20+ common national datasets as '5 Star' Linked Data
- Publication of 2016 Census data





Search.

## Jointly hosted 'EFGS 2017' (European Forum for Geography and Statistics)

HOME

- 230 delegates
- 31 countries
- 5 continents









Padraig Dalton Director General - CSC

### Welcome to the official website of the 10th **European Forum for Geography and Statistics (EFGS)**

This year's conference takes place in Dublin from 2nd to 3rd November 2017 and is proudly hosted by Ireland's Central Statistics Office (CSO) and Ordnance Survey Ireland (OSi). The partnership between the CSO and OSi is long established and was recently underpinned by a commitment to collaborate in relation to the visualisation of statistical outputs, publishing certain geographies as Linked Open Data and fulfilling Ireland's reporting responsibilities under the United Nations 2030 agenda for Sustainable Development. READ MORE



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# **National Data Infrastructure**



# **Collaboratively supporting NDI**







- 'National Data Infrastructure (NDI) Champions' Working Group
- 'Data As An Enabler' Working Group











# More geospatial/statistics collaboration (



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New analysis created from OSi and CSO data sources, including earth observation data:



Ratio of land consumption rate to population growth rate





National land use and land cover

# **Further collaboration on NDI**









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# Summary



# Summary



- Collaboration proven to be a great success (UN-GGIM), providing clear win-win for us and our stakeholders (we are greater than the sum of our parts).
- Value of having a clear understanding on roles and responsibilities regarding national geospatial and statistical data (playing to our strengths & removing duplication).
- The value in visualising statistical data within a geospatial context.
- The value of re-purposing existing systems and architecture.
- As a result of this successful collaboration CSO and OSi are actively collaborating in supporting government in the development of National Data Infrastructure (NDI).
- It's amazing what can be done with a simple MOU and good will.



