

# Integration of statistical and geospatial information

## *Ireland's national COVID-19 response*

Lorraine McNerney, CIO

EFGS Conference 2020

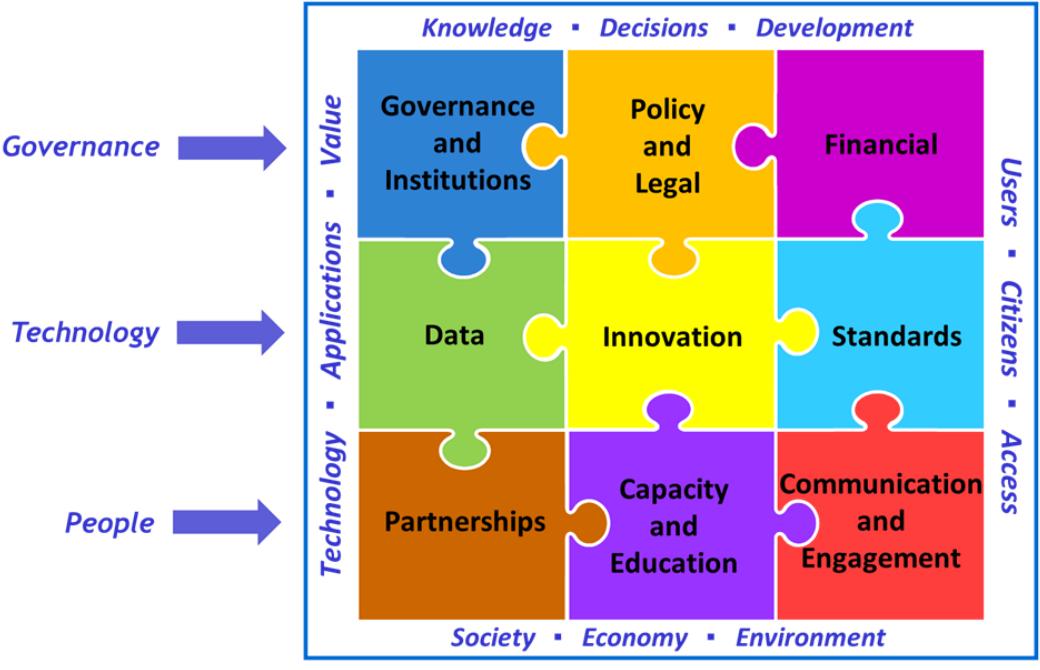
20<sup>th</sup> October 2020



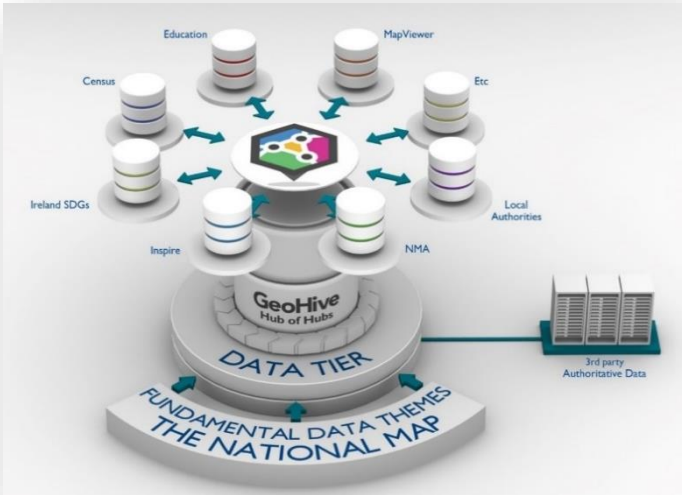
Rialtas na hÉireann  
Government of Ireland





# National Geospatial Policy



# Ireland's geospatial data hub



 GeoHiveDev




## Data Strategy

Statistics na hÉireann  
Government of Ireland

### Vision:

*To establish a data ecosystem that will improve how we govern, manage and re-use the data in a secure, efficient, and transparent way, for the benefit of citizens, businesses and policy makers.*


Public Service Data Strategy 2019-2023



#### The National Map

Explore National Map data, services and applications.


Explore MicroHive



#### Statistics & Mapping

Explore geospatial statistics, services and applications.


Explore MicroHive



#### Housing & Planning

Explore geospatial housing & planning data, services & applications.


Explore MicroHive



#### Environment

Explore environmental data, services and applications.


Explore MicroHive



#### INSPIRE

Explore National Map data, services and applications.

Explore MicroHive



#### Heritage & Archaeology

Explore National Map data, services and applications.

Explore MicroHive

## Statistics & Mapping

GeoHive Home / Statistics & Mapping MicroHive

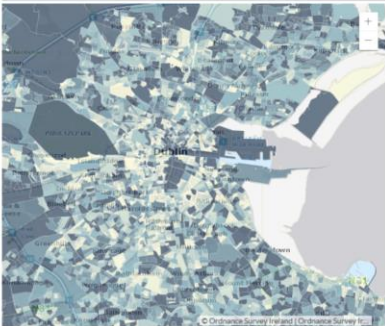
It is now readily accepted that integrating statistical and geospatial information is critical for:

- local, sub-national, national, regional, and global decision making processes;
- measuring and monitoring the targets and global indicator framework for the Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development;
- supporting data sharing between institutions and enhancing the interoperability of geospatial and statistical information;
- unlocking new insights and data relationships that would not have been possible by analysing socio-economic, environmental or geospatial data in isolation;
- promoting investment and capability building in geospatial and statistical information;
- building institutional collaboration between geospatial and statistical communities; and,
- examining new sources of data that includes geospatial information, for example mobile phone data.

Global Statistical Geospatial Framework: Linking Statistics & Place, UN-GGIM

Explore Statistical Data

### Total Population of Ireland by Small Area - 2016 Census



© Ordnance Survey Ireland and Ordnance Survey UK

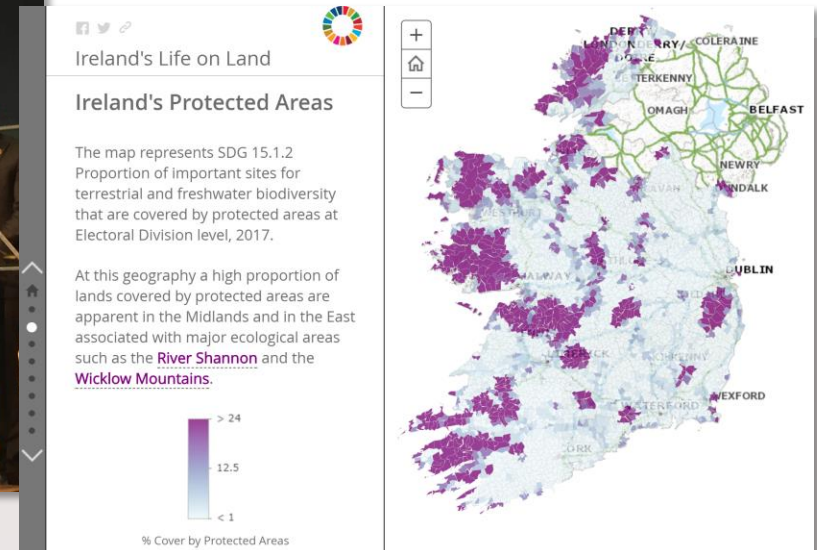


# Ireland's United Nations Sustainable Development Goals team

*Geospatial Data and GeoHive Platform*



*Statistics and Data Governance*






# Then ... refocusing the SDG team to COVID-19

Full-screen Sign

## Coronavirus **COVID-19**









**If you have fever and/or cough you should stay at home regardless of your travel or contact history.**

**All people are advised to:**

- > **Reduce** social interactions
- > **Keep a distance** of 2m between you and other people
- > **Do not** shake hands or make close contact where possible

If you have symptoms visit [hse.ie](https://www.hse.ie)  
OR phone HSE Live **1850 24 1850**

### How to Prevent

					
<b>Wash</b> your hands well and often to avoid contamination	<b>Cover</b> your mouth and nose with a tissue or sleeve when coughing or sneezing and discard used tissue	<b>Avoid</b> touching eyes, nose, or mouth with unwashed hands	<b>Clean</b> and disinfect frequently touched objects and surfaces	<b>Stop</b> shaking hands or hugging when saying hello or greeting other people	<b>Distance</b> yourself at least 2 metres (6 feet) away from other people, especially those who might be unwell

### Symptoms

- > Fever (High Temperature)
- > A Cough
- > Shortness of Breath
- > Breathing Difficulties



### Affected Regions

Check the list of affected regions on [www.hse.ie](https://www.hse.ie)

### For Daily Updates Visit

[www.gov.ie/health-covid-19](https://www.gov.ie/health-covid-19)  
[www.hse.ie](https://www.hse.ie)

Ireland is operating a containment strategy in line with WHO and ECDC advice



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# GeoHive COVID-19 Response Co-ordination Group



Memorandum of Understanding



An Roinn Tithíochta, Pleanála agus Rialtais Áitiúil  
Department of Housing, Planning and Local Government

Service Level Agreement



Ordnance Survey  
Ireland

Framework Agreement

Memorandum of Understanding



An Phríomh-Oifig Staidrimh

Central Statistics Office



esri Ireland  
THE SCIENCE OF WHERE™



Ordnance Survey  
Ireland



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Government of Ireland

# GeoHive COVID-19 Group - Purpose & Vision

## Purpose

- To coordinate the technical, data, policy, and financial activities related to providing key data and tools, via GeoHive the State's geospatial data hub, to inform Ireland's response to the COVID-19 outbreak

## Vision

- To provide key data and tools to inform Ireland's operational intelligence and situational awareness efforts in response to the COVID-19 outbreak

# Terms of Reference, March 2020

## GeoHive Covid-19 Response Coordination Group

<b>Name</b>	GeoHive Covid-19 Response Coordination Group
<b>Membership</b>	<p>The membership of this group consists of the following organisations:</p> <ul style="list-style-type: none"><li>• Ordnance Survey Ireland (OSi)</li><li>• The Central Statistics Office (CSO)</li><li>• The Department of Housing, Planning, and Local Government (DHPLG)</li><li>• the All-Island Research Observatory (AIRO)</li><li>• Esri Ireland.</li></ul> <p>The associated levels of responsibility and accountability are defined in a separate RASCI matrix.</p>
<b>Goals for the Group</b>	<p>The goals for this group are to:</p> <ol style="list-style-type: none"><li>1. Build a participation network that facilitates the “collect once, use many times” philosophy of the Public Services Data Strategy for geo-statistical data in the response to the Covid-19 outbreak.</li><li>2. Introduce geospatial and statistical data governance procedures that focus on reducing/removing data duplication.</li><li>3. Maximise the use of the State’s geospatial hub (GeoHive) through appropriate data collection and data visualisation.</li></ol>
<b>Group Working Methods</b>	<p>The GH-COVID19-RCG meets on a daily basis with all meetings held using remote video/phone conferencing to maintain social distancing.</p> <p>The Group has established a:</p> <ul style="list-style-type: none"><li>• GeoHive Covid-19 response platform with public, private and secure virtual data room capabilities</li><li>• Geo-statistical data governance and management sub-group to provide expertise in support of the Government’s Covid-19 response</li><li>• GeoHive technical architecture sub-group to provide the expertise in support the Government’s Covid-19 response.</li></ul>
<b>Group Documentation</b>	<p>A Terms of Reference (TOR), Data Governance and Stakeholder Relationship mapping is in place to manage the governance and co-ordination of the stakeholders involved and communication channels.</p> <p>A shared programme repository has been established.</p>

1

To build a participation network that facilitates the “collect once, use many times” philosophy of the Public Service Data Strategy in the response to the COVID-19 outbreak

2

To introduce geospatial and statistical data governance procedures that focus on reducing/removing data duplication

3

To maximise the use of the GeoHive through appropriate data collection and data visualisation



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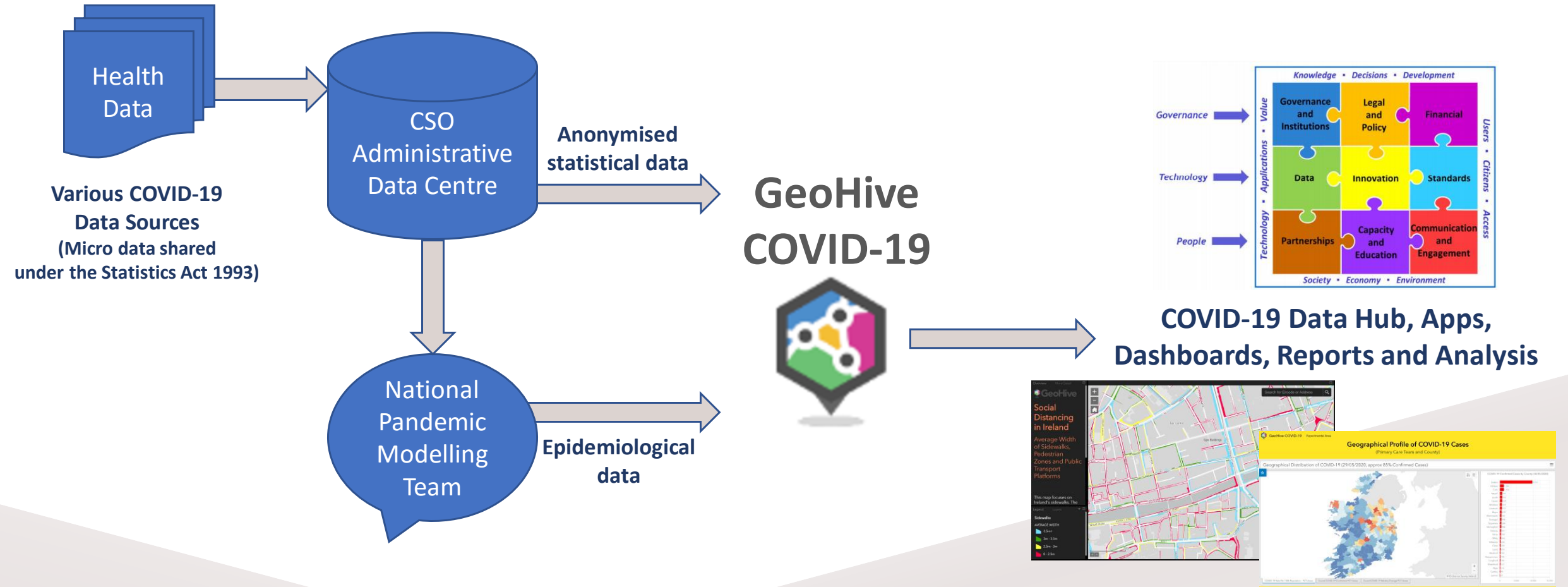


# Data, infrastructure and processes

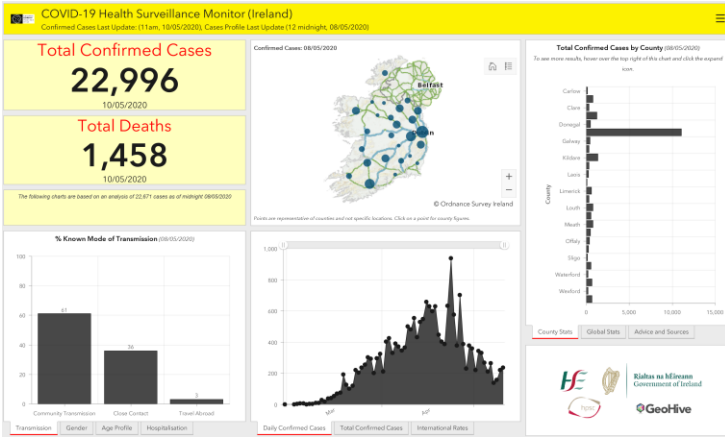
The Group has established:

- ✓ GeoHive COVID-19 response platform with public/private/secure virtual data hubs
- ✓ Geo-statistical data governance and management sub-group to provide expertise in support of the national COVID-19 response
- ✓ GeoHive technical architecture sub-group to provide the expertise in support of the national COVID-19 response
- ✓ 8 initiatives delivered to date which are summarised in the following slides

# COVID-19 Data Ecosystem and Data Governance

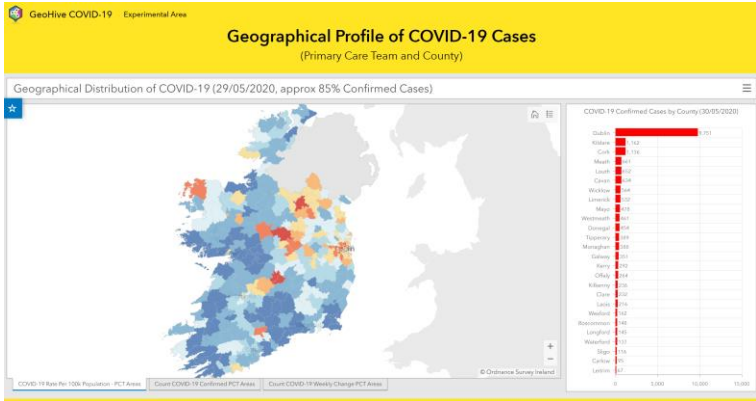


# Public COVID-19 Dashboard

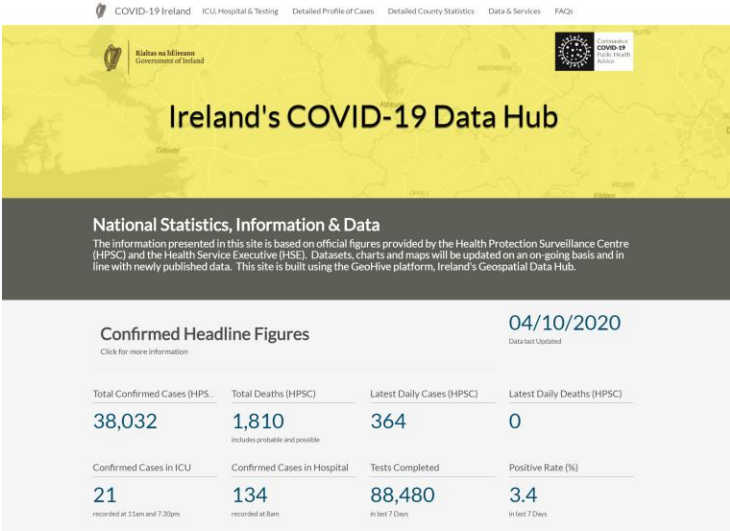
GeoHive service	Apps	Usage
<p>Publically available Health Surveillance Monitor Dashboard for the Department of Health.</p> <p><a href="https://geohive.maps.arcgis.com/apps/opsdashboard/index.html#/29dc1fec79164c179d18d8e53df82e96">https://geohive.maps.arcgis.com/apps/opsdashboard/index.html#/29dc1fec79164c179d18d8e53df82e96</a></p>		<p>Updated daily.</p> <p>Over 750,000 hits during March to June on desktop; 650,000 on mobile devices.</p>



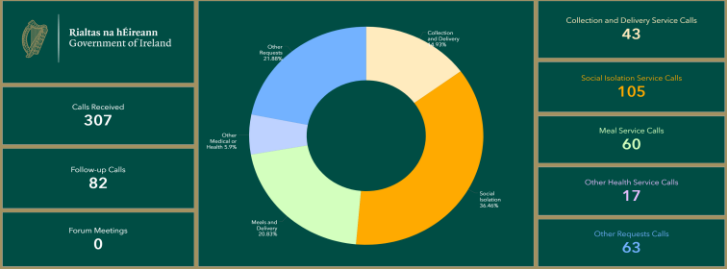
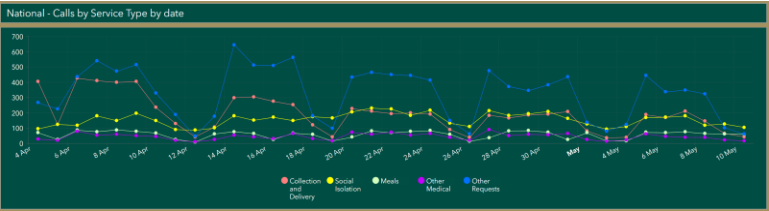
# National Public Health Emergency Team secure data hub

GeoHive service	Apps	Usage
<p>Secure data hub to provide geo-statistical visualisation for the National Public Health Emergency Team (NPHE) and the Department of Health (DOH).</p> <p>Restricted access for nominated NPHE and DOH personnel.</p>	 <p>The screenshot shows the 'GeoHive COVID-19' app interface. At the top, it says 'Experimental Area'. The main title is 'Geographical Profile of COVID-19 Cases (Primary Care Team and County)'. Below this, it states 'Geographical Distribution of COVID-19 (29/05/2020, approx 85% Confirmed Cases)'. The central part of the screen displays a map of Ireland with regions colored in shades of blue, orange, and red, representing different levels of COVID-19 activity. To the right of the map is a bar chart titled 'COVID-19 Confirmed Cases by County (30/05/2020)'. The chart lists various counties and their corresponding confirmed cases, with Dublin having the highest number of cases (2,201). At the bottom of the app, there are three tabs: 'COVID-19 Raw Data 10M Population - PCT Areas', 'Count COVID-19 Confirmed PCT Areas', and 'Count COVID-19 Weekly Change PCT Areas'. The bottom right corner of the app shows a copyright notice for '© Ordnance Survey Ireland'.</p>	<p>Updated daily.</p> <p>Over 100 National Public Health Emergency Team key personnel actively using the service.</p>

# National COVID-19 data hub

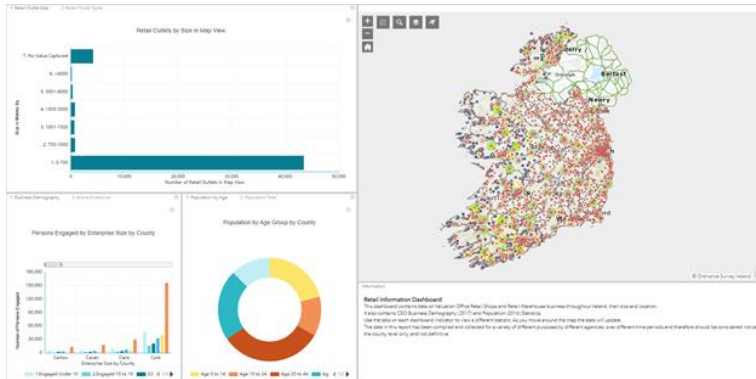
GeoHive service	Apps	Usage																
<p>Publically available National COVID-19 Geospatial Data Hub as a central location for up-to-date geospatial information related to COVID-19.</p> <p><a href="https://covid19ireland-geohive.hub.arcgis.com/">https://covid19ireland-geohive.hub.arcgis.com/</a></p>	 <p>The screenshot shows the Ireland's COVID-19 Data Hub website. At the top, there's a navigation bar with links: COVID-19 Ireland, ICU Hospital &amp; Testing, Detailed Profile of Cases, Detailed County Statistics, Data &amp; Services, and FAQs. Below this is a header with the Irish Government logo and the title "Ireland's COVID-19 Data Hub". A sub-header reads "National Statistics, Information &amp; Data" followed by a disclaimer. The main content area is titled "Confirmed Headline Figures" and is dated "04/10/2020". It contains a table of statistics:</p> <table><tr><th>Total Confirmed Cases (HPS)</th><th>Total Deaths (HPSC)</th><th>Latest Daily Cases (HPSC)</th><th>Latest Daily Deaths (HPSC)</th></tr><tr><td>38,032</td><td>1,810 <small>includes probable and possible</small></td><td>364</td><td>0</td></tr><tr><th>Confirmed Cases in ICU</th><th>Confirmed Cases in Hospital</th><th>Tests Completed</th><th>Positive Rate (%)</th></tr><tr><td>21 <small>recorded at 11am and 7.30pm</small></td><td>134 <small>recorded at 8am</small></td><td>88,480 <small>in last 7 Days</small></td><td>3.4 <small>in last 7 Days</small></td></tr></table>	Total Confirmed Cases (HPS)	Total Deaths (HPSC)	Latest Daily Cases (HPSC)	Latest Daily Deaths (HPSC)	38,032	1,810 <small>includes probable and possible</small>	364	0	Confirmed Cases in ICU	Confirmed Cases in Hospital	Tests Completed	Positive Rate (%)	21 <small>recorded at 11am and 7.30pm</small>	134 <small>recorded at 8am</small>	88,480 <small>in last 7 Days</small>	3.4 <small>in last 7 Days</small>	<p>Free access with additional resources in development including StoryMap and new dashboards.</p> <p>Over 500k hits per day.</p>
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# Local Authority dashboard

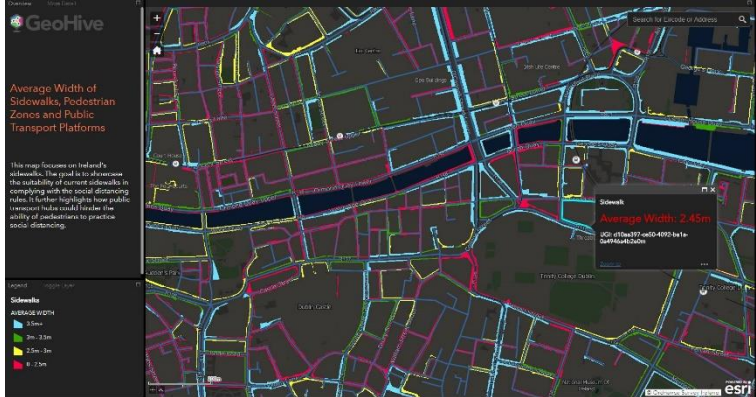
GeoHive service	Apps	Usage
<p>Local Authority Community Support GeoHive data platform under the Government’s “Community Call” initiative to provide supports or services to any vulnerable person who needs them.</p> <p><a href="https://community-call-covid-19-geohive.hub.arcgis.com/">https://community-call-covid-19-geohive.hub.arcgis.com/</a></p>	 <p>The dashboard for a Local Authority shows a donut chart with the following breakdown: Collection and Delivery (28.52%), Social Isolation (36.45%), Meal and Delivery (30.82%), Other Health (3.74%), and Other Requests (21.88%). To the left, a list shows: Calls Received (307), Follow-up Calls (82), and Forum Meetings (0). To the right, a list shows: Collection and Delivery Service Calls (43), Social Isolation Service Calls (105), Meal Service Calls (60), Other Health Service Calls (17), and Other Requests Calls (63).</p>	<p>Public and secure dashboards; updated daily.</p> <p>Publically available for use by all Local Authorities with a daily data supply.</p>  <p>The chart titled 'National - Calls by Service Type by date' shows data from 4 Apr to 10 May. The y-axis represents the number of calls (0 to 700). The legend includes: Collection and Delivery (red), Social Isolation (yellow), Meals (green), Other Medical (purple), and Other Requests (blue). The chart shows a significant peak in Social Isolation calls around mid-April, followed by a decline and then a rise in Other Requests calls towards the end of the period.</p>



# Dept. of An Taoiseach business dashboards / reports

GeoHive service	Apps	Usage
<p>Department of An Taoiseach (Ireland's Prime Minister) for recovery phase planning.</p> <p>Map-based dashboard that displays business and retail information, showing the classification, density and size of business premises by location.</p>	 The screenshot displays a dashboard with several components: a bar chart titled 'Retail Outlets by Size in Map View' showing the distribution of business sizes; a map of Ireland with numerous colored dots representing business locations; a donut chart titled 'Population by Age Group by County'; and a bar chart titled 'Persons Engaged by Enterprise Size by County'. A 'Retail Information Dashboard' text box is also visible at the bottom right of the map area.	<p>Secure data hub to visualise the impact of a decision to reopen a particular part of the economy; dashboard with business location data, classified by business type.</p> <p>OSi have also provided business data reports and analysis.</p>

# National Transport Authority data service

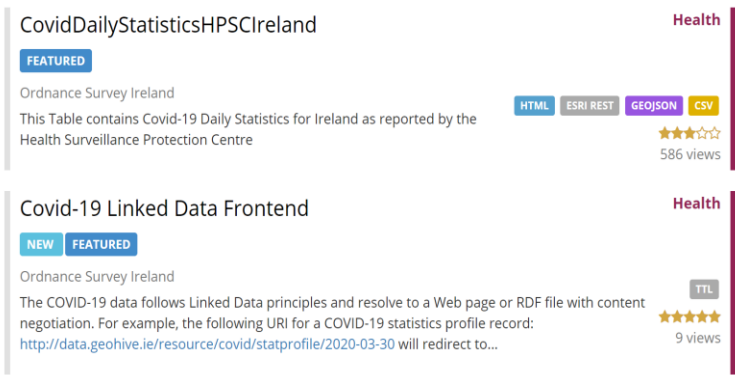
GeoHive service	Apps	Usage
<p>National Transport Authority and Local Authority service for Social Distancing in Ireland which includes average width of Sidewalks, Pedestrian Zones and Public Transport Platforms.</p>		<p>Data service that focuses on Ireland's sidewalks to showcase the suitability of current sidewalks in complying with the social distancing rules.</p>

# An Garda Síochana data hub

GeoHive service	Apps	Usage
<p data-bbox="132 428 868 614">Geo-statistical visualisation of traffic volume data for An Garda Síochana (Irish Policing Service).</p> <p data-bbox="132 685 868 799">Restricted access for nominated Garda personnel.</p>	 <p>The screenshot displays a complex dashboard for traffic data analysis. At the top, a map of Ireland is overlaid with a network of roads and green circular markers indicating specific data points. To the right of the map, there are four donut charts labeled 'Traffic Flow North', 'Traffic Flow East', 'Traffic Flow South', and 'Traffic Flow West', each showing a percentage distribution. Below the map, the dashboard is divided into several sections: 'Analysis of TII Traffic Data for Covid-19 Operation Fanacht' with a map of yellow dots, 'Volume by Direction' with a bubble chart, 'Volume Box Plot January by Day of Week', 'Volume Box Plot April by Day of Week', and a '2020 Time Series Volume (April Filter)' line chart showing a downward trend over time.</p>	<p data-bbox="1643 428 2425 614">Secure access for all Senior Garda Personnel and Garda Control Room for traffic mobility and trend analysis.</p>



## 5\* Linked Open COVID-19 data

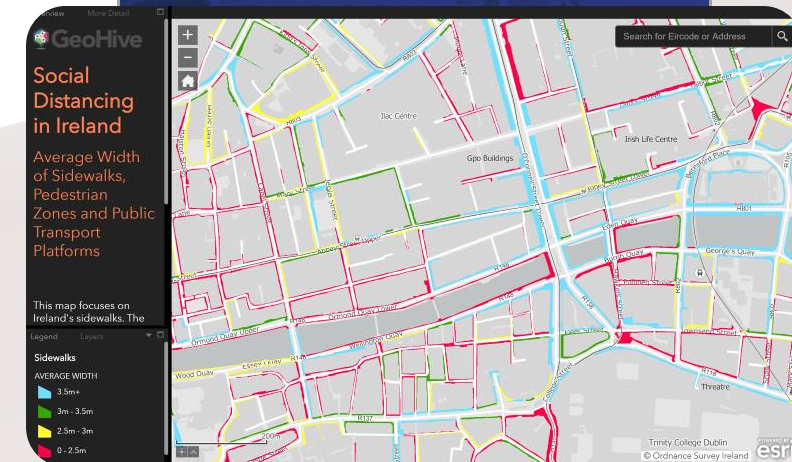
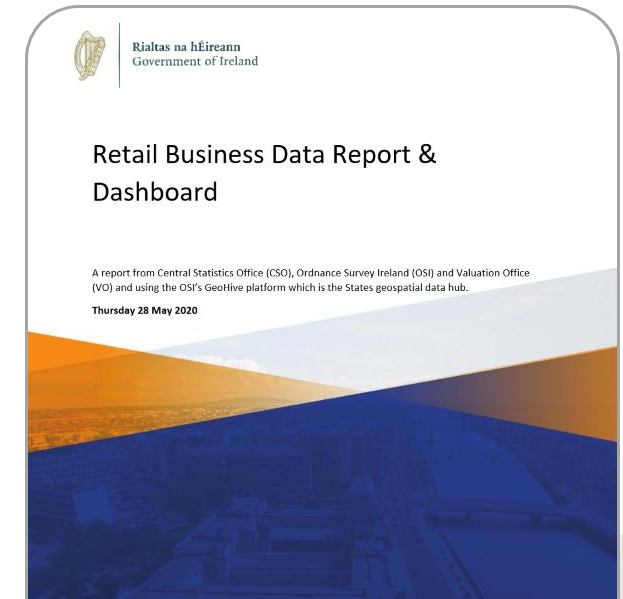
GeoHive service	Apps	Usage
<p>Daily Open Data update to data.gov.ie as 3-star and 5-star linked open data.</p> <p><a href="https://data.gov.ie/dataset?q=covid&amp;sort=score+desc%2C+metadata_created+desc">https://data.gov.ie/dataset?q=covid&amp;sort=score+desc%2C+metadata_created+desc</a></p>	 <p>The screenshot shows two search results on the GeoHive platform. The first result is 'CovidDailyStatisticsHPSCIreland' by Ordnance Survey Ireland, marked as 'FEATURED'. It has a 4-star rating (4 out of 5 stars) and 586 views. It lists formats: HTML, ESRI REST, GEOJSON, and CSV. The second result is 'Covid-19 Linked Data Frontend' by Ordnance Survey Ireland, marked as 'NEW' and 'FEATURED'. It has a 5-star rating (5 out of 5 stars) and 9 views. It mentions that the data follows Linked Data principles and provides an example URI for a COVID-19 statistics profile record.</p>	<p>Updated daily.</p> <p>Between 3k and 13k hits per day for the 6 services.</p>

# Key takeaways / lessons learnt

- COVID-19 Pandemic has formalised OSi's geospatial data hub, GeoHive, as an authoritative standardised public sector **data collaboration platform**
- **Geospatial data and apps** have played a key role in revealing **insights, patterns and trends** as part of the Ireland's COVID-19 response
- Geospatial and statistical **data governance** removed duplication and enabled sharing
- Rapid response due to **re-use of existing platform**, however there was still a significant data management overhead due to various standards used across data sources
- Resulted in the real understanding of the **value that geospatial data and infrastructure** plays in enabling data sharing, collaboration & analysis to gain insights and to manage.

# Next steps include ...

- ✓ Support key Government decision-makers to inform Ireland's Roadmap for dealing with the pandemic
- ✓ Expand data and visualisation tools
- ✓ Develop, with key national stakeholders, StoryMaps on the National COVID-19 response
- ✓ Continued data management and governance, including as open data services







**COVID-19**  
**RESPONSE**

***Thank you***



**Ordnance**  
**Survey**  
*Ireland*