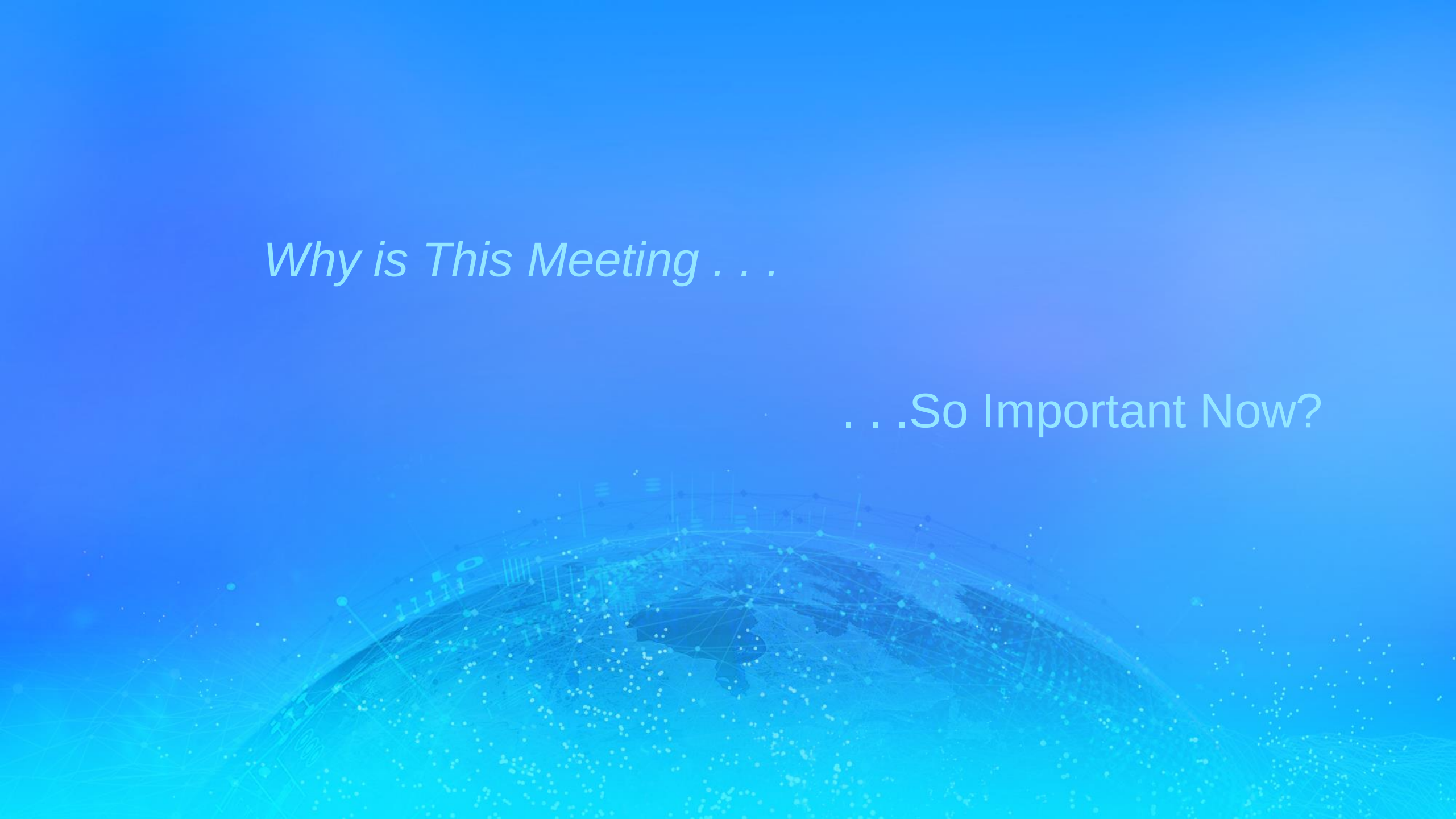

Transforming
Sharing
Understanding
Learning
Welcome
Connecting
Fun
Creating Relationships
Inspiring


Interests
Disciplines
Organizations
YOU
A Global Community of Geospatial and Statistical Professionals
Cultures
Backgrounds

Why is This Meeting . . .

. . .So Important Now?



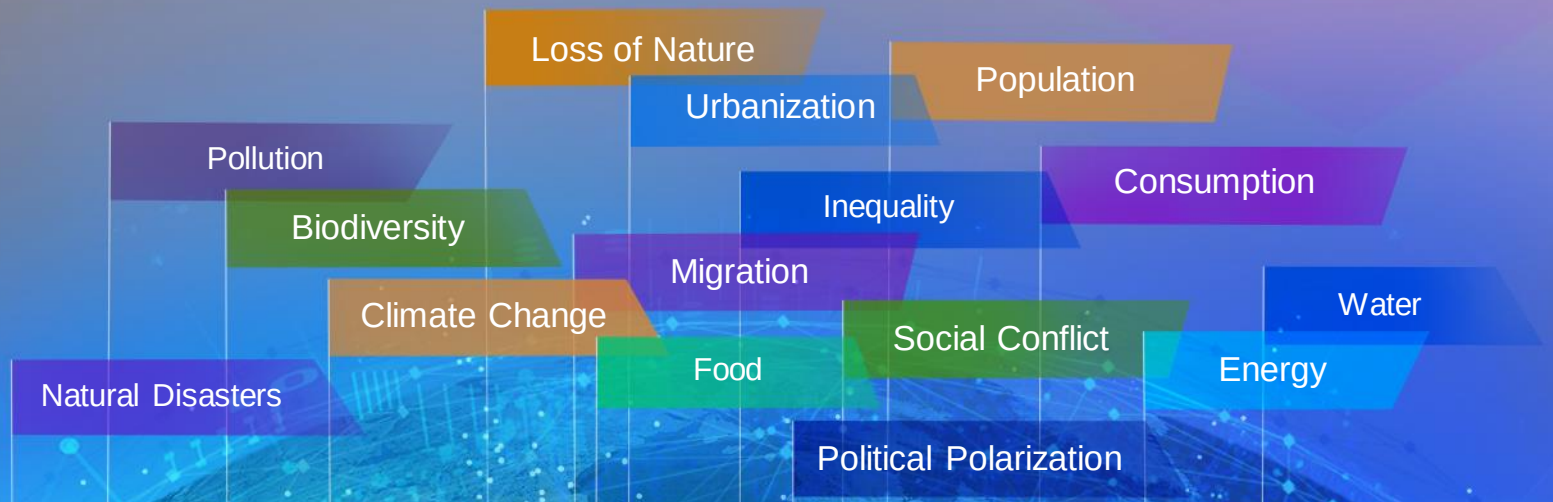
OUR WORLD

Is Increasingly Challenged

The Evidence Is Clear…

We Need *Better Understanding*…
…and *More Collaboration*

…and *Action*



OUR WORLD

Is Undergoing a Massive Digital Transformation

THE SCIENCE OF WHERE

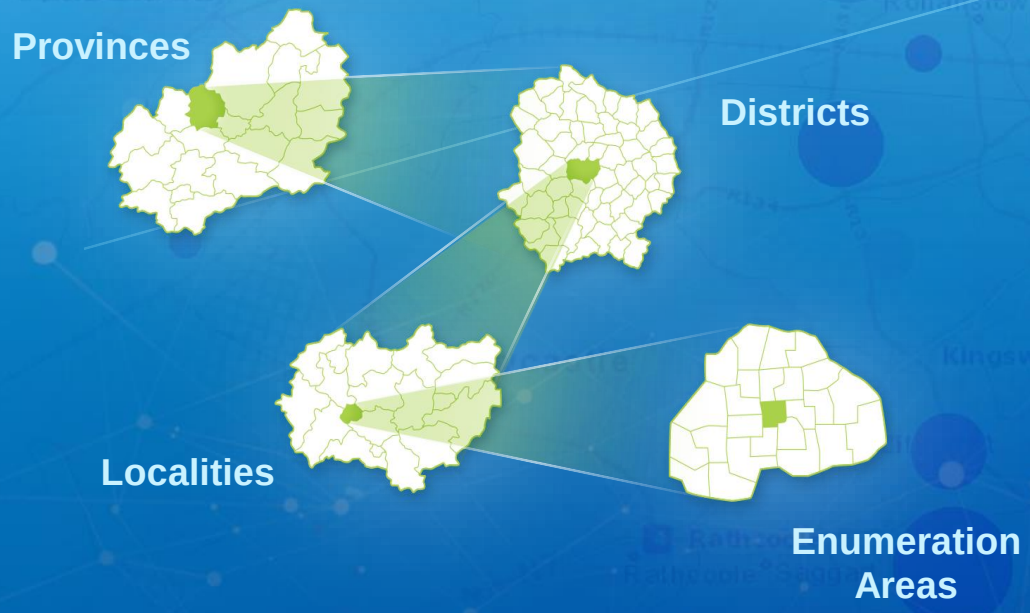
A Fundamental Digital Language

For Understanding and Managing Our World

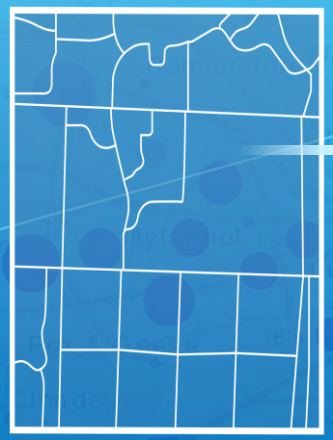
Geography and Statistical Data Are Foundational

An Integrated Data Model is Essential

Nested Administrative Hierarchy



Boundaries



Key

EA Id	Area
1203501750071	42.3
1203501750072	34.8
1203501750073	26.9
1203501750074	51.2

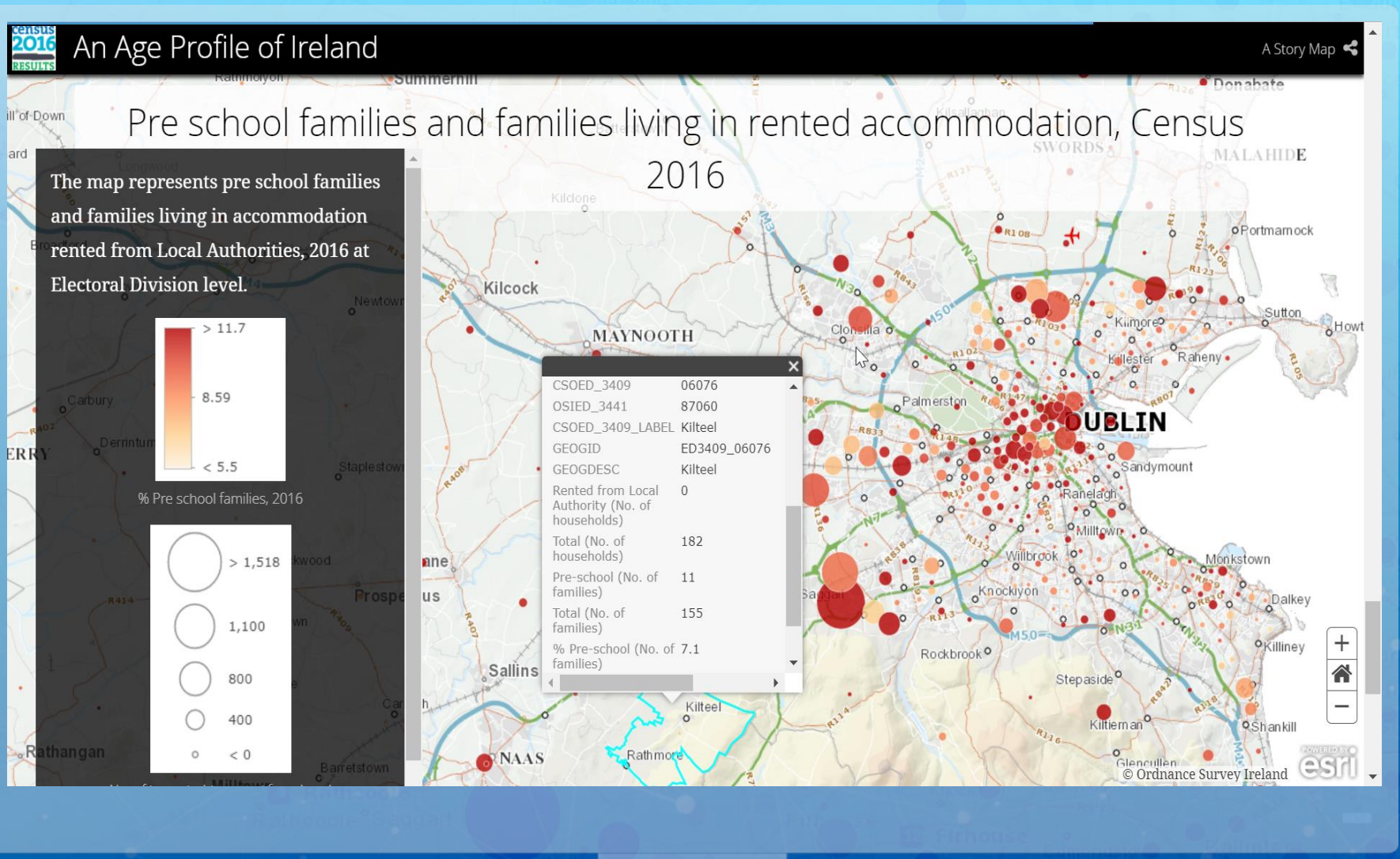
Census Data

EA Id	Population	Male	Female
1203501750071	432	209	223
1203501750072	502	240	262
1203501750073	525	258	267
1203501750074	494	251	243

EA Id	Num HH	Avg HH size
1203501750071	89	4.9
1203501750072	98	5.1
1203501750073	102	5.1
1203501750074	85	5.8

Diagram and information taken from the “Handbook on the Geospatial Infrastructure in Support of Census Activities”, Department of Economic and Social Affairs, United Nations Statistics Division

Enabling Understanding

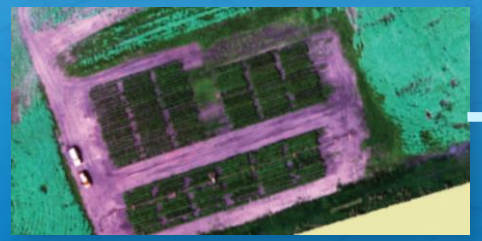


Imagery is an Essential Data Source

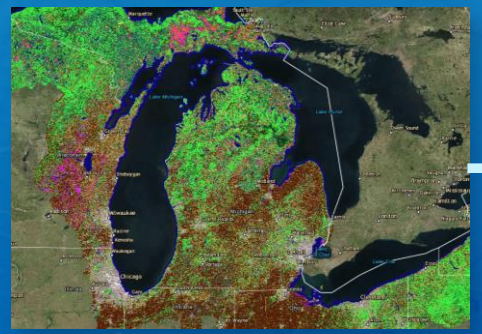
Integrating Earth Observations and Providing Periodic Reporting

Tree Canopy

Crop Health



Land Cover



Analytics

Key

EA Id	Area
1203501750071	42.3
1203501750072	34.8
1203501750073	26.9
1203501750074	51.2

Tree Canopy

EA Id	Density	Own	Height
1203501750071	4	C	M
1203501750072	5	A	L
1203501750073	5	C	H
1203501750074	6	O	M

Crop Health

EA Id	Moisture	Vigor
1203501750071	89	M
1203501750072	98	M
1203501750073	102	H
1203501750074	85	M

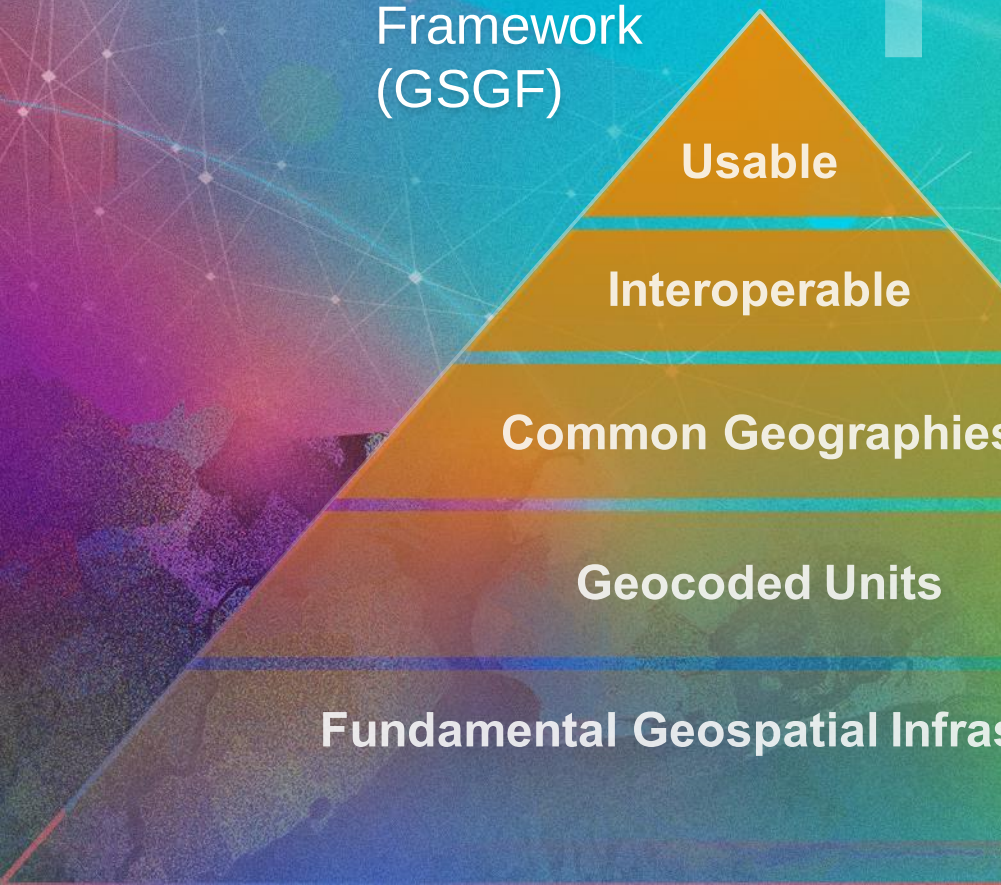
Land Cover

EA Id	PrimaryType	% change
1203501750071	Forest	+4.9
1203501750072	Ag	-5.8
1203501750073	WetL	-5.1
1203501750074	Scrub	+3.5

Image Integration and Machine Learning are Becoming a Fundamental Part of a Modern GIS

Integration of Statistical and Geospatial Data

Geospatial Framework (GSGF)



Statistical Process Model (GSBPM)

Planning/ Pre Enumeration	Enumeration	Post Enumeration/ Dissemination
Specify Needs	Collect	Disseminate
Design	Process	Evaluate
Build	Analyze	

Quality / Metadata Management

THE SCIENCE OF WHERE

A Framework and Process

Transforming How We Collaborate and Act . . .
Providing a More Integrated Approach

GIS Provides a Platform

For Managing, Analyzing, and Applying Geographic, Statistical & Imagery Information

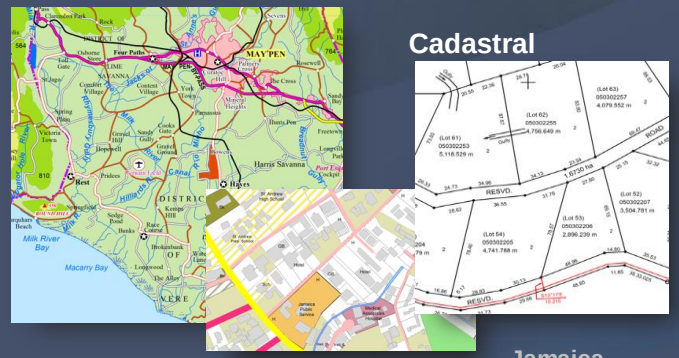
Integrating People, Processes, Things, and Data About Them

Using the Power of Where to Integrate Everything

GIS Applications Across UN-GGIM Working Groups

Mapping

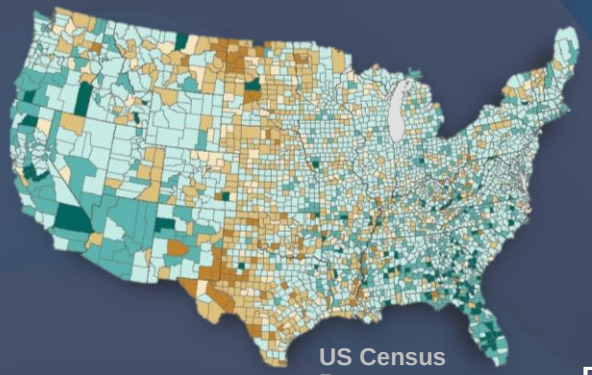
Topographical



Cadastral

Jamaica
National Land Agency

Official Statistics



US Census Bureau

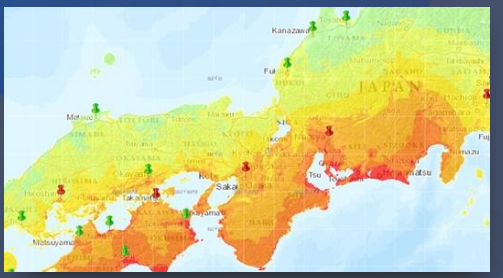
Comprehensive Planning

Korea
KICT

Vulnerable Populations

Poverty

Disaster Preparedness

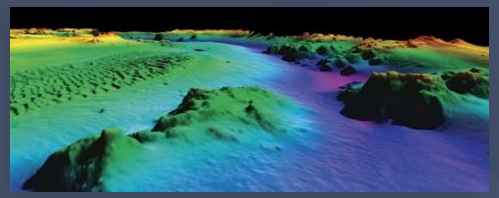


Japan
Kajima Corporation

Multiscale Topo Map

Switzerland
swisstopo

Maritime

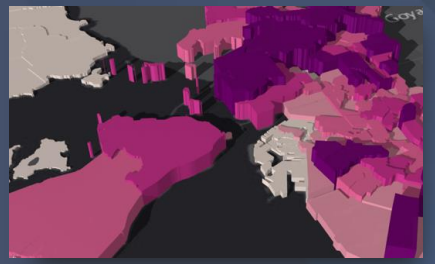


Bathymetry

Imagery

Change Analysis

Population Change



Korea
Incheon Metropolitan City

Access to Health Facilities

Haiti
UNICEF

Global Foundation

NGA

GIS Is Advancing Rapidly

Integrating and Leveraging Many Innovations

Scientific Measurements
Drones
Location
Surveys
Demographics
Traffic
Imagery
Weather
3D
Real-Time Video
Crowdsourcing
Lidar

Data

Mobile
Big Data
Faster
Machine Learning
Distributed Computing
Web Services
IoT
Cloud
SaaS
Microservices
Networks

Computing Infrastructure

GIS Innovation

Real-Time
3D
Data Exploration
Python
Portal
Hub
Apps
Open Data
Modern Desktop
Online Content
Dynamic Image Processing
Smart Mapping
Advanced Analytics
Open APIs

Web GIS

Easier, Open and Accessible

Expanding the Power of GIS

Web GIS Is the Modern GIS Architecture

Helping Everyone Do Their Work Better

Growing Exponentially

Sharing Knowledge

Collaboration

Leveraging Web Services

Improving Productivity and Efficiency

Web GIS Simplifies Working With All Types of Data

Using Web Maps, Scenes, and Layers

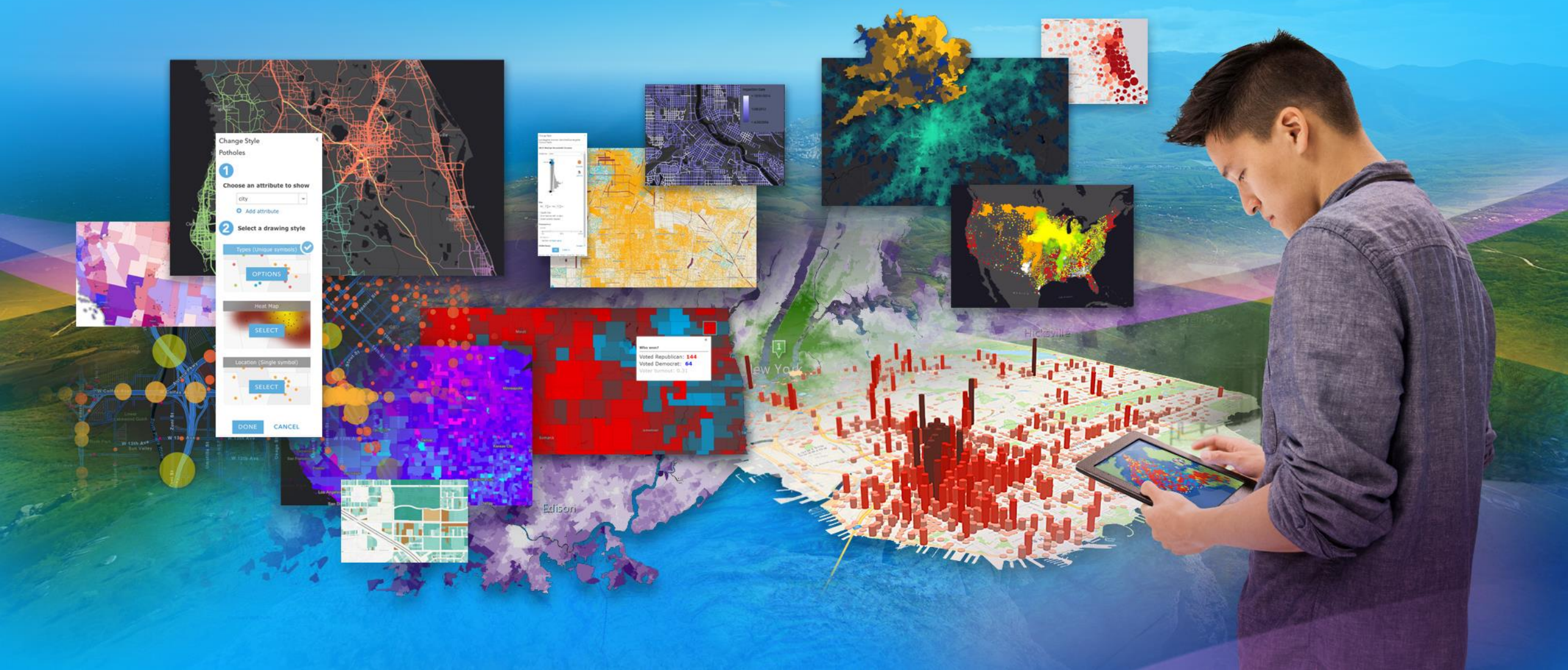
Apps Make the System Come Alive

Leveraging Open Data and Services

Across Organizations and Beyond

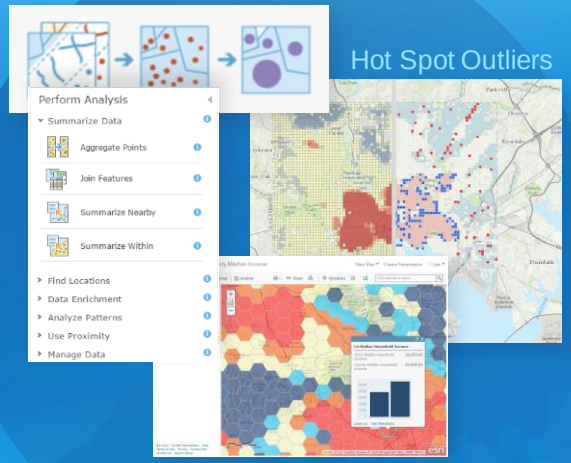
Smart Mapping and Exploratory Data Analysis

Simplifies the Use of Analytics and Creates Beautiful Maps



Advanced Spatial Analysis

Web-Based Analysis



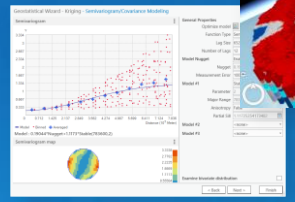
Hot Spot Outliers

Spatial Statistics

Space-Time Point Aggregation

Vector Analysis In Space-Time Cubes

Space-Time Pattern Mining



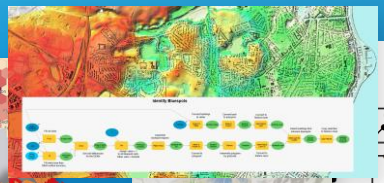
Geostatistical Wizard

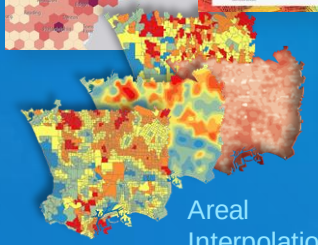
Enhanced Cube Explorer

Many Enhancements

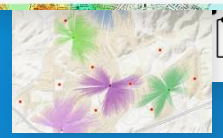
Dynamic Aggregation

Model Builder

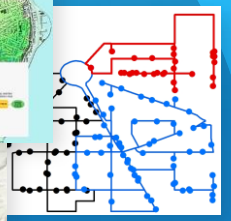




Areal Interpolation



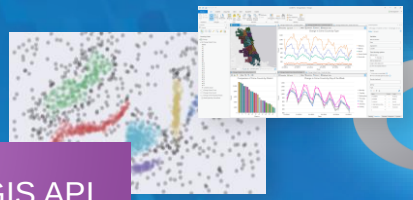
Optimum Site Selection



Optimized VRP Clustering

Science Integration

Charting



ArcGIS API for Python

Machine Learning Tools

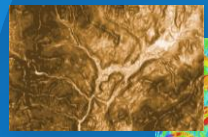
Improved R Integration

Improved Processing

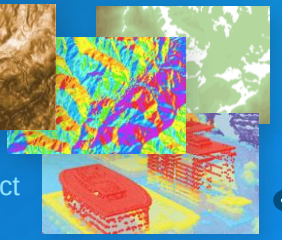
Parallel Processing

Big Data Analytics

Integration of Raster and Lidar



Improved Slope/Aspect

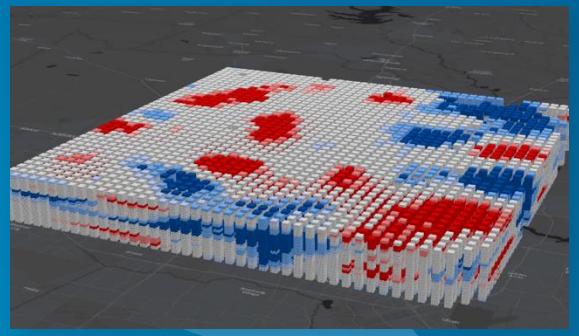


LAS Classification

New Raster Functions

Big Data Spatial Analytics | Faster and Massively Scalable

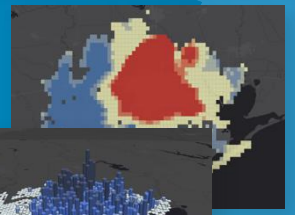
Spatial Observations
Large Collections and Real Time



Space-Time Cube

Riparian Areas

Imagery
Large Imagery Collection

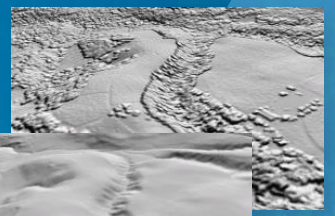


Hot Spots

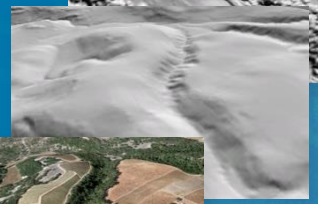
Density

Power Outages (50+ Million)

Faster (10x+)



Lidar: First Return



Lidar: Bare Earth

Imagery

Leveraging Distributed Computing, Machine Learning and Parallel Processing

Web GIS Enables New Types of Collaboration

Connecting Individuals, Organizations and Communities

Individuals

Breaking Down Barriers

Organizations

Sharing Knowledge

Communities

. . . Creating New Connections and Opportunities

Connecting Everyone

Using Web Maps and Apps to Share and Collaborate

Supporting Communication
and Real-Time Awareness

Web GIS Enables Community Engagement

Organizing and Managing Community Interactions

Providing Citizens Information . . .
. . . And Leaders Input

Community
GIS Hub

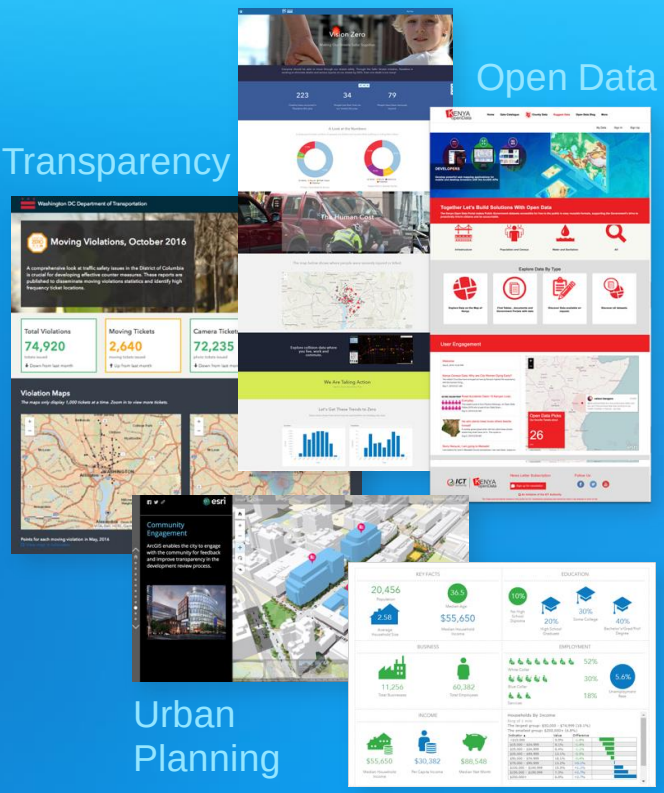
- Citizen Communication
- Citizen Surveys (Crowdsourcing)
- Status Reporting
- Open Data
- Storytelling
- Demographic Information

Policy Initiative Based

Vision Zero

Open Data

Transparency

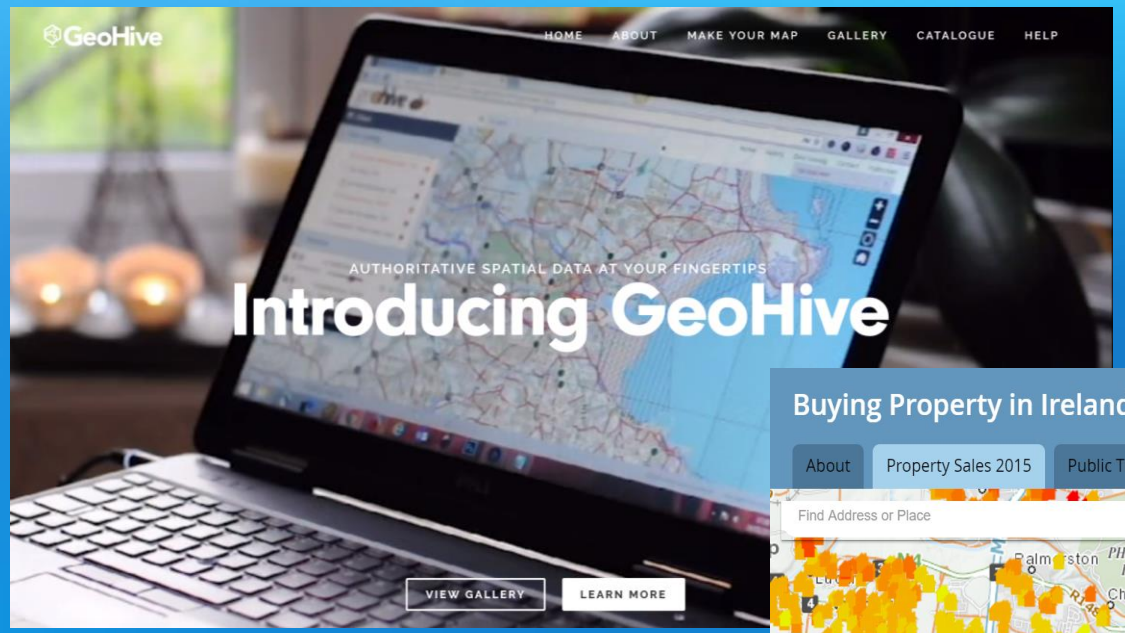


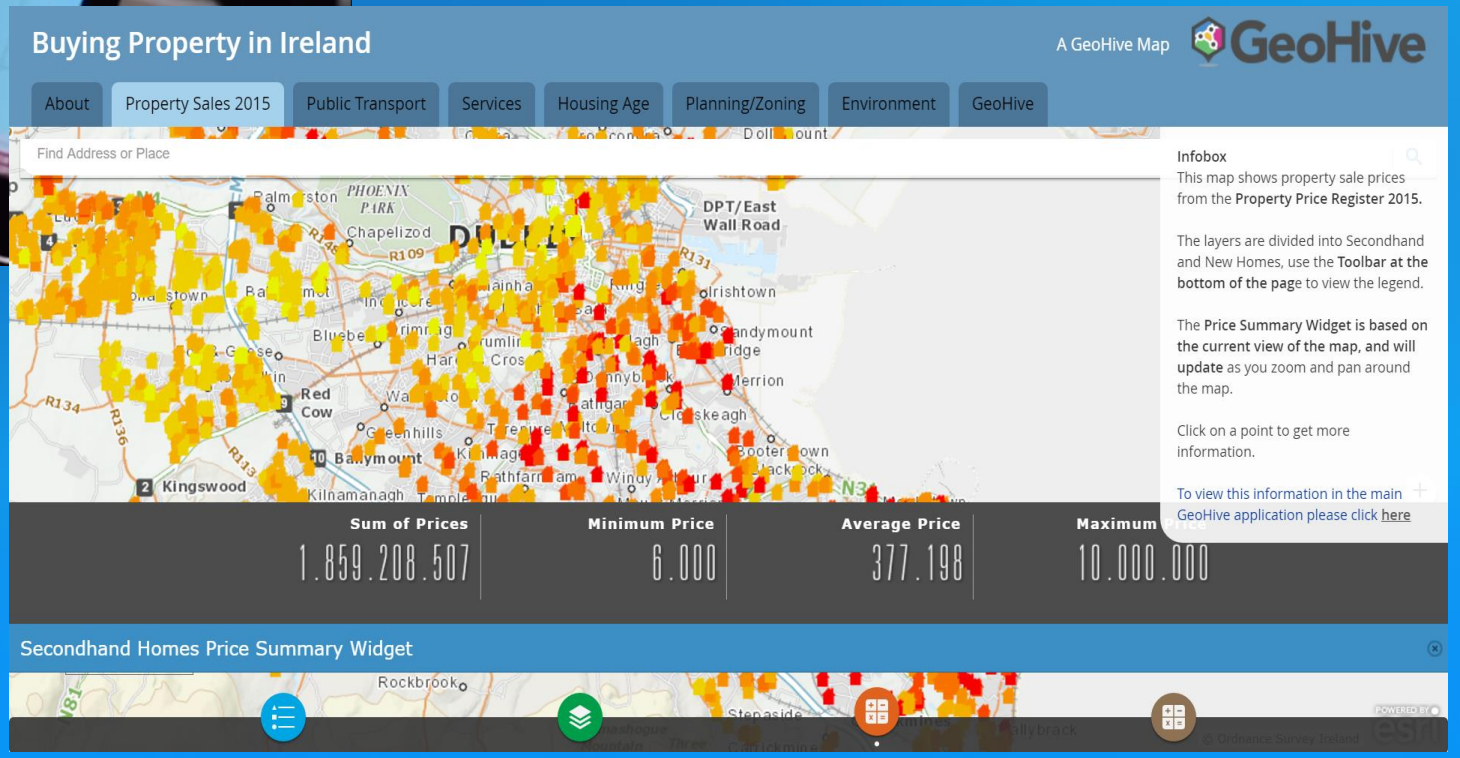
Urban Planning

Demographic Reporting

Using Shared Templates f

Web GIS Enables National SDI





Web GIS Enables Whole New Scale of GIS

Helping Everyone do Their Work Better

System of Systems

Sharing Knowledge

Collaboration

Leveraging Web Services

Improving Productivity and Efficiency

GIS Now Provides the Means . .

.

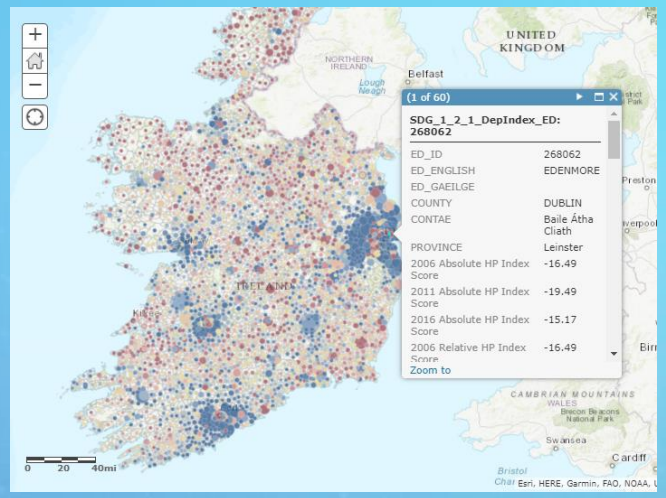
SDGs

. . For Creating Federated Systems

The UN is Working with Member States to Develop a Web System for Reporting on the SDG's

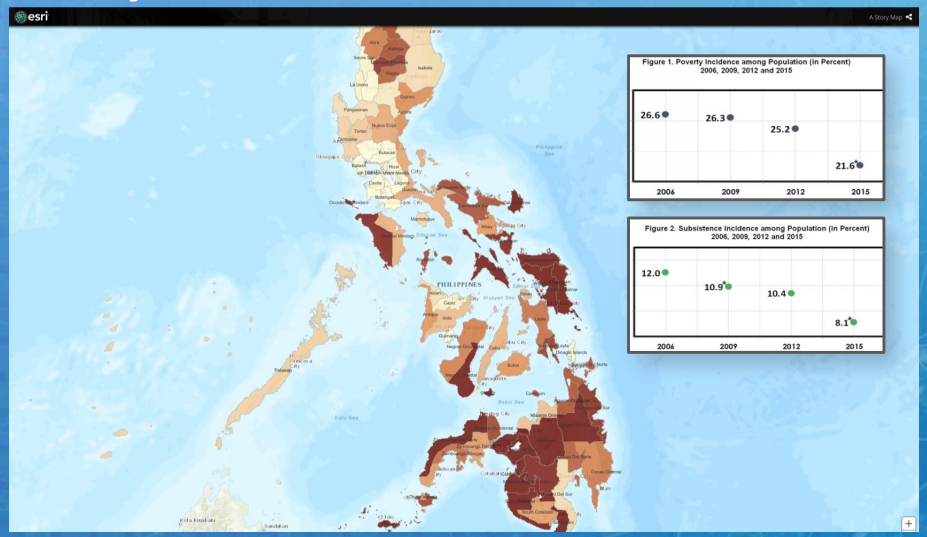
1 NO POVERTY

Population Below Poverty Line



Ireland

Poverty Incidence



Philippines

2 ZERO HUNGER

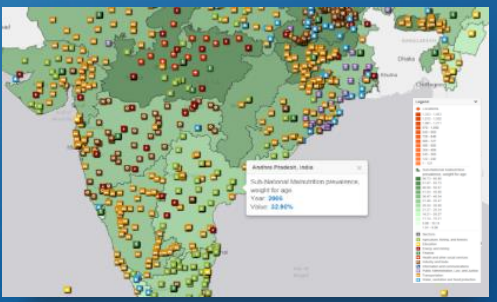
Food Supply

UN-Yemen

Crop Rotation

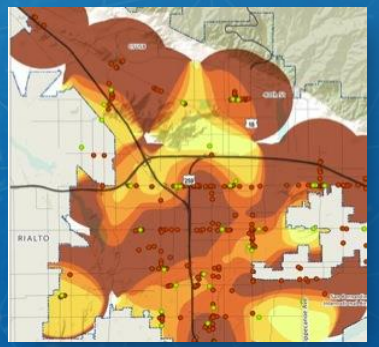
USA

Malnutrition



World

Healthy Food Access



California

Precision Agriculture

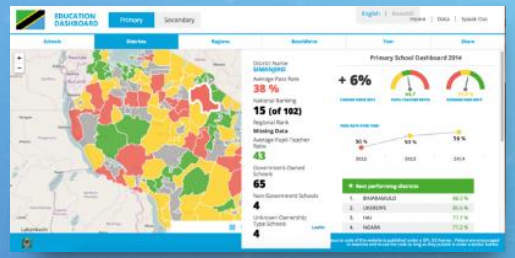
New Zealand

4 QUALITY EDUCATION

Disparity of School Access

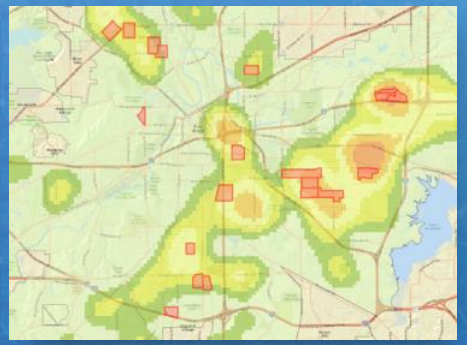
Washington, DC

School Performance



Tanzania

Child Maltreatment Prediction



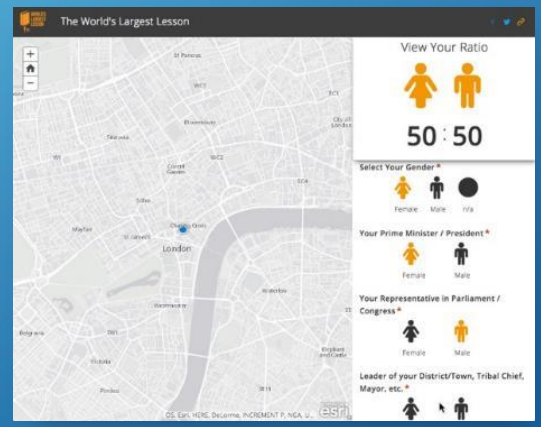
Texas

Traffic Accidents and Schools

Japan

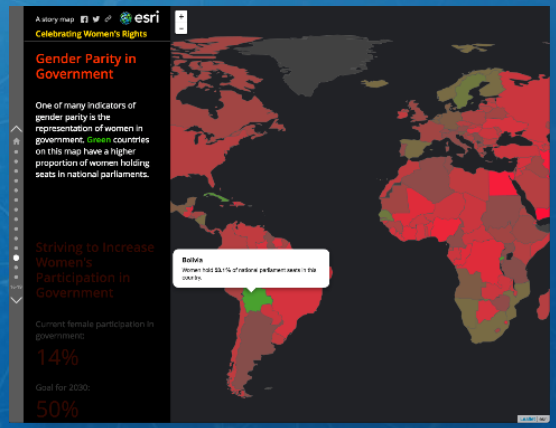
5 GENDER EQUALITY

Gender Ratio



London

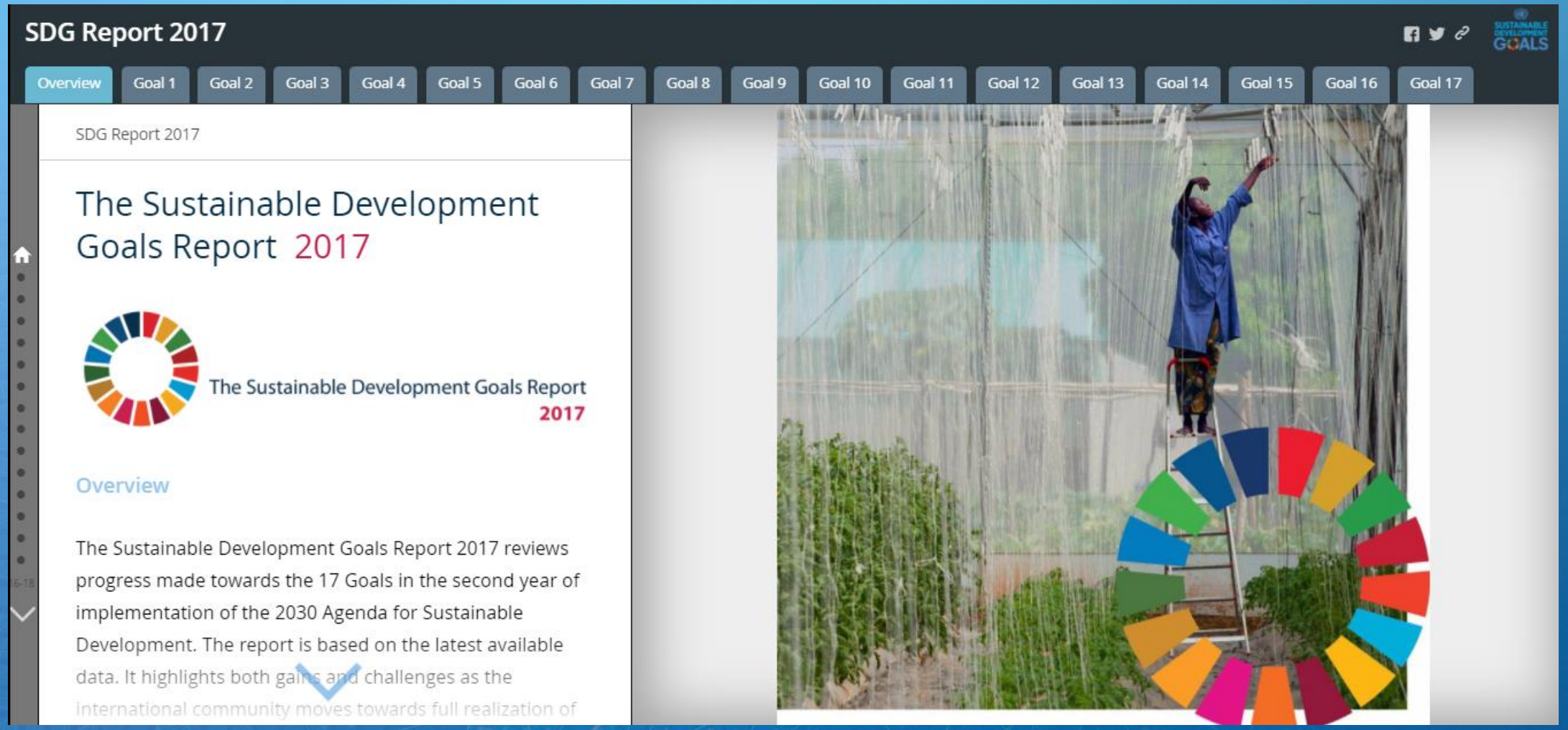
Gender Equality



Global

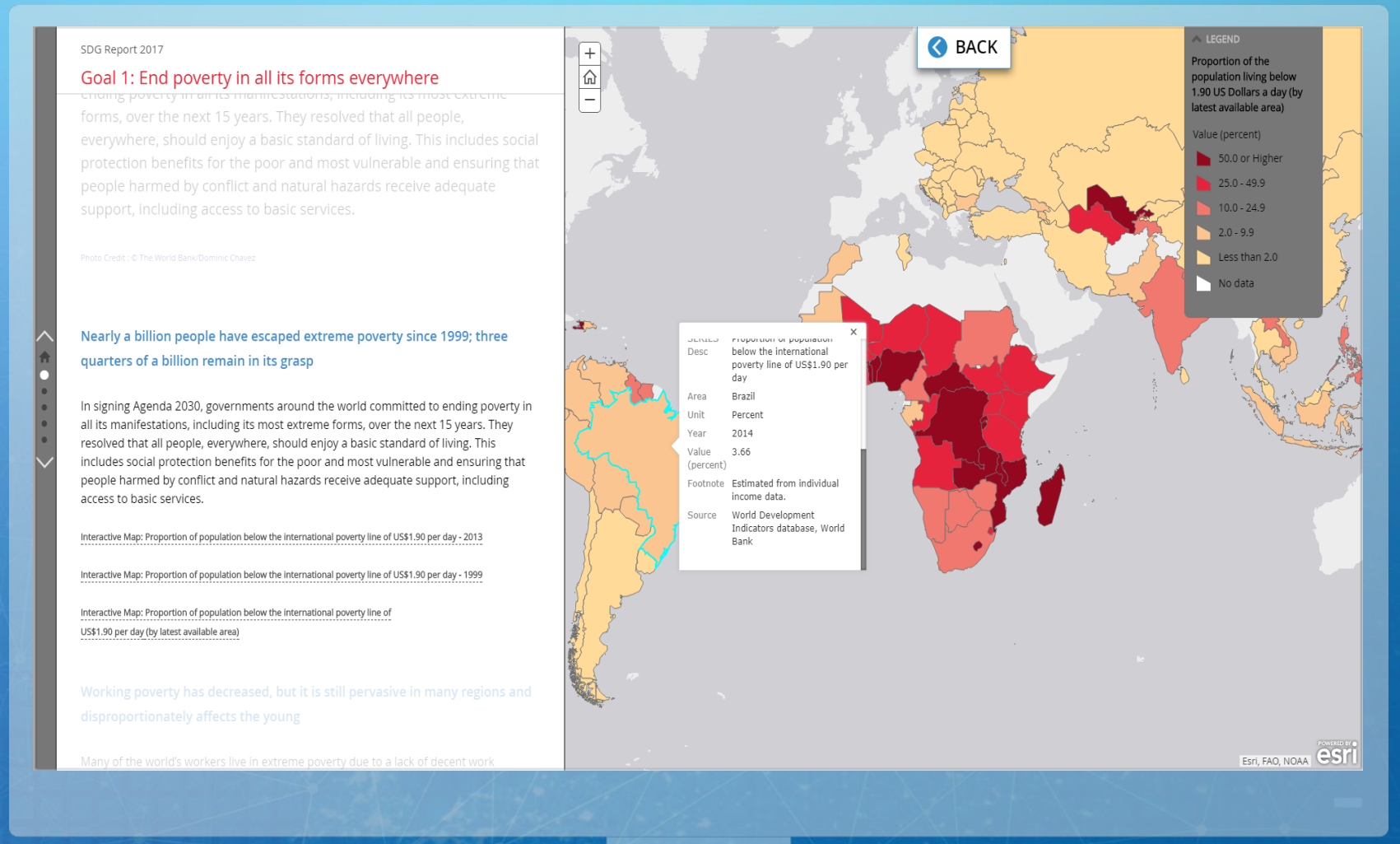
UNSD Created Applications for SDG Reporting

Story Maps Illustrate Data Driven Progress



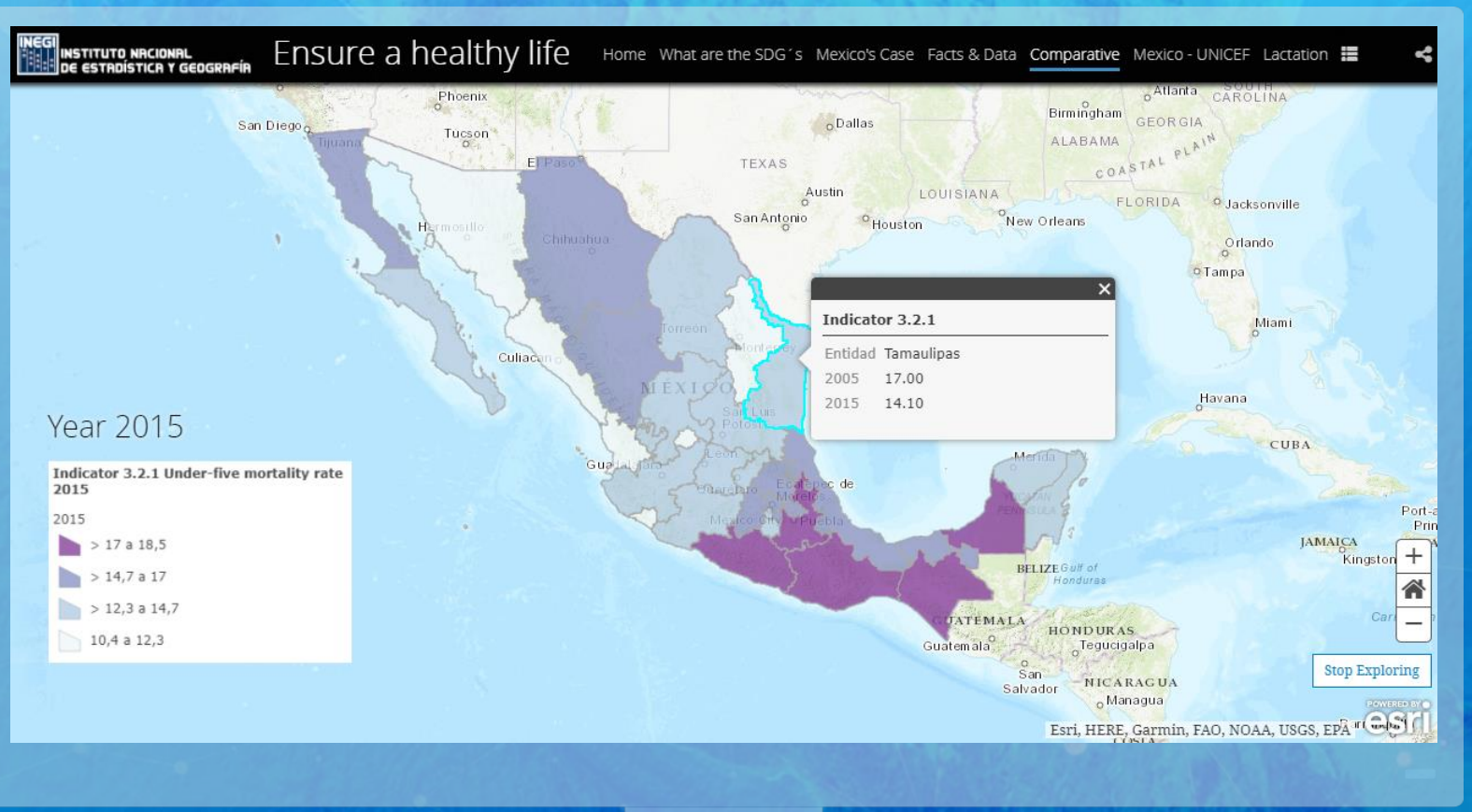
Information Products Can Be Published

Using An Open, Interoperable, and Services-based Approach



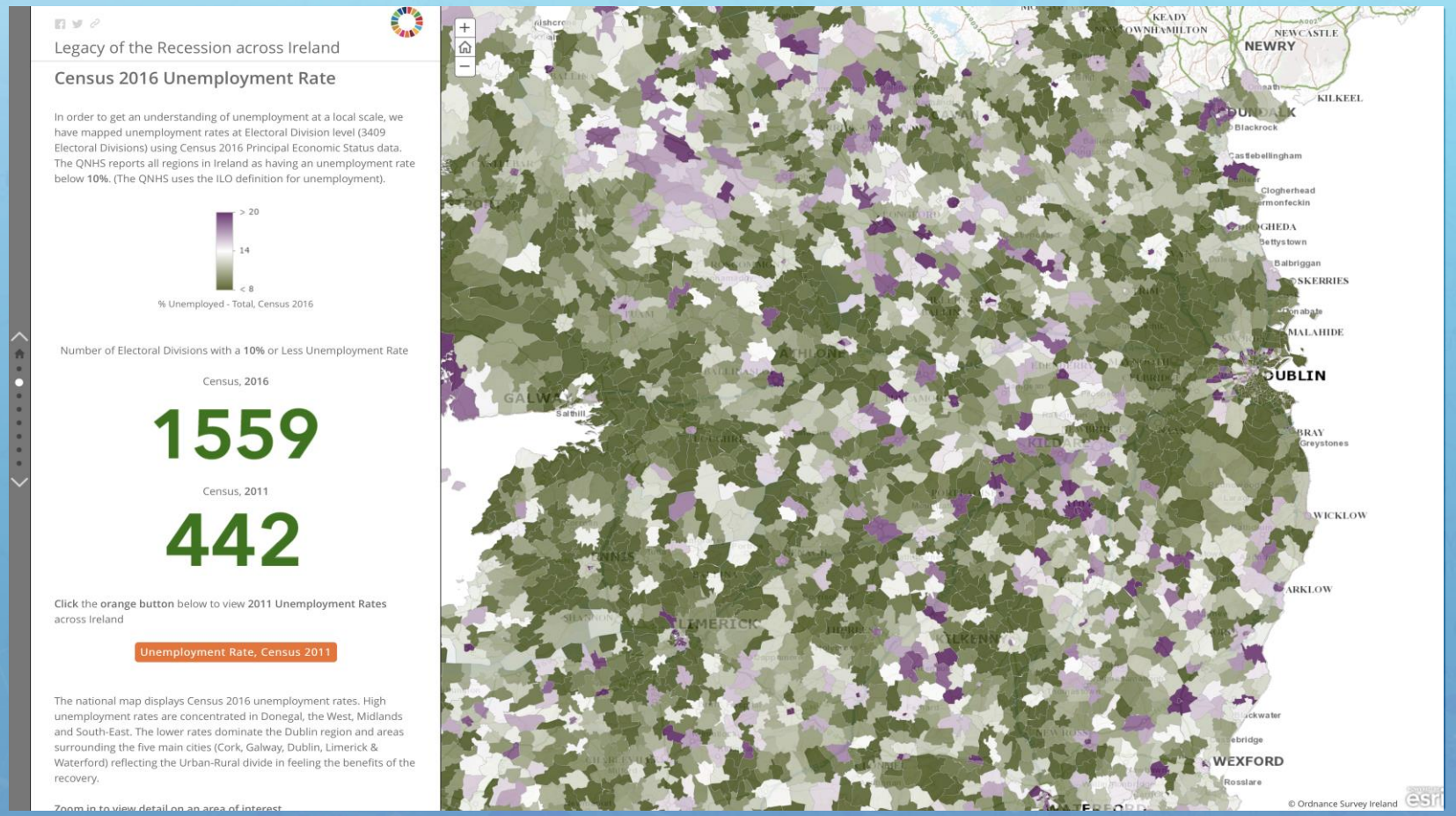
Tools Like This. . .

Are Already Determining Mexico's Development Progress



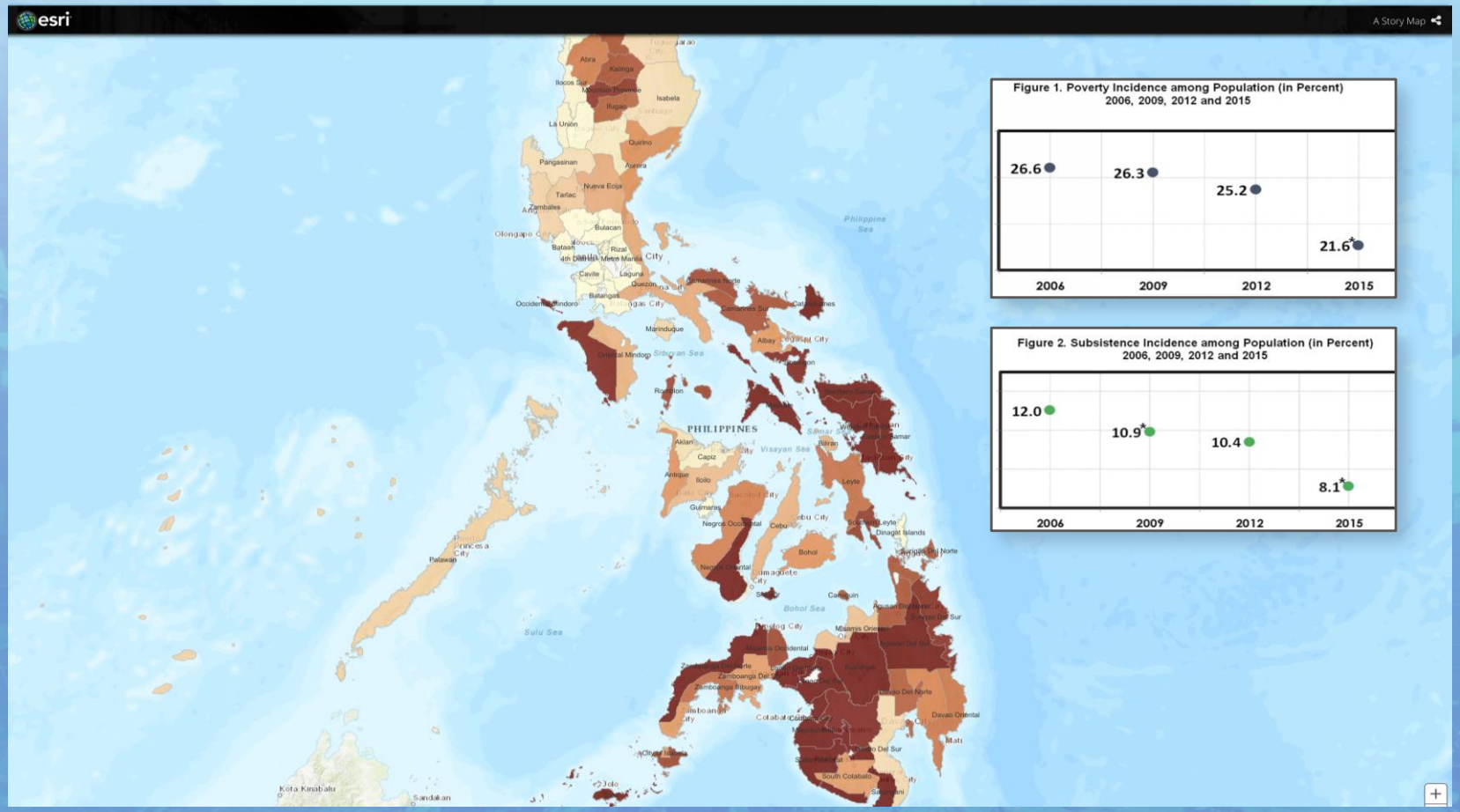
Helping Ireland Understand

Where to Apply Resources



Empowering the Philippines

To Understand Poverty

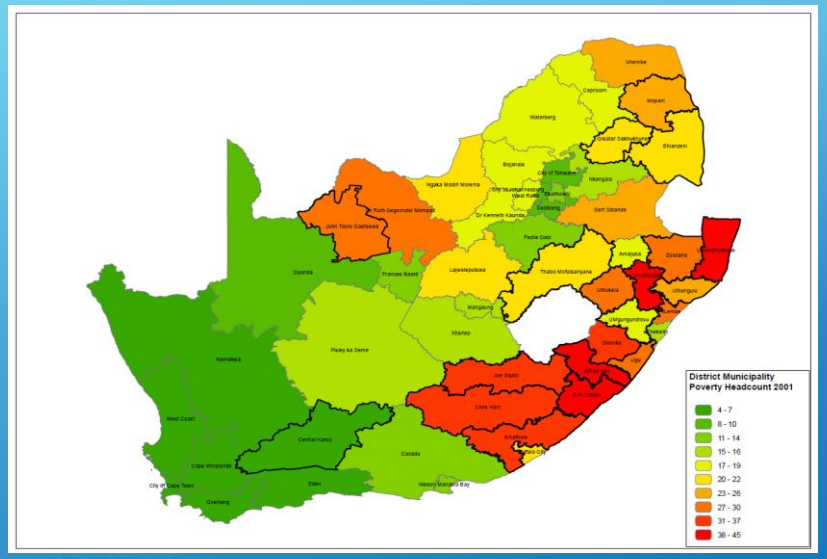


Helping South Africa

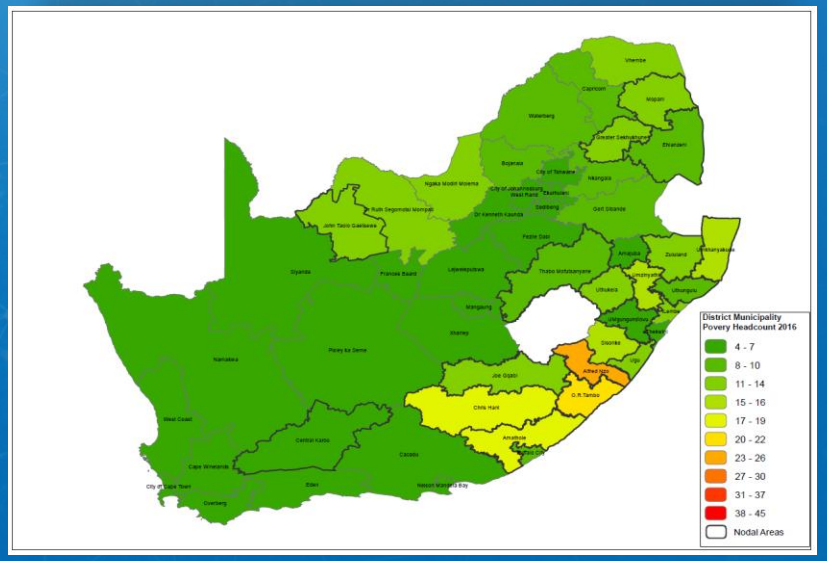
Visualize Statistical Patterns

	A	B	C	D
1	Statistics South Africa			
2	Descriptive_Sub_Place			
3	Table 1			
4	Geography by Population group			
5	for Person weighted			
6				
7		2001	2011	2016
8	DC10: Cacadu	6.9	3.9	2.2
9	DC12: Amathole	6.6	3.7	2.6
10	DC13: Chris Hani	7.4	3.9	2.6
11	DC14: Joe Gqabi	7.0	3.2	2.8
12	DC15: O.R.Tambo	3.8	2.0	2.9
13	DC44: Alfred Nzo	13.0	4.6	3.0
14	BUF: Buffalo City	4.8	2.5	3.1

	A	B	C	D	E
1	DC_MDB_C_2011	DISTRICT	2001	2011	2016
2	DC4	Eden	6.9	3.9	2.2
3	DC3	Overberg	6.6	3.7	2.6
4	CPT	City of Cape Town	7.4	3.9	2.6
5	DC6	Namakwa	7.0	3.2	2.8
6	DC1	West Coast	3.8	2.0	2.9
7	NMA	Nelson Mandela Bay	13.0	4.6	3.0
8	DC2	Cape Winelands	4.8	2.5	3.1
9	DC5	Central Karoo	6.2	2.4	3.1
10	DC42	Sedibeng	9.4	3.9	3.5
11	JHB	City of Johannesburg	9.1	3.7	3.5
12	ETH	eThekwini	14.8	6.6	3.8
13	TSH	City of Tshwane	9.6	4.2	4.1
14	DC10	Cacadu	13.8	5.2	4.5
15	DC25	Amajuba	18.2	7.5	4.7
16	DC18	Lejweleputswa	21.1	5.6	4.8
17	DC40	Dr Kenneth Kaunda	16.7	5.2	4.9
18	DC20	Fezile Dabi	12.4	4.4	4.9
19	MAN	Mangaung	14.7	4.8	5.0
20	DC16	Xhariep	16.1	4.9	5.3
21	DC8	Siyanda	10.3	4.7	5.3
22	DC9	Frances Baard	12.7	7.2	5.4
23	DC22	uMgungundlovu	17.4	7.7	5.9
24	DC7	Pixley ka Seme	15.2	7.2	6.0



2001



2016

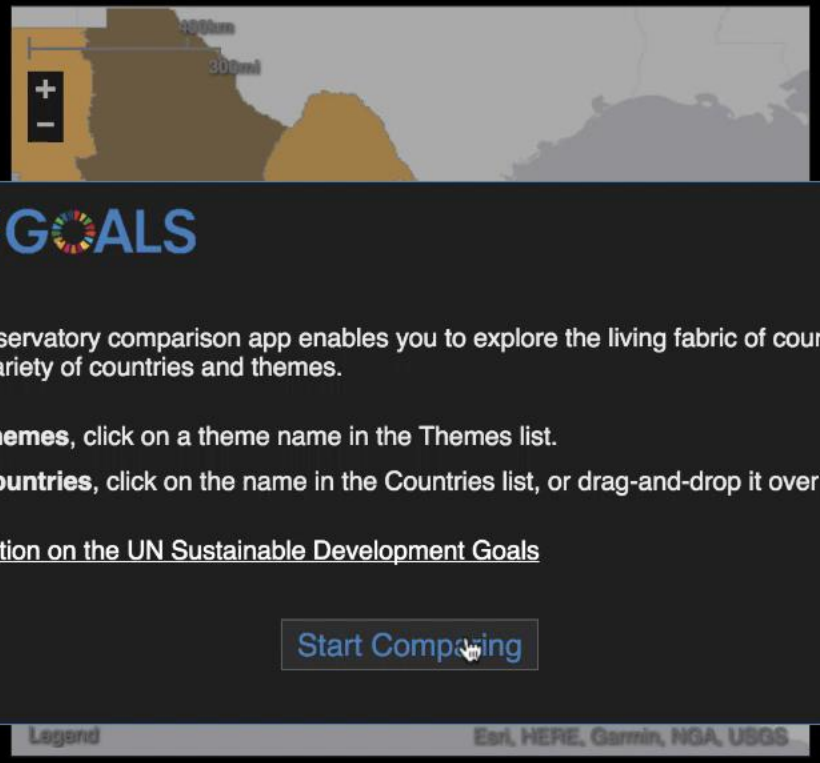
SUSTAINABLE DEVELOPMENT GOALS

Themes | Countries

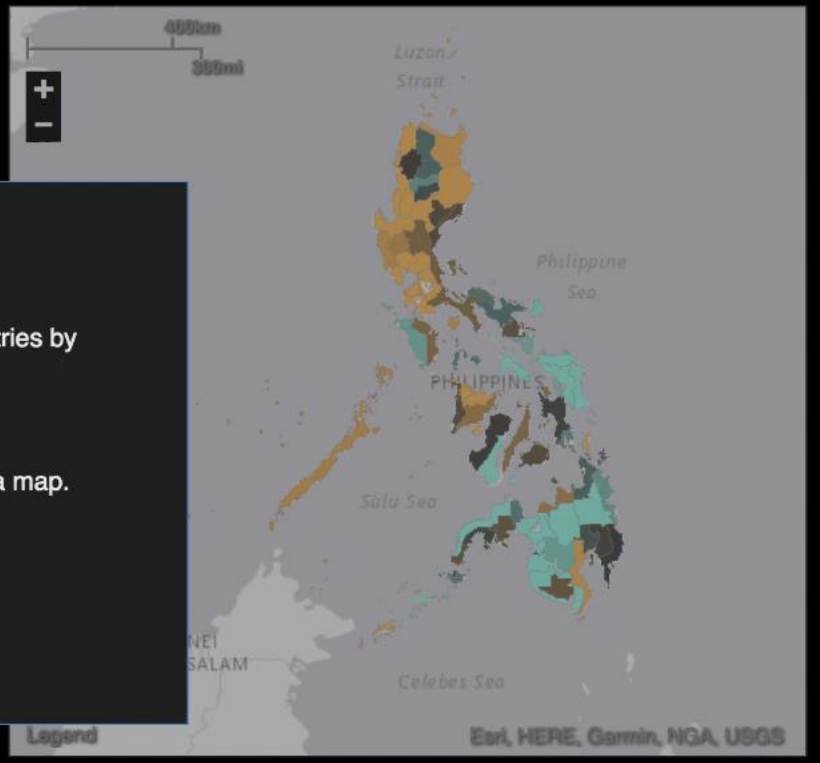
Poverty

Ireland

Mexico



Philippines



SUSTAINABLE DEVELOPMENT GOALS

The SDG Observatory comparison app enables you to explore the living fabric of countries by browsing a variety of countries and themes.

To change **Themes**, click on a theme name in the Themes list.

To change **Countries**, click on the name in the Countries list, or drag-and-drop it over a map.

More Information on the UN Sustainable Development Goals

Start Comparing

SDG 1.2.1, Proportion of Population Living Below the National Poverty Line, NUTSIII, 2015, Ireland, CSO & OSi

This feature layer represents Sustainable Development Goal indicator 1.2.1 'Proportion of Population Living Below the National Poverty Line' for Ireland in 2015. The layer was created using 'at risk of poverty rate' data from the Survey on Income and Living Conditions (SILC) 2015 produced by the Central Statistics Office (CSO) and NUTSIII boundary data produced by Ordnance Survey Ireland (OSi). In 2015 UN countries adopted a set of 17 goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to help achieve the goals set out in the agenda

Indicator 1.2.1 Proportion of population living below the national poverty line, by sex and age

Source of statistical information used to calculate the indicator:

- Instituto Nacional de Estadística y Geografía (INEGI). Módulo de Condiciones Socioeconómicas de la Encuesta de Ingresos y Gastos de los Hogares, 2010 - 2014
- Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL). Metodología para la medición multidimensional de la pobreza en México(1 de marzo de 2017).

Unit of measure: Percentage
Time reference: 2010-2014

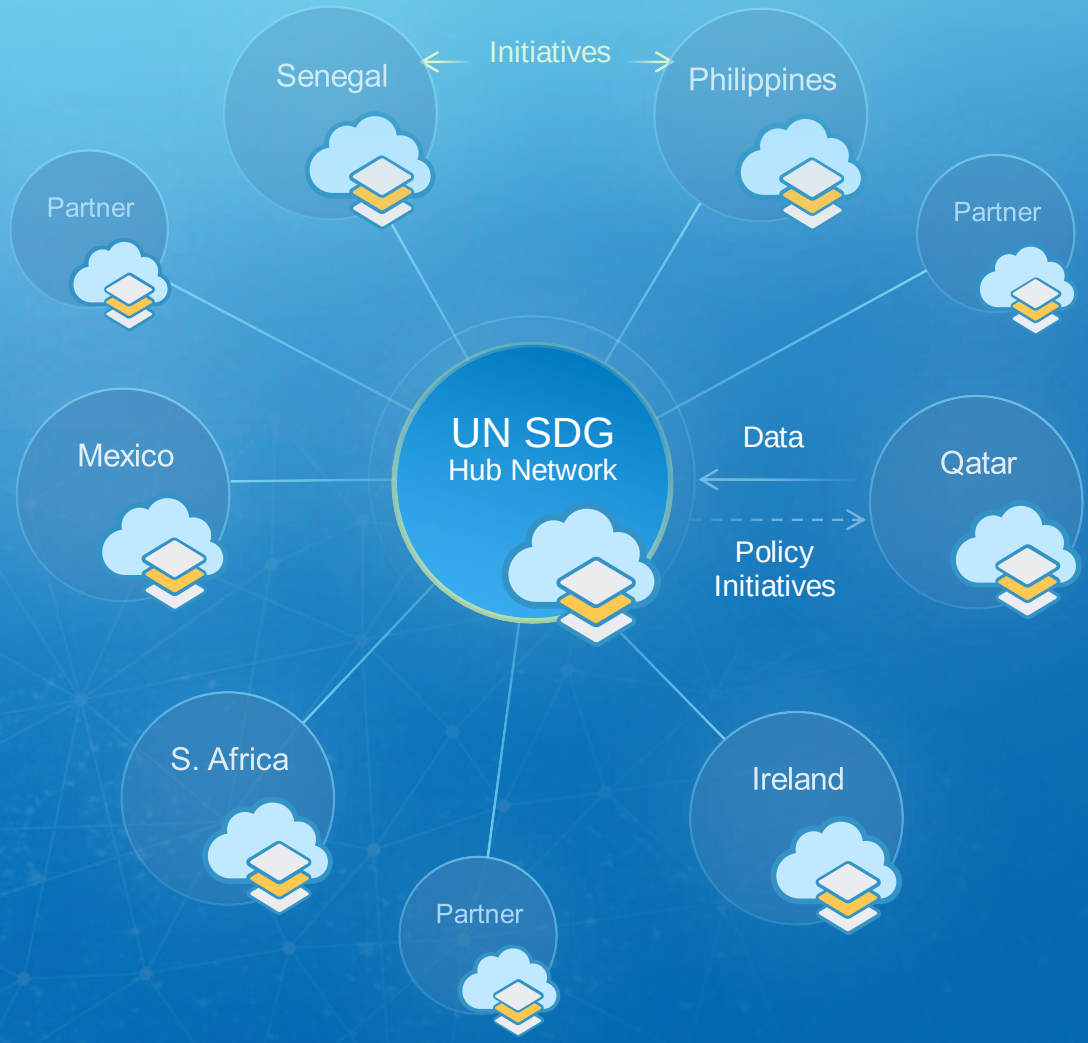
Poverty at Provincial Level

This includes all measure of poverty (among family and population) at the provincial level for the years 2006, 2009, 2012, and 2015. These are Poverty Incidence and Magnitude, Poverty and Food Thresholds, Poverty Gap, Income Gap, and Extent of Poverty. These data were derived from the result of their corresponding Family Income and Expenditure Survey. Map Displays at Scale: 1:100 to 1:6,000,000

Source http://mapstat-psa.opendata.arcgis.com/datasets/poverty-at-provincial-level

Web GIS Has Enabled a Global SDG Hub

- A UN Network
  (Initiatives, Templates and National Data)



. . . and a Network of National SDG Hubs

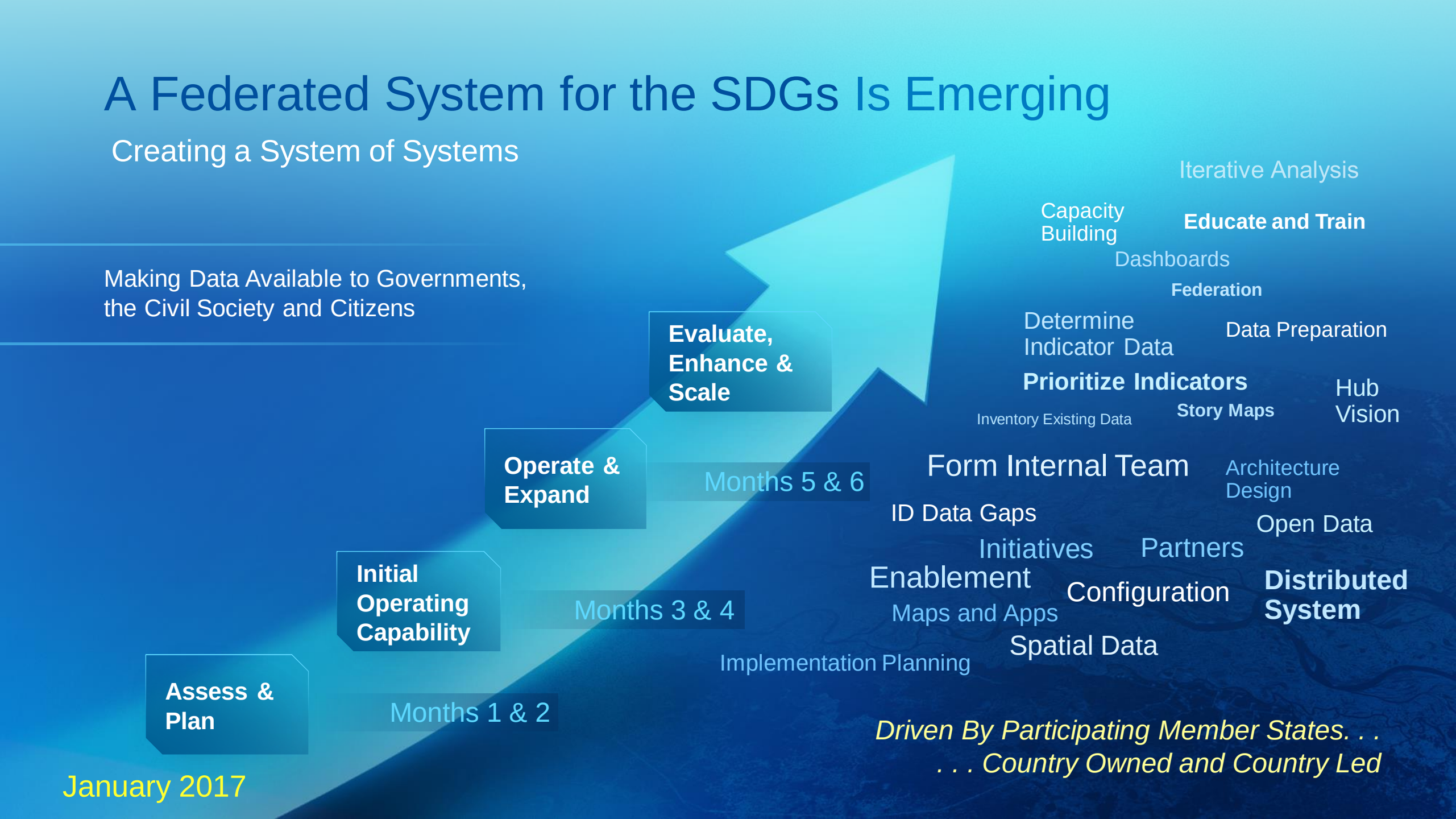
Supporting National and Partner Initiatives

….Open for everyone, an inclusive and enabling environment

A Federated System for the SDGs Is Emerging

Creating a System of Systems

Making Data Available to Governments, the Civil Society and Citizens



Driven By Participating Member States. . .
. . . Country Owned and Country Led

January 2017

Humans Are More Capable Than Ever

. . . of Sharing and Applying Geographic Knowledge

. . . of Understanding

and Acting

Technology Is Not Enough. . .

- Tech-Savvy Leadership
- Understanding What's Needed
- Data-Driven Culture
- Collaboration Across Departments
- Willingness to Learn
- Citizen andPrivate Sector Engagement

…Good People / Good Attitude / Good Relationships

The pieces are fitting into place…

Technology

Process

People

…Creating a Platform for Managing our Future